

**DESIGNING THE FUTURE: CONSTRUCTION OF  
“FUTURE REALITY” THROUGH PRODUCTION  
DESIGN IN SCIENCE FICTION FILMS**

**M.Sc. Thesis by  
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**JANUARY 2006**

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**Date of submission : 19 December 2005**

**Date of defence examination : 31 January 2006**

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**JANUARY 2006**

**İSTANBUL TEKNİK ÜNİVERSİTESİ ★ FEN BİLİMLERİ ENSTİTÜSÜ**

**GELECEĞİ TASARLAMAK: BİLİMKURGU  
FİMLERİNDEKİ PRODÜKSİYON TASARIMI  
ARACILIĞIYLA “GELECEĞİN GERÇEKLIĞİ”NİN  
OLUŞTURULMASI**

**YÜKSEK LİSANS TEZİ**

**Endüstri Ürünleri Tasarımcısı E. Hürsu Öke**

**(502021556)**

**Tezin Enstitüye Verildiği Tarih : 19 Aralık 2005**

**Tezin Savunulduğu Tarih : 31 Ocak 2006**

**Tez Danışmanı : Prof.Dr. Nigan BAYAZIT**

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**OCAK 2006**

I dedicate this thesis to Prof. Dr. Nigan Bayazit, who has illuminated my path not only during this study, but throughout my whole under-graduate and graduate design education, thus, encouraging me to become a better designer, as well as a better individual.

January, 2006

E. Hürsu ÖKE

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## ABBREVIATIONS

<b>2D</b>	: Two Dimensional
<b>3D</b>	: Three Dimensional
<b>A.I.</b>	: Artificial Intelligence
<b>AMPS</b>	: Advanced Mobile Phone System
<b>BTTF</b>	: Back to the Future
<b>CDMA</b>	: Code Division Multiple Access
<b>CG</b>	: Computer Generated
<b>CGI</b>	: Computer Generated Imagery
<b>CYBORG</b>	: Cybernetic Organism
<b>DNA</b>	: Deoxyribonucleic Acid
<b>EPD</b>	: Electronic Display Paper
<b>EVA</b>	: Extra Vehicular Activity
<b>FLAG</b>	: Foundation for Law and Government
<b>GPS</b>	: Global Positioning System
<b>HAL</b>	: Heuristic ALgorithmic Computer
<b>ILM</b>	: Industrial Light and Magic
<b>ISS</b>	: International Space Station
<b>KARR</b>	: Knight Automated Roving Robot
<b>KITT</b>	: Knight Industries Two-Thousand
<b>LCD</b>	: Liquid Crystal Display
<b>LEM</b>	: Lunar Excursion Module
<b>LEO</b>	: Low Earth Orbit
<b>LM</b>	: Lunar Module
<b>MAGLEV</b>	: Magnetic Levitation
<b>MMI</b>	: Multi Media Interface
<b>Mph</b>	: Miles per Hour
<b>NASA</b>	: National Aeronautics and Space Administration
<b>PROP</b>	: Movie Prop, Film Prop
<b>R&amp;D</b>	: Research and Development.
<b>RPM</b>	: Rounds per Minute
<b>SAGE</b>	: Semi-Automatic Ground Environment
<b>SETI</b>	: Search for Extra Terrestrial Intelligence
<b>Sci-Fi</b>	: Science Fiction
<b>SFX</b>	: Special Effects
<b>SIG</b>	: Space Island Group
<b>USAA</b>	: United States Astronautics Agency
<b>USSS</b>	: United States Secret Service
<b>VFX</b>	: Visual Effects
<b>VIP</b>	: Very Important People
<b>VTAL</b>	: Vertical Take Off and Landing

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# **DESIGNING THE FUTURE: CONSTRUCTION OF “FUTURE REALITY” THROUGH PRODUCTION DESIGN IN SCIENCE FICTION FILMS**

## **SUMMARY**

In connection with the rapid changes influencing all aspects of life in the “Communication Age”, the concepts of “Future Reality” turn into existing products and technologies in the blink of an eye. The construction of “Future Reality” feeds on a broadband of sources in addition to the developments in science and technology.

This thesis is a research study on the contributions of the production design process in science fiction films, to the existing knowledge used for the construction of “Future Reality”.

The first chapter of the thesis is an introduction that explains the aim of the study. The second, third and fourth chapters give detailed information, obtained as a result of literature search. The findings of the literature search include the definition of related terms, a brief chronology of science fiction films, and the relation and interaction of industry with the production design process in science fiction films.

The fifth chapter is a case study, which analyses a selection of five specific films out of a larger list of proposed 20 films, which incorporate “Future Reality” elements in conceptual stages or as final products. The sixth chapter summarizes the method of the study, including the stages of analysis and a graphical representation of the method. The seventh chapter presents the findings of the case study, which are specially classified and arranged in a series of tables. The chapter also includes the explanations and discussion concerning the findings. The eighth chapter is a conclusion to the thesis, where the findings of the thesis are discussed and interpreted in order to expose “how” the science fiction films contribute to the knowledge used for the construction of “Future Reality”. As a part of the conclusion, the possible implications of the findings for future academic studies are also discussed.

# GELECEĞİ TASARLAMAK: BİLİM KURGU FİMLERİNDEKİ PRODÜKSİYON TASARIMI ARACILIĞIYLA “GELECEĞİN GERÇEKLİĞİ”NİN OLUŞTURULMASI

## ÖZET

Yaşamın her alanına yönelik değişimlerin olağanüstü bir süratle gerçekleştiği “İletişim Çağı”nda “Geleceğin Gerçekliği” kavramı da göz açıp kapayıncaya kadar güncel teknolojilere ve ürünlere dönüşmektedir. “Geleceğin Gerçekliği” kavramının oluşum süreci, bilim ve teknoloji alanlarındaki gelişmelerin yanısıra, çok farklı kaynaklardan da beslenmektedir. Bu tez çalışması, bilimkurgu filmlerindeki prodüksiyon tasarım sürecinin, “Geleceğin Gerçekliği” kavramının oluşturulmasında kullanılan bilgi birikimine katkılarını incelemektedir.

Tezin ilk bölümü, çalışmanın amacını anlatan bir giriş niteliğindedir. İkinci, üçüncü ve dördüncü bölümler literatür araştırması sonucu elde edilmiş detaylı bulguları kapsamaktadır. Bu bulgular; çalışmanın konusuyla ilgili özel terimleri, bilimkurgu filmleri kronolojisini, ve son olarak endüstrinin bilimkurgu filmlerinin prodüksiyon tasarım süreciyle olan ilişkisini ve etkileşimini içermektedir. Çalışmanın beşinci bölümü, 20 filmde oluşan bir ön liste içinden özel kriterlerle seçilen beş adet filmin detaylı analizinin yapıldığı bir örnek olay incelemesidir. Analizi yapılan filmler, kavramsal tasarım aşamasında veya ürün düzeyinde “Geleceğin Gerçekliği” kavramına dair unsurlar içermektedir.

Çalışmanın metodunun anlatıldığı altıncı bölüm, yapılan örnek olay incelemesinde kullanılan analizin evrelerini ve kullanılan metodun grafik anlatımını içermektedir. Örnek olay incelemesinin bulgularının sunulduğu yedinci bölümde, bulgular özel olarak sınıflandırılıp bir dizi tablo halinde düzenlenmiş, ve detaylı olarak incelenip tartışılmıştır. Yapılan araştırmanın sonucu niteliğindeki sekizinci bölüm, örnek olay incelemesinde elde edilen bulguların tartışılıp yorumlanmasıyla, bilimkurgu filmlerindeki prodüksiyon tasarım sürecinin, “Geleceğin Gerçekliği” kavramının oluşturulmasında kullanılan bilgi birikimine ne şekilde bir katkı yaptıklarının irdelenmesini içermektedir. Yapılan araştırma sonucunda elde edilen bulgular değerlendirilerek, bu bulgular ışığında gelecekte yapılabilecek akademik çalışmalar da, tezin sonucu niteliğindeki bu bölümde tartışılmıştır.

## 1. INTRODUCTION

In the 21st century, which is referred to as “Communication Age”, the defining lines between the “real world” and “science fiction” are thinner than ever. Due to the rapid developments in all fields of science and technology, the so-called “utopias” of yesterday, have turned into products in consumer markets of today. Further advances in wireless communication technologies and Internet, have provided a much easier and faster distribution, sharing and accessibility of knowledge. The concept of “Future Reality” is also re-defining itself, in synchronization with the expansion of knowledge.

The construction process of the near future feeds on a wide spectrum of different sources. In some cases, this feedback comes from developments in science and technology, and in other cases, the source is a fictional projection, or simply a suggestion. These contributions are provided by governmental organisations, research and development facilities, private companies and foundations, futurists and last but not least; “arts; particularly science fiction literature and motion picture.

This thesis focuses on the contribution of science fiction films to the existing knowledge, which is used for the construction of future reality. The most distinctive feature of film constructions lie in their ability to visualize the projected reality in a very advanced level, thus, making it extremely plausible for the audience. Considering that visualization is a very powerful way of expression; it also gives the researchers more information to extrapolate on. Starting in 1990s, the advances in computer generated imagery has set a new standard in special effects, visual effects and prop/model making techniques in film production design. These improvements provided the directors more space and better control on their projects, thus giving the production design team a greater chance to visualize the ideas of the conceptual designers. Looking back at the 100 years history of science fiction films, it is possible to see the projections of those films becoming a reality of today, not only on a technological level, but also in cultural, political, economic, and social aspects of

everyday life. The films do not only provide certain products, technology, or speculative science, but they also project a detailed “user manual” for the future. Depending on the film, this user manual may include a broadband of areas, from fashion and lifestyle to social interaction and human relations; from marketing and advertising to political issues, from transportation to advanced medicine.

Production Design is; “A visual vehicle that transports the audience back or forward in time” (LoBrutto, 2002).

In some specific cases, the degree of accuracy in the projections are astonishing. The “Communicator” device, projected in “Star Trek”, is the archetype of what is now called a “mobile phone”. Considering that “Star Trek” was made in 1966, and its pre-production process had started even earlier, the film has provided such an accurate and important construction for a future reality 25 years ahead of its time. While the conceptual projections and imaginative technology in the films provide a working basis for scientific research, the more solid constructions such as product design, often become directly integrated into real life.



**Figure 1.1:** Star Trek “Communicator” (1966) and Motorola “Star Tac” (1991)

Another subject of interest is the inner-mechanics and dynamics of this “designing engine” in film production. When investigated, starting from conceptual stage to final prop/product, the process of design in film industry is, in many ways completely different from the process of industrial design and mass production. Compared to the production process of a mass manufactured product, film production design is not limited with physics laws, available production technologies, available materials, feasibility, socio-cultural, socio-economic,

religious or even political issues. The only limitations and rules are concerning the films' inner-reality of the constructed world and projected future. This fundamental difference between the two areas, is the determining element in the contribution of films to existing knowledge, for the construction of future reality.

This thesis also investigates the connection and interaction between the real world industry and motion picture industry; and particularly focuses on the production design stages of the mentioned relationship. With a marketing method called "product placement", the industry influences the contribution of production design to the existing knowledge. The effects and influences of product placement on the future production program of the related companies is another area of interest for the thesis.

Subjects such as; the process of film production design, films' design constructions and social constructions, product placement, the relationship between film products and consumer products, form the main areas of investigation for this thesis. However, this thesis is in no way intending to find evidence in order to prove the influence and impact of science fiction films on existing products; simply because there is not any quantitative or qualitative research method which would provide evidence to prove such a hypothesis. The primary objective of this thesis is to investigate "how" the science fiction films contribute to the construction of future reality. The results of the investigation, which also provide detailed information regarding the accuracy of the films' projections, can be taken as a point of reference, in order to make further predictions concerning the technological, cultural and social aspects of the near future.

## 2. DEFINITION OF TERMS

For the purpose of this thesis, it is important to define the differences between certain terms such as “Science Fiction”, “Fantasy”, (also used as “Fantasy Fiction”) “Science Fantasy”, “Speculative Fiction” and “Future Reality”. The definitions refer to both literature and film because the structures, subcultures and sub-categories of the genres have the same complexity and depth in both literature and film.

Even though science fiction is a massive genre which covers a broadband of literature and films, it has its many sub-genres and these sub-genres often overlap with other genres. As the literature and films classified under “Science Fiction” have a wide spectrum, the definition of these terms often vary depending on different film schools and countries. To be more specific, “Canadian Science Fiction” is different from “American Science Fiction” and “American Science Fiction” is different from “French Science Fiction”. Naturally, these different film schools have their own unique definitions and taxonomy of sub-genres. A sub-genre defined in “Canadian Science Fiction” can be a genre of its own in “American Science Fiction” or even not exist at all.

### 2.1. Science Fiction

In the history of literature, several early speculative writers had their own manifestos regarding their literary production which was in some ways similar to science fiction, but the term “science fiction” was first introduced to the world in the 1930s, in Hugo Gernsback’s editorial to the first issue of “Science Wonder Stories” (1929). This genre was first referred to as “**Scientifiction**” by Gernsback himself in his editorial of the first issue of “Amazing Stories” (1926). The definition of “Scientifiction” is quoted below:

“By '**scientifiction**' I mean the Jules Verne, H.G. Wells and Edgar Allan Poe type of story -- a charming romance intermingled with scientific fact and prophetic vision . . . Not only do

these amazing tales make tremendously interesting reading - they are always instructive. They supply knowledge . . . in a very palatable form . . . New adventures pictured for us in the scientification of today are not at all impossible of realization tomorrow . . . Many great science stories destined to be of historical interest are still to be written . . . Posterity will point to them as having blazed a new trail, not only in literature and fiction, but progress as well” (**Gernsback, 1926**).

There is not a completely satisfactory single definition of the term “Science Fiction” up to date, mainly because the borders of this genre are not well defined, and the dividing lines between its sub-genres are often fluid. Either the definitions are too broad, including works which are clearly “Fantasy” or “Horror”, or else so narrow that it excludes much of the recognised field. A couple of selected definitions are given below, being examples of contrasting approach to what “Science fiction” is considered as. As stated earlier above, different definitions often support the various contributions of different “science fiction” schools such as the “Canadian School” (“Canadian Science Fiction”) or “American Science Fiction.

“Science Fiction is a film genre which emphasizes actual, extrapolative, or speculative science and the empirical method, interacting in a social context with the lesser emphasized, but still present transcendentalism of magic and religion, in an attempt to reconcile man with the unknown” (**Sobchack, 1963**).

“Modern science fiction is the only form of literature that consistently considers the nature of the changes that face us, the possible consequences, and the possible solutions” (**Asimov, 1952**).

“Science fiction reflects scientific thought; a fiction of things-to-come based on things-on-hand” (**Appel, 1969**).

Science fiction is indicated by the abbreviations “Sci-Fi”, “sci-fi”, “SF” or “sf”.

As different film schools have their own taxonomy of sub-genres, it is not possible to define a single sub-genre structure which works for all definitions of science fiction, therefore, some of the most popular sub-genres and themes are listed below:

- Hard Science Fiction
- Soft Science Fiction
- Future Fiction
- Retro Futurism
- Space Fiction
- Space Opera
- Utopian and Dystopian Fiction
- Cyberpunk
- Time Travel
- Extraterrestrial Life
- Comic Science Fiction
- Artificial Intelligence
- Apocalyptic and Post-Apocalyptic Science Fiction
- Robots and Androids
- Retro Futurism

## **2.2. Fantasy (Fantasy Fiction)**

In theory, Fantasy Fiction films are films with fantastic themes, usually the story taking place in non-existent worlds, involving magic and other phenomena which are believed to be impossible such as talking animals or trees, wizards, immortals, magical artefacts etc. In a very broad sense, it is possible to define the term “Fantasy” as: things that aren’t scientifically possible. “Fantasy Fiction” has its many sub-genres which are classified and defined in various ways by different schools. The most well-known sub-genres are listed below:

- High Fantasy
- Sword and Sorcery
- Saga, Myth & Legend (also defined as Epic Fantasy)
- Humorous Fantasy
- Contemporary Fantasy
- Fairy tales

It would not be an exaggerated statement to say that almost all content of the sub-genre “High Fantasy” has evolved and been influenced completely from the work of J.R.R. Tolkien. A good example of Contemporary Fantasy, where the magical phenomena is used in the real world would be the late “Harry Potter” series. One of the most well known and loved examples of Fantasy Fiction is surely the “Wizard of Oz”. The Fairy Tale sub-genre obviously covers all the classics such as “Snow White and the Seven Dwarves”, “Cinderella” and “Peter Pan”.

### **2.3. Science Fantasy**

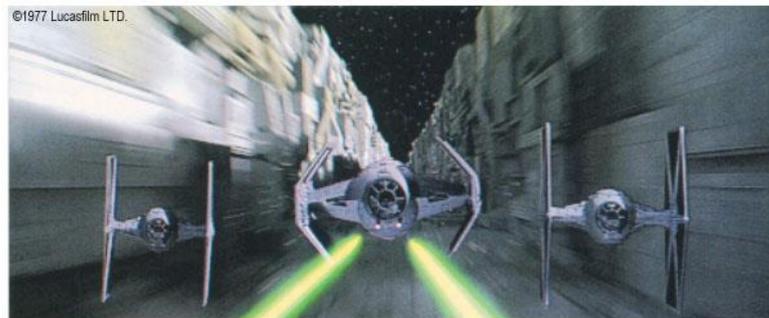
Even though some schools classify Science Fantasy as a sub genre of science fiction, It is usually defined as a separate genre, which is composed of the merging of “Science Fiction” and “Fantasy Fiction”. “Science Fiction” is attempting to predict the effects of imagined science and technology upon societies and/or individuals. The setup of technology and science is almost always based on facts, whether imaginative or real. On the other hand, in “Fantasy Fiction”, the setup is based on supernatural phenomena which is believed to be impossible. However, in some cases, these two different approaches are merged together successfully. The third law of “Arthur C. Clarke’s Three Laws” states that “any sufficiently advanced technology is indistinguishable from magic” **Clarke (1973)**; a statement which can be considered true especially for the Science Fantasy genre (**Wikipedia**).

## Breakdown of “Star Wars” in terms of Science Fantasy

The most successful and well-known example of this genre is undoubtedly “Star Wars”.

In Star Wars, it is possible to see the perfect combination of imaginative technology and scientific facts in contrast with supernatural phenomena and magic. Star Wars expanded universe contains numerous spaceships, vehicles, robots, and other artefacts which are based on imaginative technology and even existing science facts. These examples of speculative science vary from spaceships that travel using light-speed engines to ion cannons, lightsabers and robots which are fluent over six million forms of communication, working as “protocol droids”.

In Star Wars expanded universe, the Imperial Fleet’s core group of small tactical and attack spaceships are called the “TIE” fighters, interceptors and bombers. The term “TIE” is an acronym for “Twin Ion Engines”. Even though most of the technology that exists in Star Wars universe is speculative, the “TIE” technology actually exists in real world.



**Figure 2.1:** Two “TIE” fighters of the Imperial Fleet, escorting a “TIE” advanced fighter

“Also called electric propulsion because of its dependence on electricity from solar or nuclear power systems, ion propulsion has been around since the 1950s. Dr. Harold Kaufman, an engineer at Glenn (formerly Lewis) built the first ion engine in 1959. Ion propulsion uses electricity to produce plasma from xenon gas - the same gas found in photo flash bulbs. Ions from the plasma are extracted and then accelerated at extremely high speeds. In space, as the xenon ion beam rushes from the thruster, it propels the spacecraft in the opposite direction, leaving a trail of blue light behind it. Many of the spacecraft in "Star Wars: Episode III" have the same blue glow coming from their engines.

NASA's Deep Space 1, which launched in 1998, was the first spacecraft to use an ion engine as its primary propulsion. Powered by the Sun, Deep Space 1 could hardly keep up with a TIE fighter. Though NASA is working to increase the size of ion engines for future space exploration, matching the Empire's fleet would require major advances in power generation. Deep Space 1 rendezvoused with a distant asteroid and then with a comet, proving that ion propulsion could be used for interplanetary travel" (NASA).

As opposed to the speculative science and technology constructed in Star Wars, there is a supernatural phenomena called the "Force" which is described by one of the main characters of the film "Obi-Wan Kenobi" (performed by Sir Alec Guinness): "Force is an energy field created by all living things. It surrounds us, penetrates us and binds the galaxy together" (Star Wars).

In the Star Wars expanded universe, there are two aspects of the "Force": the "Light Side" and "Dark Side". The light side of the force is the part of that energy field aligned with good, benevolence, generosity, healing and respect for all living things. The dark side of the force is the element of fear, hatred, aggression and destruction. The order of people/creatures who practise the light side of the force are called "Jedi" and the order of people/creatures who practise the dark side of the force are called "Sith". The Jedi and Sith are trained and taught to use and manipulate this energy field to perform and create supernatural phenomena and powers such as moving things without touching them (telekinesis), deflecting deadly laser beams, influencing and controlling other living creatures' minds and brains.

Although fictional, this defined energy field; "force" has many similarities to existing metaphysical and religious principles. The concept of an energy field which is created by all living things, which surrounds and penetrates all entities, and universe itself, as a single entity is very similar to the description of "Qi" (spelled "Ki" in Japanese and "Chi" in Chinese) in India and far eastern religions and disciplines. It is important to note that in almost all of the martial arts such as "Aikido", "Tai Chi Chuan" or "Qi Gong", the maintenance and use of "Qi" is the most important and difficult part of the training. This concept is very parallel to the training of Jedi and Sith in order to learn how to manipulate and use the force.



**Figure 2.2:** Mark Hamill, as “Luke Skywalker”, a Jedi, training with a lightsaber, learning to use the “force”

The idea of two opposite forces in balance; The light side of the Force and the dark side of the Force is very similar to the concept of “Yin and Yang” in Taoist Philosophy, especially when considered the fact that these two forces have to stay in balance for the continuity of the existence of the universe itself.

As briefly described above, the successful combination of speculative science and progressive technology as opposed to the supernatural phenomena forms the most famous example of Science Fantasy up to date; the Star Wars Universe.

#### **2.4. Speculative Fiction**

As stated earlier throughout the definitions of previous genres, there is considerable amount of overlapping between genres and their sub-genres in Fiction. These cross-genres and overlaps happen between Science Fiction, Fantasy-Fiction and Horror in both literature and film.

The film “Alien” (1979) is considered both “Horror” and “Science Fiction” where as Star Wars (1977) is considered both “Science fiction” and “Fantasy”. Frankenstein (1931) has elements of Science fiction, fantasy and horror. Chronicles of Riddick (2004) has quasi-magical elements such as necromancy and elementalism. Finally, the last but not the least “Matrix Trilogy” (1999, 2003, 2003) has elements of science fiction, fantasy, theology, philosophy and ontology.

All these genres have in common the type of fiction defined by the concept of “What if?”.

“Speculative Fiction” is a term used to encompass all these genres ( Science Fiction, Alternative History (Fiction), Horror and Fantasy) at once. The term is often used among writers and publishers who wish to break out what is commonly called the “Sci-Fi Ghetto”. It is used more frequently among younger fans who wish to breakdown the literary barriers between science fiction, fantasy and horror (**Wikipedia**).

## **2.5. Future Reality**

The term “Future Reality” is not only used to indicate a film or literature genre. It is used by economists, sociologists, scientists, philosophers, futurists and many other disciplines. For the purpose of this thesis, the term is defined in its relation with literature and film industry.

“Future Reality” is a type of fiction which tries to create a detailed futuristic construction based on accurate predictions of science, technology, infrastructure and even daily use products that would exist in a “not too distant” future. It also forecasts the impact of these predictions on societies and/or individuals, so it is possible to see the renderings of Future Reality on culture, life style and other social elements of the near future.

The most important feature of a future reality film is that it tries to forecast the “near future” and renders this near future with as many details as possible, so that it becomes more believable and acceptable. It is not an obligatory condition for a future reality film to include elements of science and technology and future artifacts; it can simply render the social side of a near future, focusing on human interaction, cultures/subcultures, life style and even fashion. So it is possible to see the future reality installed in a science fiction environment only in a social texture as well as the technological context.

In order to create a persuasive representation of reality, future reality films take their “frame of reference” from today; in other words existing technologies and scientific facts.

According to NASA, an interstellar travel to another star or solar system with a manned spacecraft is not possible with today’s technology; regardless of funding. Considering the life span of an ordinary human being, it would be possible only if the spacecraft moved at or near the speed of light, which makes the overall concept “science fiction” rather than “science fact”. As a result, the interstellar spaceships that wander around the galaxies in films such as “Star Wars” or “Fifth Element” (1997) would be considered as “Science Fiction” where as a manned space travel to planet Mars in the movie “Total Recall” (1990) can be considered as “Future Reality”.

It is possible to find elements of “Future Reality” in different themes and sub-genres of science fiction films such as dystopian fiction, A.I., robots and androids, post apocalyptic fiction etc.

### 3. HISTORY OF SCIENCE FICTION FILMS

Even though the appearance of science fiction films dates back to the early days of film production, for the purposes of this thesis, the chronology of the genre is very briefly illustrated, and in further chapters, detailed attention is given to the films which have either a vision of “Future Reality” or elements and partial production design related with “Future Reality”.

#### 3.1. Brief chronology of science fiction films.

In order to study the history of science fiction films, the history is broken down to decades, and major films from each decade are listed chronologically in tables, with definitions of genre, sub-genre and themes, and then the decade is roughly examined. It is important to note that this is a brief history, as a result, leaving out possibly many other examples of the genre from each decade.

##### 3.1.1. Before 1930

**Table 3.1:** Chronology of Sci-Fi films before 1930

TITLE	DATE	GENRE	SUB-GENRE / THEME
Le Voyage Dans La Lune	1902	Sci-Fi/Short Film	Voyages Extraordinaires
Twenty Thousand Leagues Under the Sea	1916	Sci-Fi/Fantasy/Adventure	Voyages Extraordinaires
Himmelskibet	1917	Sci-Fi/Fantasy	Trip to Mars
The First Men in the Moon	1919	Sci-Fi/Fantasy	Trip to the Moon
Aelita	1924	Sci-Fi/Fantasy/Adventure	Mars Adventure

The Lost World	1925	Sci-Fi/Fantasy/Adventure	Pre-Historic Creatures
Metropolis	1927	Sci-Fi/Drama/Romance	Dystopian Future
Frau im Mond	1929	Sci-Fi	Rocket Travel to Moon

The first examples of Sci-Fi films are found back in the silent film era. Those examples were short films with durations of only a couple of minutes, shot in black and white silent film technology. “Le Voyage dans la lune” (A trip to the moon) is considered as the pioneer of all science fiction films. This ‘14-minute’ innovative masterpiece was made by the French filmmaker/magician-illusionist Georges Méliès in 1902. Méliès based on the story of his film on two important pieces of literature; Jules Verne’s “De la Terre à la Lune” (From the Earth to the Moon), first published in 1865, and parts of H.G. Wells’ “The First Men in the Moon”, first published in 1901. The film consisted of 30 separate scenes, and a segment near the end of the film was animated, making it one of the first examples of animated films too (**Dirks, 1996**).

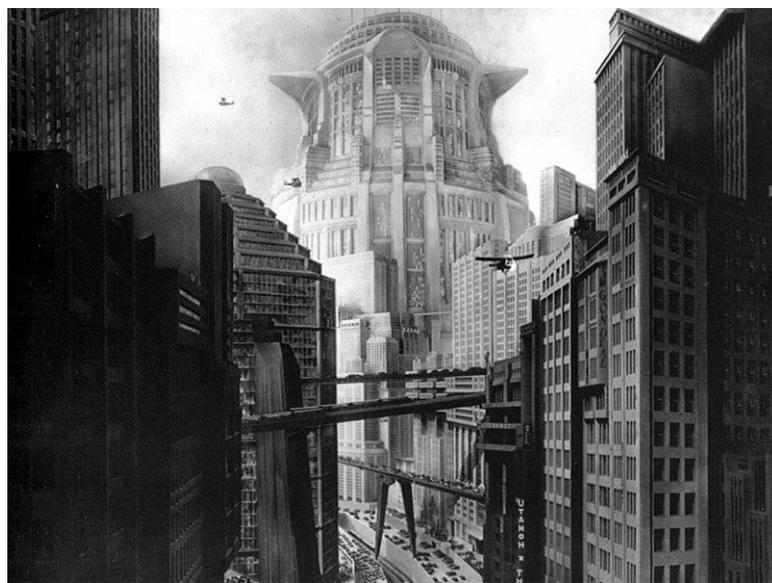


**Figure 3.1:** from “Le Voyage dans la lune” A crash landing into the eye of the Moon

Another early example, “20,000 Leagues under the sea” (1916) directed by Stuart Paton is based on the novel with the same title by Jules Verne.

After the First World War, many science fiction films projected political, social and technological criticism regarding a dark future, usually as a result of advanced technology gone mad. The most important film belonging to this era, and probably one of the most influential films in history of movie production is Fritz Lang’s “Metropolis” (1927). Regarding the concept designs, it is possible to find traces of

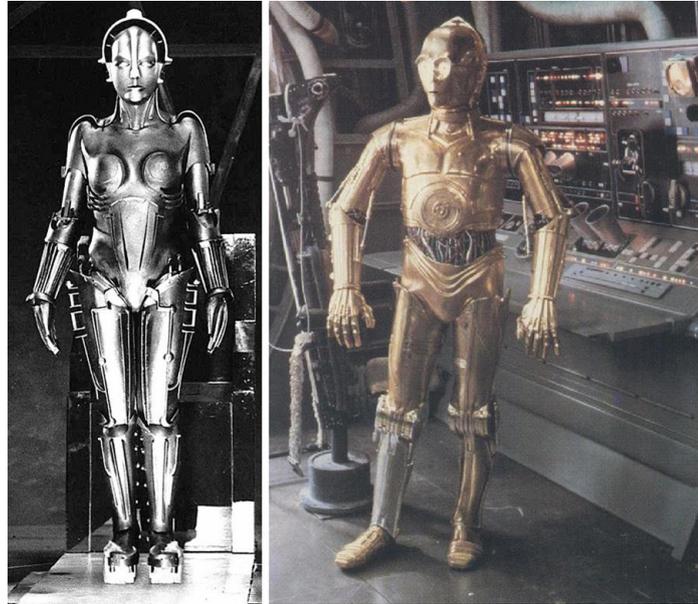
Metropolis in other dystopian films such as Blade Runner, Brazil, Dark City and Matrix. The set designs of Metropolis is considered to be influential on the future architectural studies both in real world and film production. The film is set in the year 2056, in a fictional dystopian city-state called “Metropolis”. The city was made up of huge skyscrapers in which the society is divided into two groups: The “thinkers”, who live a full luxurious life high up in the skyscrapers, and the “workers”, who live underground and provide the work power necessary to run the city. Even though the film has certain visual and thematic elements of German Expressionism, the architectural design is based on Modernism and Art Deco.



**Figure 3.2:** A view of the Metropolis cityscape and the “Tower of Babel”

There were many futuristic machines, tools and artefacts designed for the film, but most of them were not based on any scientific fact at all. However, there are also other innovative products that project a certain future reality. The governor of Metropolis has certain useful tools integrated in his office. He has a device which looks like a television, that enables him to communicate with his officers who run the factories below the city, and there are certain mechanisms built into his desk which enables him to open and close doors with remote control. The transportation system inside the city is also designed with a creative vision. There are layers of roadways with different altitudes as well as some futuristic looking monorails and air vehicles moving around the city scape. The film is also important regarding the use of one of the earliest robots in film history; a female robot called “Maschinenmensch”

(Machine Human). This particular robotics the representation of the highest technology imagined in 1920's, and its visual language has been very influential on the design various robots in sci-fi films, especially the "protocol droid C3-PO" in Star Wars.



**Figure 3.3:** Comparison of "Maschinenmensch" from Metropolis (left) and "Protocol Droid C3-PO" from Star Wars

Written and directed by Fritz Lang, "Frau im Mond" (1929) is considered one of the first serious science fiction films. The elements in the film are a mixture of accurate scientific facts, fantasy and also inaccurate guesses. The concept and fundamentals of "Rocket Travel" are introduced to mass audience for the first time in this film. "Countdown to launch of a rocket" in other words, the "Countdown to Zero" concept which is now a motion picture cliché, is first introduced in this film. Not the first in a motion picture, but the first ever, in actual history. In order to add a dramatic effect to the scene, the crew of "Friede" counts down the seconds from ten to zero, and then the rocket launches off into space. Some other accurate predictions include the use of liquid rocket fuel, a rocket with two stages and zero-gravity in space (Dirks, 1996).



**Figure 3.4:** The launch sequence of “Friede”; the rocket in “Frau im Mond”

### 3.1.2. The 1930s Era

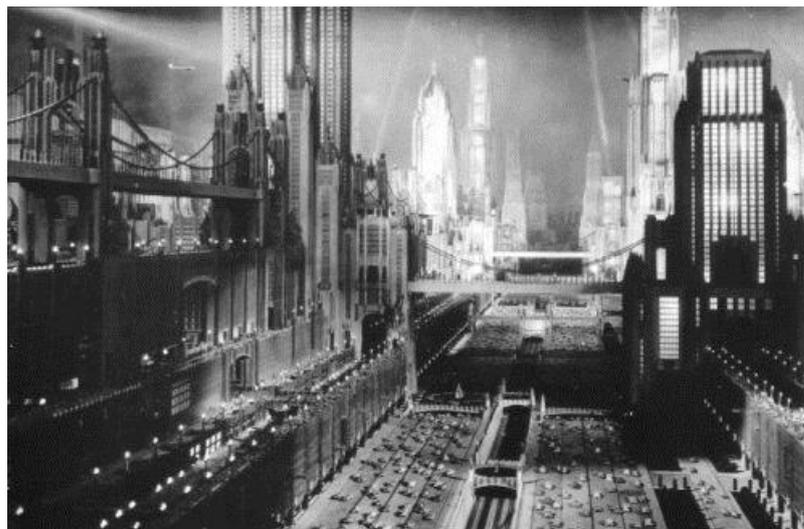
**Table 3.2:** Chronology of Sci-Fi films in 1930s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
Just Imagine	1930	Sci-Fi/Musical	Futuristic Musical
Dr. Jekyll and Mr. Hyde	1931	Sci-Fi/Horror/Drama	Science, Monsters
Frankenstein	1931	Sci-Fi/Horror/Drama	Science, Monsters
King Kong	1933	SciFi/Fantasy/Thriller/ Adventure/Action	Giant Monsters, Prehistoric Gorilla
The Invisible Man	1933	Sci-Fi/Horror/Comedy	Invisibility
Buck Rogers in the 25th Century	1934	Sci-Fi/Fantasy/Adventure/ Short Film	Space Opera
Bride of Frankenstein	1935	Sci-Fi/Horror/Drama	Science, Monsters
Flash Gordon	1936	Sci-Fi/Fantasy/Adventure	Space Opera
Things to Come	1936	Sci-Fi	Dystopian Future
Buck Rogers	1939	Sci-Fi/Fantasy/Adventure	Space Opera

In the history of motion pictures, the era which covers the 1930s and most of the 1940s decade is called “Golden age of Hollywood”. It was also a revolutionary period; regarding the developments in sound and colour technologies, films started to have soundtracks and dialogue in the 1930’s. Even though the development of “two colour” (red and green) films were achieved in the late 1920s, the invention and use of the three colour (also called full colour) camera was in early 1930s (**Dirks, 1996**).

The developments in sound technology led to one of the first examples of a musical sci-fi film called “Just Imagine” in 1930. Directed by David Butler, this musical was set in 1980 in New York where the city scape was again, influenced by Metropolis to a certain degree.

The film production design had some speculative vision regarding the use of automatic doors and videophones.



**Figure 3.5:** The image of modern city from “Just Imagine”

1931 was the year when two significant examples of horror-science fiction cross genres were produced. “Dr. Jekyll and Mr. Hyde”, directed by Rouben Mamoulian was based on the famous novel by Robert Louis Stevenson with Samuel Hoffenstein and Percy Heath’s adaptation. “Frankenstein” (1931) and the sequel film “Bride of Frankenstein” (1935) were both directed by James Whale.

Another foundation stone in Sci-fi / Fantasy / Horror cross genre; “King Kong” was produced in 1933, directed by Merian C. Cooper and Ernest B. Schoesack. Apart

from being a “classic”, King Kong was significant regarding the use of special FX in the scene of King Kong’s battle with biplanes on top of the Empire State building.

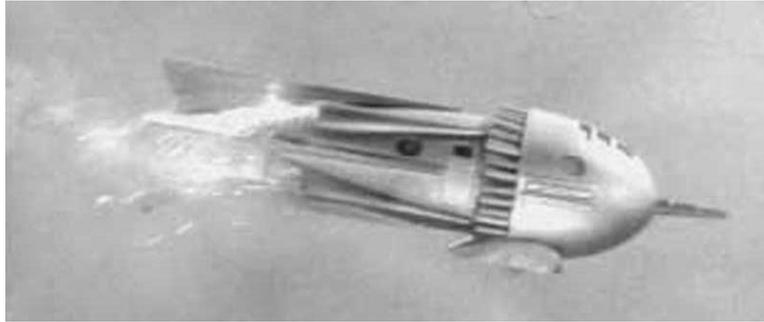


**Figure 3.6:** King Kong fighting the biplanes on top of Empire State Building

Until the 1930s, the use of SFX was not common in film production due to technological insufficiencies and funding. “Things to Come” (1938) directed by William Cameron Menzies was based on the H.G. Wells’ novel “The Shape of things to come”. The film was set in an imaginary future between the years 1940-2036 in an imaginary place called “Everytown”. This British masterpiece is another influential film, along with “King Kong” and “Metropolis” regarding the use of SFX. Christopher Frayling of the British Film Institute calls “Things to Come” “a landmark in cinematic design”. The scenes that showed the re-construction sequences of “Everytown” with the use of many fictional machines is very effective due to the use of SFX.

The 1930s era also witnessed the production of the early sci-fi serials related with space, space travel mixed with adventure such as “Flash Gordon” and “Buck Rogers” which to a certain degree inspired the creation of sci-fi blockbusters such as “Star Wars”.

The Flash Gordon serials (1936-1940) were composed of three different series of episodes titled “Flash Gordon” (1936) (also known as “Space Soldiers”) directed by Frederick Stephani, “Flash Gordon’s Trip to Mars” (1938) (also known as “Space Soldiers’ Trip to Mars”) directed by Ford Beebe and Robert F. Hill and “Flash Gordon conquers the Universe” (1940) (also known as “Space Soldiers Conquer the Universe”) directed by Ford Beebe and Ray Taylor.



**Figure 3.7:** The famous rocket ship from “Flash Gordon Conquers the Universe”

Similar in vision and content, the first “Buck Rogers” film; “Buck Rogers in the 25th Century: An Interplanetary Battle with the Tiger Men of Mars” was only ‘10 minute’ movie directed by Dr. Harlan Tarbell, and premiered in “World’s Fair” at Chicago in 1934. Later in 1939 a 12-episodes serial was shot under the title “Buck Rogers” (also known as “Buck Rogers Conquers the Universe”) directed by Ford Beebe and Saul A. Goodkind. The film saved on SFX budget by using the city scapes and background shots of the sci-fi musical “Just Imagine” (1930).

Those films had colourful imaginative elements, such as different races and cultures on different planets, swashbuckling, rocketships and various flying vehicles. The spaceships, costume designs and other film props were later either used or inspired the future films such as “Battlestar Galactica” in 1970s.

### 3.1.3. The 1940s Era

**Table 3.3:** Chronology of Sci-Fi films in 1940s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
Dr. Cyclops	1940	Sci-Fi/Horror/Adventure	Mad Scientist
The Invisible Man Returns	1940	Sci-Fi/Horror/Thriller	Invisibility
The Invisible Woman	1940	Sci-Fi/Horror/Comedy	Invisibility
The Monster and the Girl	1941	SciFi/Horror/Crime	Mad Scientist Monster Gorilla
Invisible Agent	1942	Sci-Fi/Horror/Comedy	Invisibility

As a result of the global effects of the Second World War, only a few sci-fi films were produced in 1940s, and most of them were used for war propaganda. A few notable examples would include “Dr. Cyclops” (1940) directed by Ernest B. Schoedsack, Joe May’s “The Invisible Man Returns” (1940) and A. Edward Sutherland’s “The Invisible Woman” (1940).

### 3.1.4. The 1950s Era

**Table 3.4:** Chronology of Sci-Fi films in 1950s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
Destination Moon	1950	Sci-Fi	Trip to the Moon
Rocket ship X-M	1950	Sci-Fi	Space Travel
The Day the Earth Stood Still	1951	Sci-Fi/Thriller/Drama	Alien Contact
When Worlds Collide	1951	SciFi/Thriller	End of the World
Invaders from Mars	1953	Sci-Fi/Thriller	Alien Invasion
It Came from Outer Space	1953	Sci-Fi/Thriller	Alien Thriller
The Beast from 20,000 Phatoms	1953	Sci-Fi/Horror	Prehistoric Sea Giant
The War of the Worlds	1953	Sci-Fi/Thriller/Drama	Alien Invasion
20,000 Leagues Under the Sea	1954	Sci-Fi/Adventure/Drama	Voyages Extraordinaires
Conquest of Space	1954	Sci-Fi	Mission to Mars
Gojira (Godzilla)	1954	Sci-Fi/Horror/Action	Giant Monsters
It Came from Beneath the Sea	1955	Sci-Fi/Horror	Giant Monsters
This Island Earth	1955	Sci-Fi/Fantasy	Alien Invasion
Earth vs. the Flying Saucers	1956	Sci-Fi/Fantasy	Alien Invasion
Forbidden Planet	1956	Sci-Fi/Thriller/Drama	Space Thriller

20 Million Miles to Earth	1957	Sci-Fi/Thriller	Alien Giant Monster
From the Earth to the Moon	1958	Sci-Fi	Trip to the Moon
It! The Terror from Beyond Space	1958	Sci-Fi/Horror/Thriller	Alien Thriller

After the end of Second World War, the 1950s became the “Golden Age” of science fiction films. Although the era starting with 1950 (until today) includes many sci-fi films with an increasing number every decade, for the purposes of this thesis, the chronology is briefly passed over only including the most famous, influential and innovative examples of the genre.

The increase in the science fiction literature also reflected in the quantity of science fiction films produced in the 1950s. This era is also important regarding the popularity of certain themes such as “aliens”, “alien invasion”, “mutant creatures”, “monsters” and “space travel”.

Irving Pichel’s “Destination Moon” (1950) is particularly important regarding its attempt to precisely predict an accurate technology required for a trip to the moon, including the spacesuits for astronauts, rocketships and even realisation of the lunar surface itself. This attempt won the film an Academy Award for “Best Effects, Special Effects”.

Kurt Neumann’s Rocket ship X-M (1950) is about a manned space travel to Mars.

Robert Wise’s cult classic “The Day the Earth Stood Still” (1951) is a counter revolutionary film giving an anti nuclear message about the madness of “cold war” politics. In the film, an emissary from a highly advanced extraterrestrial civilisation called “Klaatu” brings a peace ultimatum to earth, accompanied by an eight-feet tall robot called “Gort”. It is possible to refer to Gort as a prototype of the cyborg in “Terminator”. The concept of “a peaceful extraterrestrial emissary” is later seen in Steven Spielberg’s “Close Encounters of the Third Kind” (1977) and “E.T.” (1982).

Director Rudolph Maté’s “When Worlds Collide” (1951) won the Academy Award for “Best Effects, Special Effects”. In the film, a group of scientists discover the possibility of a collision between a planetoid and planet earth and they decide to design and engineer a spaceship with gigantic proportions which would be used for

the evacuation of certain selected individuals so that they would be able to start a civilisation in a different planet. This particular film inspired “Armageddon” (1998) and “Deep Impact” (1998).

In 1953, among many others, three classic sci-films were produced, all having the “alien invasion” theme: William Cameron Menzies’ “Invaders from Mars”, Jack Arnold’s “It Came from Outer Space” and director Byron Haskin’s “The War of the Worlds” based on H.G. Wells’ cult novel with the same name. “The War of the Worlds” won an Academy Award for “Best Effects, Special Effects”. Considering the fact that this film was shot in 1950s, the crescent shaped flying Martian war machines are rendered with great success in the scenes involving the Martians’ attacks to Los Angeles, making them one of the “iconic” spaceships of all time. “The War of the Worlds” later influenced blockbuster Hollywood movies such as “Independence Day”.



**Figure 3.8:** Martian War Machines attacking Los Angeles in “War of the Worlds”

The 1954 version of the film “20,000 Leagues Under the Sea”; another Jules Verne adaptation directed by Richard Fleischer won two Academy Awards; “Best Art Direction - Set Decoration, Colour” and “Best Effects, Special Effects”.

Directed by Ishirô Honda in 1954, “Gojira” (Godzilla) is the first of many Japanese “Giant Monster” movies which followed its popularity and success. “Gojira” as the Japanese natives call him, is a fire-breathing prehistoric monster which is disturbed

and awakened by the Americans' atomic bomb tests in the Pacific Ocean. The word "Gojira" is the combination of Japanese words for gorilla (gorira) and whale (kujira).



**Figure 3.9:** The original "Godzilla" from "Gojira" (1954)

"This Island Earth" (1955) directed by Joseph M. Newman is one of the earliest films to show interstellar travel.

Directed by Fred M. Wilcox, "Forbidden Planet" (1956) is a considerably expensive science fiction/thriller film which is based on the mission of a group of astronauts to investigate an old colony of settlers in a distant planet.

"It! The Terror from Beyond Space" (1958) directed by Edward L. Cahn is one of the earliest examples of horro/sci-fi cross genres which involved aliens. The plot of the film is extremely similar to the plot of "Alien" (1979) in such an extent that many sci-fi fans tend to call this film "The Original Alien".

Beginning in 1950s, producer, director and animation genius Ray Harryhausen started to use "stop motion animation" techniques in his films. His stop motion animation technique was a revolutionary approach in visual effects and special effects, and was used in many films until a new era in VFX and SFX was opened with "Star Wars" (1977) by ILM (Industrial Light and Magic). Below are Ray Harryhausen's films, listed in chronological order:

**Table 3.5:** Chronology of Ray Harryhausen's films

TITLE	DATE	GENRE	SUB-GENRE / THEME
Mighty Joe Young	1949	Fantasy/Adventure/Drama	Giant Gorilla
Hansel and Gretel	1951	Animation/Short Film	Fairy Tale
Rapunzel	1951	Animation/Short Film	Fairy Tale
The Beast from 20,000 Fathoms	1953	Sci-Fi/Horror	Prehistoric Sea Giant
The Story of King Midas	1953	Animation/Short Film	Mythology
It Came from Beneath the Sea	1955	Sci-Fi/Horror	Giant Monsters
Earth vs. the Flying Saucers	1956	Sci-Fi/Fantasy	Alien Invasion
20 Million Miles to Earth	1957	Sci-Fi/Thriller	Alien Giant Monster
The 7th Voyage of Sinbad	1958	Fantasy/Adventure/Action	Mythological Fantasy
The Three Worlds of Gulliver	1960	Sci-Fi/Thriller	Alien Invasion
Mysterious Island	1961	Sci-Fi/Thriller	Alien Thriller
Jason and the Argonauts	1963	Fantasy/Adventure/Action	Mythological Fantasy
The First Men in the Moon	1964	Sci-Fi/Adventure	Trip to the Moon
One Million Years, B.C."	1966	Sci-Fi/Fantasy	Prehistoric Adventure
The Valley of Gwangi	1969	Sci-Fi/Thriller	Prehistoric Animals
The Golden Voyage of Sinbad	1974	Fantasy/Adventure/Action	Mythological Fantasy
Sinbad and the Eye of the Tiger	1977	Fantasy/Adventure/Action	Mythological Fantasy
Clash of the Titans	1981	Fantasy/Adventure/Action	Mythological Fantasy
The Story of the Tortoise and the Hare	2002	Animation/Short Film	Tale

### 3.1.5. The 1960s Era

**Table 3.6:** Chronology of Sci-Fi films in 1960s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
The Time Machine	1960	Sci-Fi/Adventure	Time Travel
Kingu Kongu tai Gojira (King Kong Vs. Godzilla)	1962	Sci-Fi/Horror/Action	Giant Monsters
The First Men in the Moon	1964	Sci-Fi/Adventure	Trip to the Moon
Fahrenheit 451	1966	Sci-Fi/Drama	Dystopian Future
Fantastic Voyage	1966	Sci-Fi/Adventure	Miniaturization
Star Trek “The Original Series”	1966	Sci-Fi/Adventure/ TV Series	Interstellar Travel Space Adventure
2001: A Space Oyssey	1968	Sci-Fi	A.I. Surrealism Transcendentalism
Planet of the Apes	1968	Sci-Fi/Fantasy/Adventure	Man vs. Evolution Dystopia
Doppelgänger	1969	Sci-Fi	Mission to Sun

The 1960s include some of the most important and influential science fiction films of the motion picture history. The era opens with a very important cult science fiction classic; “The Time Machine”(1960); another H.G. Wells adaptation directed by George Pal. The film is set as a series of flashback events, the narrator being himself, around a scientist who invents a time machine and travels in time. In the year A.D. 802,701 he encounters a dystopian future, where human race has diverged into two species: The “Eloi” who are peaceful humans who live a very simple life in harmony, without any work or social hierarchy, and the “Morlocks” a race of cannibal humanoids who live underground and feed on the “Eloi”. The film won an Academy Award for “Best Effects, Special Effects” with the unique design of time machine itself and the scenes involving the time travel sequences.

Being extremely popular and successful in Japan and all around the world, many sequel films were made after “Gojira” (1954). Directed by Ishirô Honda, one of the

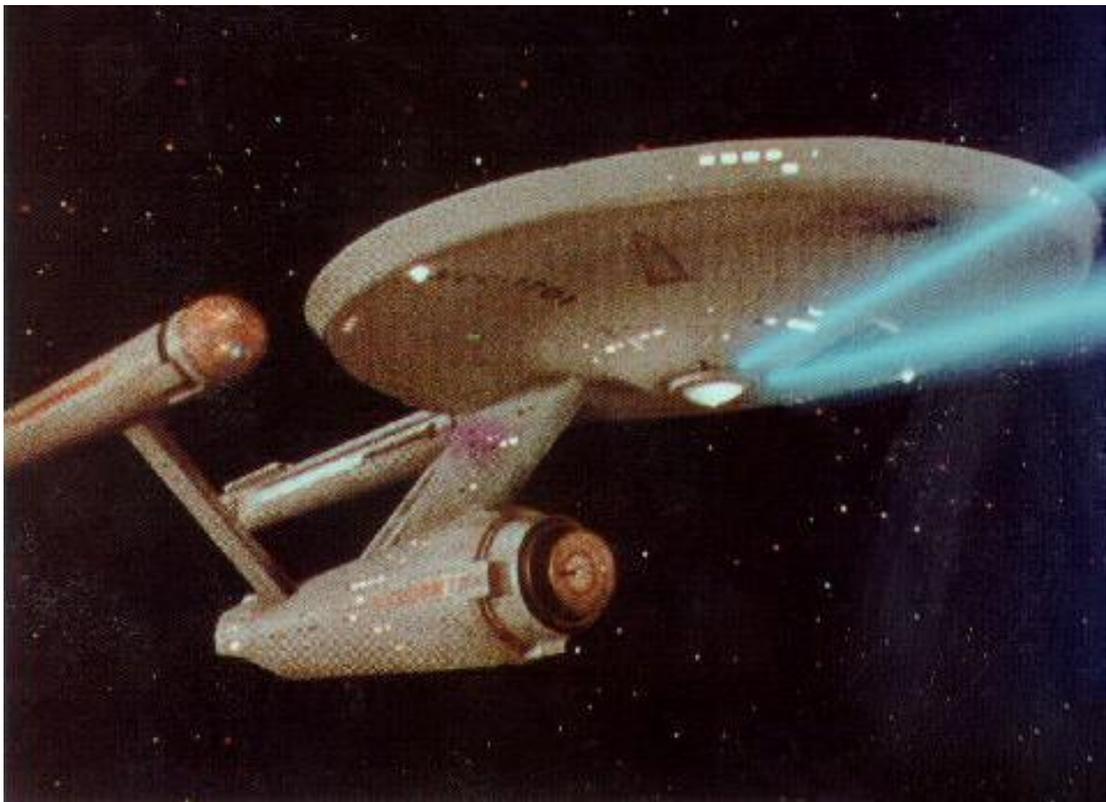
most well known sequels for “Gojira” is “Kingukongu tai Gojira” ( King Kong Vs. Godzilla) (1962) sets an epic battle between the most terrifying two monsters of motion picture history.

Directed by Nathan Juran and produced by Ray Harryhausen, “First Men in the Moon” (1964) is an interpretation of the 1919 movie with the same name, based on H.G. Wells’s novel. Ray Harryhausen’s mind blowing animated props and special effects make this film worthy of recognition.

The movie adaptation of Ray Bradburry’s novel “Fahrenheit 451” (1966) is set in a dystopian future where books are banned and firemen are government officials whose jobs are to burn books. The film projected very strong social criticism and political propaganda against censorship, the suppression of critical thought and the incidents which were related to burning of books in Nazi Germany. Another important feature of the movie is its successful predictions regarding the future related with both certain products and social texture.

Same year, another very interesting science fiction movie was produced. Directed by Richard Fleischer; “Fantastic Voyage” was unique to its time regarding its theme. In the film, USA and the Soviet Union have both developed a technology which causes the matter to be miniaturized by a special process that involved shrinking atoms for a limited time of 60 minutes. A group of scientists are miniaturized, and then sent into the body of another scientist who is in a coma state, using a submarine specially designed for the task in order to cure the blood clot in his brain. The theme of miniaturizing matter, and sending a group of people inside the living body of another human being was unique for its time, and won the film two Academy Awards; “Best Art Direction - Set Decoration, Colour” and “Best Effects, Special Visual Effects”, as well as three different awards from other motion picture organisations. Another interesting fact about “Fantastic Voyage” is concerning the relationship of its screenplay and novel. The producers proposed Isaac Asimov to write the novelisation of the film based on the screenplay. When Asimov finished the novelisation, he had also corrected certain plot holes. The novelisation was released before the film’s premiere, causing a misunderstanding about Asimov’s novel, being the inspiration of the film, where in fact the opposite was the case.

In 1966, “Star Trek” was produced, as a TV series first, later to become the most popular science fiction series of all time. In contrast with “Star Wars”, the complete setting, products, costumes and visual language was designed to be based on scientific facts to a certain degree. Apart from many innovative and unique products designed for the “Star Trek: The Original Series” (1966-1969), the visual language of spaceships are considered cult and extremely inspirational for many of the famous spaceships which were designed for latter science fiction movies. The spaceship “USS Enterprise NCC-1701” in the Original Series, became the model for all the sequel spaceships for the following Star Trek motion pictures and TV series.



**Figure 3.10:** “USS Enterprise NCC-1701” from “Star Trek: The Original Series”

Another cult classic “Planet of the Apes” was created based on the novel of Pierre Boulle, directed by Franklin J. Schaffner in 1968. The story is about three astronauts who awaken from deep hibernation and find themselves in the year 3978 A.D., in an earth-like planet which is dominated by apes who enslaved the humans. The film was such a success that four sequels followed the film as well as a TV series.



**Figure 3.11:** A famous scene from “Planet of the Apes”; Symbolising the dusk of men and dominion of apes

In 1968, Stanley Kubrick finished his groundbreaking masterpiece; “2001: A Space Odyssey” which is considered by many as the best example of the whole genre, or in other words “The” science fiction movie. The film’s screenplay is based on a short story titled “The Sentinel” by the acclaimed author, inventor and futurist Arthur C. Clarke. “2001: A Space Odyssey” is particularly significant to be one of the earliest films which had many accurate predictions and detailed visualisation related with space travel, life style, information technologies and many other aspects of a future reality setting. “2001: A Space Odyssey” won the Academy Award for “Best Effects, Special Visual Effects” as well as 10 more different awards from other motion picture organisations.

A detailed examination and breakdown of “2001: A Space Odyssey” is available throughout the next chapters of this thesis in relation with its projections of future reality.

Directed by Robert Parrish, “Doppelgänger” (1969) is a very interesting science fiction film concerning the failure of a spacecraft mission to the unexplored far side of the Sun. The story is about a planet which is discovered in the same orbit as Earth’s but located on the exact opposite side of the sun, making it not visible from Earth. Two astronauts are given the mission to explore the planet, but the mission ends up with a crash landing to Earth again, without any evidence or discovery.

### 3.1.6. The 1970s Era

**Table 3.7:** Chronology of Sci-Fi films in 1970s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
Beneath the Planet of the Apes	1970	Sci-Fi/Fantasy/Adventure	Man vs. Evolution Dystopia
A Clockwork Orange	1971	Sci-Fi/Thriller/Drama	Dystopian Future
Escape from the Planet of the Apes	1971	Sci-Fi/Fantasy/Adventure	Man vs. Evolution Dystopia
THX 1138	1971	Sci-Fi/Drama	Dystopian Future
Conquest of the Planet of the Apes	1972	Sci-Fi/Fantasy/Adventure	Man vs. Evolution Dystopia
Silent Running	1972	Sci-Fi/Drama	Dystopian Future
Solyaris (Solaris)	1972	Sci-Fi/Drama	Existentialism Surrealism
Battle for the Planet of the Apes	1973	Sci-Fi/Fantasy/Adventure	Man vs. Evolution Dystopia
Westworld	1973	Sci-Fi/Thriller	A.I. out of Control
Rollerball	1975	Sci-Fi/Action/Sport	Dystopian Future Future Sports
Futureworld	1976	Sci-Fi/Thriller	A.I. out of Control
Logan's Run	1976	Sci-Fi/Adventure	Post Apocalyptic Dystopian Future
Close Encounters of the Third Kind	1977	Sci-Fi/Thriller/Drama	Alien Encounter
Star Wars: Episode IV A New Hope	1977	Sci-Fi/Fantasy/Adventure	Science Fantasy Space Opera

Battlestar Galactica	1978	Sci-Fi/Fantasy/Adventure	Space Opera
Superman: The Movie	1978	Sci-Fi/Adventure	Superhero
Star Wars Holiday Special	1978	Sci-Fi/Fantasy/Adventure/ TV Film	Science Fantasy Space Opera
Alien	1979	Sci-Fi/Horror	Alien Thriller
Star Trek: The Motion Picture	1979	Sci-Fi/Adventure/ TV Series	Interstellar Travel Space Adventure

The era including 1970s and 1980s are considered very important in motion picture history regarding the revolution in technology used for special effects, visual effects, sound effects and prop/model making in film production design.

In early 1970s, it is possible to find films with themes of criticism on humanity under threat of advanced technology of his creation. Such examples would be “Silent Running” (1972, director: Douglas Trunbull) themed on ecological threats, “THX 1138” (1971, director: George Lucas) themed on criticism of surveillance, “Westworld” (1973, director: Michael Crichton) and its sequel “Futureworld” (1976, director: Richard T. Heffron) themed on advanced technology, A.I. and robotics gone mad.

George Lucas’s wrote the screenplay and directed his first feature length film “THX 1138” in 1971, which was based on his earlier student work, a ‘15-minute’ short film titled “Electronic Labyrinth THX 1138:4EB” (1970) when he was studying at the University of Southern California. The film is set in an underground future dystopia where human beings are banned from reproducing or any sexual activity, while being strictly kept under control with drugs. After quitting his compulsory drugs, the central character of the movie; “THX 1138” (performed by Robert Duvall) regains his senses of sexuality and freedom, and commits a “sex crime” with his female roommate LUH 3417 (performed by Maggie McOmie).



**Figure 3.12:** Scene from “THX 1138”

In 1971, Stanley Kubrick wrote the screenplay and directed his masterpiece dystopian film “A Clockwork Orange” based on Anthony Burgess’s novel of the same name. The story, which portrays a strong social criticism, is set in the near future, around a teenager who is frequently involved in acts of extreme violence and crime. He, then gets caught and “rehabilitated” by a program called “Aversion Therapy” which is carried out by the government in order to control the increasing crime problem of the society. As a result of the “Aversion Therapy”, he becomes completely incapable of committing acts of crime and violence, but he also loses all his senses and joy for life as a side effect of the therapy. The ability of choosing between good and bad has been taken away from him, making him almost an artificial person.

In 1972, Andrei Tarkovsky made the film “Solaris” (the exact Russian translation is actually Solyaris”) based on the cult novel by Stanislaw Lem. This ‘165 minutes’ Russian masterpiece is unique regarding its philosophical and psychological approach to science fiction. The story is about the interaction of a human with a planet which acts as a single living organism, an entity that has intelligence and self consciousness.

Directed by Norman Jewison, “Rollerball” (1975) is set in 2018, where the world is a single corporate global state. The main entertainment for the society is a game called “Rollerball” which is an extremely aggressive and violent sport in which, injuries or death are common. The most important feature of “Rollerball” is that it is a substitute for all team sports and war. Apart from being a major entertainment, Rollerball is

created in order to emphasises the futility of individuality and the importance of team itself, symbolising the individual versus society concept.

Another similar film based on a post-apocalyptic future dystopia is “Logan’s Run” (1976) by director Michael Anderson. The film is set in 2274, and slightly different from the novel, (by William F. Nolan and George Clayton Johnson, published in 1967) where the survivors of an apocalyptic war are living in a city of domes, strictly banned from any interaction with the outer world. In order to prevent over-population of the domes, the computers which control the city have designed a system where the humans are given limited life span and are forced to perform a so called “ceremony of renewal” at their 30th birthday when they are killed with a special mechanism in a chamber called the “Carousel”. “Logan’s Run” was nominated for two Academy Awards, and won a “Special Achievement Award” for Visual Effects.



**Figure 3.13:** “City of Domes” in “Logan’s Run”

1977 is a milestone in motion picture history when Steven Spielberg’s masterpiece “Close Encounters of the Third Kind” and George Lucas’s “Star Wars Episode IV: A New Hope” were made.

Spielberg’s cult classic “Close Encounters of the Third Kind” featured a peaceful communication between the human race and an intelligent and highly advanced

extraterrestrial race. The choice of the language of communication, being a musical melody that is composed of five tones in a major scale, is a very unique and strong representation of sound, being the universal language of all living things. The film is also important due to the fact that it introduced friendly and benign aliens, as opposed to the “evil alien” image that had been created during the last four decades. The film won an Academy Award for “Best Cinematography” and a “Special Achievement Award” for sound effects editing, as well as 29 nominations and 10 more awards from various motion picture organisations.



**Figure 3.14:** A scene from “Close Encounters of the Third Kind” humans meeting the extraterrestrial spaceship in a secret base inside “Devil’s Tower”, Wyoming USA

The greatest science fantasy film of the motion picture history and probably the most influential one; “Star Wars: Episode IV A New Hope” was made in 1977 although the preparations and production began way earlier in order to fulfill the expectations regarding the visual universe created by the genius mind of George Lucas. George Lucas founded Industrial Light and Magic (ILM) in 1975, where the visual effects experts, sound designers, prop/model builders, costume designers, and conceptual artists invented and improved many special techniques; including camera systems, computer generated imagery, sound design, scale modelling, animatronics and many others tailor-built to fit the star wars universe and its wide spectrum of “never seen before” elements (Smith, 1986). The result was an epic space fantasy adventure with reference to and from numberless myths, epics, political issues, religion and history. Star Wars became a “life style” from late 1970s, up to present day, having a “clan like” fan structure of the largest age range possible globally. A very interesting fact about the film is that starting with Universal Studios, almost every single studio in

Hollywood passed on the project, claiming that the story was unfathomable and not worthy of investment. Finally, 20th Century Fox offered Lucas \$10 million for the production of “A New Hope”. After the huge success, the sequels of the trilogy followed the prologue, which were at least equally successful. The film won six Academy Awards; “Best Art Direction - Set Decoration”, “Best Costume Design”, “Best Effects, Visual Effects”, “Best Film Editing”, “Best Music, Original Score” and “Best Sound”. “Star Wars” also received 28 more awards and 18 nominations on various motion picture organisations.

The Star Wars Universe effected almost every single human being on the planet, changing their clothes, life style, daily talk, jokes, and even habits. People began to spend millions of dollars on a wide spectrum of Star Wars merchandise from toys to model kits, clothing, books, glasses, pencils, accessories and many other products. Star Wars is also the pioneer of movie related merchandising on a global level. Even though a through examination of the Star Wars movies would provide hundreds of pages of information, the film is not examined in more detail in this thesis due to its irrelevancy with the construction of a future reality.



**Figure 3.15:** The very first scene, where “Darth Vader”; the most important villain of motion picture history, is introduced to the “Star Wars” audience

In 1978, the most popular superhero in the history came into being as a motion picture. “Superman” (1978, director: Richard Donner), was adapted from the DC Comics character of the same name. Superman has science fiction elements incorporated with superhuman and supernatural phenomena. The story starts in 1948,

in a distant star system, in a planet called “Krypton”. “Jor-El” (performed by Marlon Brando) who is one of the members of the council that rules the planet, foresees the possibility of the destruction of Krypton, and decides to send his son “Kal-El” to planet Earth in order to save him. After a three years journey, the spaceship lands to earth, near Kansas in a town called “Smallville”. “Kal-El” is adopted by an elderly farm couple. Kal-El grows up to become aware of his identity and superhuman powers, and realises the reason of his existence; to help the humans in order to keep the peace. Superman (performed by Christopher Reeve) works as a reporter, with the name “Clark Kent” in order to hide his real identity. The special effects for the film are very realistic compared to the low budget productions with similar themes in the past. To develop the best method of visual effects which involved the scenes of Superman in flying motion, the production designers experimented with alternatives for a long period of time. After trying useless methods such as catapulting a dummy into the air, or animating a remote control model plane painted as the character, the production designers finally innovated a combination of back projection and specially designed zoom lenses which could create the illusion of movement by zooming on Christopher Reeve while making the back projection appear to recede.



**Figure 3.16:** Christopher Reeve as “Superman”

“Superman” was nominated for three Academy Awards, and received a “Special Achievement Award for Visual Effects”. After the success of the film, two sequel

films were shot; “Superman II” (1980) (director: Richard Lester and Richard Donner” and “Superman III” (1983) (director: Richard Lester) as well as a TV series called “Smallville” (2001) which focuses on the Superman’s early years, as a teenager.

Following the success of Star Wars, films with similar concept were produced in the late 1970s. One of the most well known among those movies is “Battlestar Galactica” (1978) which was first made as a pilot film to the upcoming TV series with the same name. The story is set in a distant part of the galaxy, in a period described as “the seventh millennium of time”. Twelve different civilisations from twelve different planets have been in war against an android race called “Cylons” for over a thousand years. As a result of a diplomatic trap of Cylons, almost all fleets and battleships of the twelve colonies are annihilated. Battlestar Galactica; the only surviving out of the twelve Battlestars starts its search for the legendary thirteenth colony called “Earth” which is considered the last hope of survival of human civilisation. The TV series were also released in 1978, and was a huge success. The story, production design, and visual language of “Battlestar Galactica” carried the traces of “Star Wars” in a significant level.



**Figure 3.17:** “Colonial Viper” firing laser beams; from “Battlestar Galactica”

Even though the TV series were made back early in 1966, it took “Star Trek” to become a full length motion picture in the year 1979. The success of “Star Trek: The Motion Picture” led to nine more sequels: “Star Trek II: The Wrath of Kahn” (1982),

“Star Trek III: The Search for Spock” (1984), “Star Trek IV: The Voyage Home” (1986), “Star Trek V: The Final Frontier” (1989), “Star Trek VI: The Undiscovered Country” (1991), “Star Trek: Generations” (1994), “Star Trek: First Contact” (1996), “Star Trek: Insurrection” (1998) and “Star Trek: Nemesis” (2002). Similar to “Star Wars”, “Star Trek” also has a large merchandising structure and group of globally well organised fans.

Later to become a “quadrology”, considered as one of the best examples of science fiction/horror genre; Ridley Scott’s “Alien” was produced in 1979. The story is about the encounter of the crew of an ore refinery ship, with a predator alien race which reproduces by parasitizing its living victims, during their return journey to planet earth. Among many distinctive aspects of this film, the visual language and concept designs were entrusted to the talented hands of the conceptual artist H.R. Giger, whose trademark “biomechanics” style became so famous after the release of the movie, that it is an art style of its own today, influencing other movies such as Independence Day (1996) and Matrix Trilogy (1999, 2003, 2003) (**H.R. Giger**).



**Figure 3.18:** “Space Jockey” designed by H.R. Giger for “Alien”

Apart from designing the four stages of alien; namely the “egg stage”, “face hugger”, “chest buster” and the fully grown alien itself, Giger was also responsible for landscapes of the planetoid, the interior and exterior designs of the alien spacecraft and the “space jockey” what seems to be a dead alien soldier or pilot sitting on the operating mechanism of a large weapon-like device (**The Film Asylum**). The land vehicles and spacecraft used by the human crew are also extremely detailed and well designed, improving the reality factor of the visual language in the film. Especially

the main spaceship “Nostromo” was built compatible to the then-current NASA specifications (IMDB).

Another interesting fact about the “Alien Quadrology” is that it is the first American film series with a female hero character called “Ripley” performed by Sigourney Weaver.

The extremely realistic make up, set designs and futuristic spacecrafts won it an Academy Award for Best Effects, Visual Effects as well as 11 more awards and 18 nominations from various motion picture organisations.



**Figure 3.19:** “Alien” designed by H.R.Giger

### 3.1.7. The 1980s Era

**Table 3.8:** Chronology of Sci-Fi films in 1980s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
Battle Beyond the Stars	1980	Sci-Fi/Fantasy/Adventure	Space Adventure
Star Wars: Episode V The Empire Strikes Back	1980	Sci-Fi/Fantasy/Adventure	Science Fantasy Space Opera
Escape from New York	1981	Sci-Fi/Thriller /Adventure	Dystopian Future

Blade Runner	1982	Sci-Fi/Thriller/Drama	Dystopian Future, A.I.
E.T. the Extra Terrestrial	1982	Sci-Fi/Fantasy/Drama	Alien Encounter
Knight Rider	1982	Sci-Fi/Action/TV Series	A.I.
Star Trek II: The Wrath of Kahn	1982	Sci-Fi/Adventure	Interstellar Travel Space Adventure
Star Wars: Episode VI Return of the Jedi	1983	Sci-Fi/Fantasy/Adventure	Science Fantasy Space Opera
1984 (Nineteen Eighty-Four)	1984	Sci-Fi/Thriller/Drama/ Romance	Dystopian Future
2010: The Year We Make Contact	1984	Sci-Fi	A.I. Surrealism Transcendentalism
Dune	1984	Sci-Fi/Fantasy/Adventure	Space Adventure
Star Trek III: The Search for Spock	1984	Sci-Fi/Adventure	Interstellar Travel Space Adventure
The Terminator	1984	Sci-Fi/Thriller/Action	Dystopian Future, A.I.
Back to the Future	1985	Sci-Fi/Adventure/Comedy	Time Travel
Brazil	1985	Sci-Fi/Fantasy/Comedy	Dystopian Future
Cocoon	1985	Sci-Fi/Adventure/Comedy	Alien Encounter
Aliens (Alien II)	1986	Sci-Fi/Horror	Alien Thriller
Star Trek IV: The Voyage Home	1986	Sci-Fi/Adventure	Interstellar Travel Space Adventure
Predator	1987	Sci-Fi/Thriller/Action	Alien Thriller
Robocop	1987	Sci-Fi/Action/Crime	Cybernetic Organism
Star Trek: The Next Generation	1987	Sci-Fi/Adventure/ TV Series	Interstellar Travel Space Adventure

Akira	1988	Sci-Fi/Animation	Manga
Back to the Future II	1989	Sci-Fi/Adventure/Comedy	Time Travel
Star Trek V: The Final Frontier	1989	Sci-Fi/Adventure	Interstellar Travel Space Adventure
The Abyss	1989	Sci-Fi/Thriller/Adventure	Non-Terrestrials

As a result of Star Wars’s huge success, all the major film studios started the production of available science fiction projects, with larger budgets necessary for creating special effects, visual effects and advanced movie props, considering that this genre has become extremely popular and worthy of investment.



**Figure 3.20:** The Imperial “AT-AT” (All Terrain Armoured Transport) Walkers attacking the rebel base on Hoth. “Star Wars: Episode V The Empire Strikes Back”

The second masterpiece in “Star Wars” series, “Star Wars: Episode V The Empire Strikes Back” is directed by “Irvin Kershner” who was one of George Lucas’s instructors in college. It won an Academy Award for “Sound” and a “Special Achievement Award” for “Visual Effects” as well as twelve nominations and ten wins from various motion picture organisations.

The same year, a space-variation of Akira Kurosawa’s “7 Samurai”; (1954) “Battle Beyond the Stars” (1980) was made. Directed by Jimmy T. Murakami, the story was set in a galaxy, where a peaceful planet’s inhabitants were threatened by an aggressor tyrant commanding an indestructible space fortress, and the people of the planet recruit a band of mercenaries to fight back the Tyrant and save their planet from being overrun. Carrying on the fashion which “Star Wars” started, the visual texture

of the film was very colourful, including various different styles of spaceships, costumes, weapons and alien races.

In 1981, another cult dystopian film was made. "Escape from New York", directed by John Carpenter, was set in 1997 in New York City, where, the city itself was turned into a high security prison because of the radical crime rates. The president of USA is captured by the gangs inside the city, when his airplane; Air Force 1 crash-lands to New York. An ex soldier, and a new prisoner "Snake Plissken" is offered the task of saving the president in return for an official "full pardon". Because of the realistic story and set designs, it became very popular and a sequel was made in 1996 titled "Escape from Los Angeles" directed by John Carpenter again.

Probably the most popular "car hero" of the motion picture history was created as a TV series in 1982. Created by Glen A. Larson, "Knight Rider" is set around an ex undercover police officer who fights the crime, working for a special organisation called the "FLAG" (Foundation for Law and Government), which is the private crime fighting branch of the "Knight Foundation". During his missions, the hero; Michael Knight (performed by David Hasselhoff) is accompanied by a "one of a kind" virtually indestructible car with an advanced A.I., called "KITT" (Knight Industries Two Thousand). Being even more popular than its driver, KITT possesses many unique features, weapons and special abilities such as talking, auto pilot, "Turbo Boost" (for jumping) and remote control and communication with the driver via a comlink. After its immediate success, "Knight Rider" inspired many movies with "high technology crime fighter vehicles" such as "Blue Thunder" (1983), "Airwolf" (1984) and "Streethawk" (1985).

In 1982, two very important cult movies in the motion picture history were made: Steven Spielberg's "E.T." (the Extra-Terrestrial) immediately became a huge success, portraying a peaceful, friendly and gentle alien encounter for the second time, following "Close Encounters of the Third Kind" (1977). The film was loved by a large audience formed of not only adults of all ages, but also children, regarding the fact that almost all of the main characters including "E.T." himself were infants. The film won four Academy Awards; "Best Effects, Sound Effects Editing", "Best Effects, Visual Effects", "Best Music, Original Score" and "Best Sound" as well as a

huge 36 different awards and 27 nominations from various motion picture organisations.



**Figure 3.21:** E.T. the Extraterrestrial

The second cult-classic of 1982 was directed by Ridley Scott, based on the novel adaptation of Philip K. Dick's "Do Androids Dream of Electric Sheep?". After its premiere, "Blade Runner" became the ultimate influence and inspiration for all of the dystopian films which followed it in chronological order. "Blade Runner"'s story, extremely realistic production design and set designs have been a subject for architectural textbooks as well as social studies and futurists. The movie has also caused much discussion on a philosophical basis, due to its nature of questioning the creation and artificial intelligence with the portrayal and behaviour analysis of "Replicants"; genetically engineered beings identical to humans who were manufactured with the motto "more human than human".

In 1984, Peter Hyams directed "2010: The Year We Make Contact"; the sequel for Stanley Kubrick's "2001: A Space Odyssey" (1968) based on the novel by Arthur C. Clarke. Despite the fact that the film was a continuation of the story in "2001: A Space Odyssey", it did not produce the expected effect.

Same year, David Lynch created his cult science fiction/fantasy masterpiece "Dune" (1984) based on Frank Herbert's same titled novel. Set in the year 10191, the story takes place around a desolate planet called "Dune" which is the only source for

harvesting “Spice Melange”; a spice which is vital for the continuation of life and interstellar travel in the universe. This film is one of the most successful combinations of science fiction elements integrated with fantasy elements and mystical phenomena. After the success of the movie, a TV mini-series were produced in 2000 with the title “Frank Herbert’s Dune” directed by John Harrison, which was in most ways more faithful to the original storyline and details in Frank Herbert’s novel.

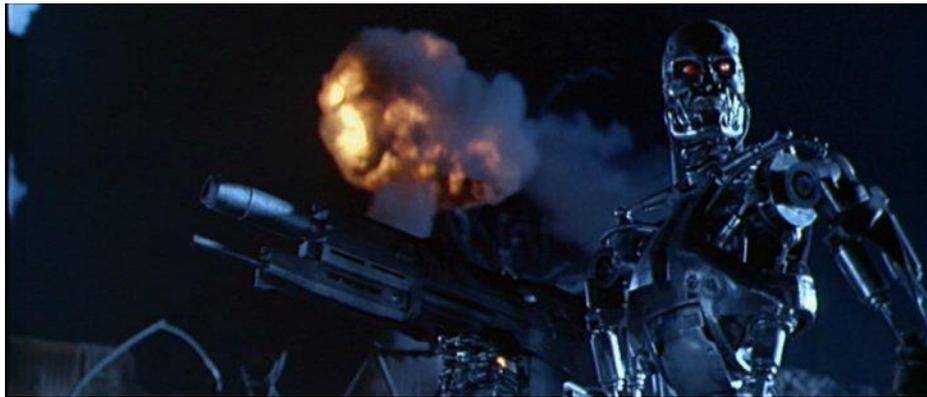


**Figure 3.22:** A “Navigator” and guards from “Dune”

Carrying on the same philosophical and political approach with “Fahrenheit 451” (1966) and “THX 1138” (1971), “Nineteen Eighty-Four” (also known as 1984) (1984) was directed by Michael Radford, based on George Orwell’s cult novel with the same title. The story takes place in a future dystopia where humans are living under permanent surveillance of “Big Brother”; a dictator in a totalitarian state. The interaction between people is limited and “independent thought” is restricted.

Another blockbuster cult dystopia “Terminator” was made in 1984, co-written and directed by James Cameron. In the year 2029, the dominant powers on earth decide to send a “cybernetic organism” (also used as cyborg) from the future to the past, to accomplish a special mission in order to change the future. This cyborg is engineered as a metal robotic endoskeleton covered with living tissue, with an extremely advanced artificial intelligence level, and looking exactly like a human. The make up

and special effects on this cyborg; “Cyberdyne Systems Model 101 800 Series Terminator” are very realistic as well as the set designs and weapons - vehicles that are seen in the scenes showing the world in 2029. The movie incorporates many different themes and elements in a well designed production such as “time travel”, “advanced technology gone mad”, “artificial intelligence” and “robots - cybernatic organisms”. After its huge success, two sequels were made; “Terminator 2: Judgment Day” (1991) and “Terminator 3: Rise of the Machines” (2003).



**Figure 3.23:** Cyberdene Systems Model 101 Series 800 “Terminator”

“Back to the Future” (1985) was co-written and directed by Robert Zemeckis, being the first film of a trilogy. “Back to the Future” is a Science Fiction adventure about a teenager and a scientist who turns a De Lorean car into a time machine with lots of humorous elements merged into the film. The film won an Academy Award for “Best Effects, Sound Effects Editing”.

Directed by Ron Howard, “Cocoon” (1985) is about a group of aliens called “Antereans”, who return back to earth after 10,000 years, in order to take back the remaining cocoons of their race to their home planet. The film won two Academy Awards; “Best Actor in a Supporting Role” and “Best Effects, Visual Effects”.

Considered by many as the best work of Terry Gilliam, “Brazil” was made in 1985; a dystopian black comedy film with a unique retro-futuristic visual language and abstract multi-layered screenplay. It is a story which is set sometime in the 20th century in an almost post-apocalyptic place, where the state is overrun by bureaucracy and all services of the state are fighting against the enemies who they label as “terrorists”. The main character of the film; Sam Lowry (performed by

Jonathan Pryce) is a low-level bureaucrat who, by a chain of systematically unlucky coincidences, becomes a terrorist in the eyes of the state at the end of the film. During the movie, it is never made certain where and when exactly the story takes place, but the created reality is similar to the social structure in “Nineteen Eighty-Four” (1984) where the society is totally controlled by the state, there is a constant surveillance and restriction of independent thought. Even though we are meant to know that the story takes place in the future, the visual language is extremely retro-futuristic; the mechanisms and daily used products are rendered in a very primitive and funny style. Also, the time-event-reality chain is extremely unstable, it is sometimes impossible to understand whether a visualisation seen in a scene is a fantasy of Sam Lowry or actually a reality in the film’s plot.



**Figure 3.24:** A scene portraying the fantasy world of Sam Lowry, from “Brazil”

The sequel film for “Alien”; “Aliens” (also known as “Alien II”) was made in 1986, directed by James Cameron. “Aliens” was also as successful as its predecessor, winning two Academy Awards; “Best Effects, Sound Effects Editing” and “Best Effects, Visual Effects”.

Directed by John McTiernan, “Predator” (1987) sets a story similar to “Alien” (1979) ; the encounter of a group of soldiers with a fierce alien species, a hunter who comes to Earth for a safari, in order to hunt down and collect other species. Together with the original creature design, weapons and successful make up, the special effects concerning the Predator’s active camouflage abilities were displayed in a very

impressive way and Predator became a cult alien starting from the 1980, followed by a sequel movie “Predator 2” in 1990.

“Robocop” (1987) was directed by Peter Verheugen. It is a film set in the near future, where the city of Detroit is suffering heavily from the high crime activities which are out of control. The Detroit Police Department is privatised, and they develop a project to design and engineer a special police unit called “Robocop” in order to fight the crime more efficiently. Police officer Alexander John Murphy (performed by Peter Weller) becomes an instant candidate for the project when he gets a terminal injury while on duty. He is then operated and modified into “Robocop” a cybernetic organism with special weapons and systems integrated inside his body. The concept of “Robocop” is slightly different from the cyborg concept in other movies, because in this particular case, Robocop is not manufactured as a cyborg, he is a normal human being who is later on modified into a cyborg. Due to the film’s success, two sequel films and a TV series were produced in the following years. “Robocop” received an Academy Award; “Special Achievement Award for Sound Effects Editing”.



**Figure 3.25:** “Robocop” (1987)

The second movie in “Back to the Future Trilogy” was made in 1989, directed by Robert Zemeckis again, with a retro-futuristic visual language, and different suggestions regarding the future life, fashion, food&beverage and transportation.

Even though the production of science fiction animations increased considerably in 1980s, it would take another decade for animations to become a popular medium for

science fiction genre, thus, the most important pioneers of this medium such as “Ghost in the Shell” (1995) were produced in 1990s, as a result of an already existing animation culture and its subcultures in literature, comic books, cartoons and merchandise in Japanese traditional culture as well as the pop culture. With its \$10 million production budget, director Katsuhiro Otomo’s “Akira” (1988) is one of the important examples of the sub-genre today.

The 1980s era ended with a cult masterpiece, one of the remarkable examples of the genre, titled “The Abyss”, which is written and directed by James Cameron. The production design set very high standards for advanced visual effects, and won an Academy Award for “Best Effects, Visual Effects” as well as three more wins and 12 nominations from various motion picture organisations. The story is about the encounter of a group of experimental underwater oil platform workers and a peaceful non terrestrial intelligent species living in the depths of the sea. In contrast with the common approach, the non terrestrial species save the lives of the humans, and give a universal peace message at the end of the movie. A particular scene, showing a pseudopod using the water to imitate and mimic the human face in order to communicate with the divers, is worthy of recognition regarding its visual effects which were created by ILM.



**Figure 3.26:** A pseudopod mimics the human face, from “Abyss”

### 3.1.8. The 1990s Era

**Table 3.9:** Chronology of Sci-Fi films in 1990s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
Back to the Future III	1990	Sci-Fi/Adventure/Comedy	Time Travel
Predator 2	1990	Sci-Fi/Thriller/Action	Alien Thriller
Robocop 2	1990	Sci-Fi/Action/Crime	Cybernetic Organism
Total Recall	1990	Sci-Fi/Thriller/Adventure	Colonisation on Mars Dystopian Future
Star Trek VI: The Undiscovered Country	1991	Sci-Fi/Adventure	Interstellar Travel Space Adventure
Terminator 2: Judgment Day	1991	Sci-Fi/Thriller/Action	Dystopian Future, A.I.
Alien 3	1992	Sci-Fi/Horror	Alien Thriller
The Lawnmower Man	1992	Sci-Fi/Horror/Thriller	Virtual Reality
Demolition Man	1993	Sci-Fi/Fantasy/Adventure	Dystopian Future
Jurassic Park	1993	Sci-Fi/Horror/Adventure	Prehistoric Animals
Robocop 3	1993	Sci-Fi/Action/Crime	Cybernetic Organism
Star Trek: Deep Space 9	1993	Sci-Fi/Adventure/ TV Series	Interstellar Travel Space Adventure
Stargate	1994	Sci-Fi/Fantasy/Adventure	Interstellar Travel
Star Trek: Generations	1994	Sci-Fi/Adventure	Interstellar Travel Space Adventure
Ghost in the Shell	1995	Sci-Fi/Animation	Manga
Johnny Mnemonic	1995	Sci-Fi/Thriller/Action	Dystopian Future Virtual Reality

Star Trek: Voyager	1995	Sci-Fi/Adventure/ TV Series	Interstellar Travel Space Adventure
Twelve Monkeys (12 Monkeys)	1995	Sci-Fi/Thriller/Drama	Post Apocalyptic Dystopia, Time Travel
Escape from L.A.	1996	Sci-Fi/Thriller /Adventure	Dystopian Future
Independence Day	1996	Sci-Fi/Thriller/Action	Alien Invasion
Star Trek: First Contact	1996	Sci-Fi/Adventure	Interstellar Travel Space Adventure
Alien: Resurrection	1997	Sci-Fi/Horror	Alien Thriller
Contact	1997	Sci-Fi/Drama	Alien Encounter
Event Horizon	1997	Sci-Fi/Horror/Thriller	Space Thriller Mysticism
Gattaca	1997	Sci-Fi/Thriller/Drama	Dystopian Future
Men in Black	1997	Sci-Fi/Adventure/Comedy	Alien Encounter
Star Wars Original Trilogy Special Edition	1997	Sci-Fi/Fantasy/Adventure	Science Fantasy Space Opera
The Fifth Element	1997	Sci-Fi/Action/Adventure	Space Opera
Armageddon	1998	Sci-Fi/Thriller/Action	End of the World
Dark City	1998	Sci-Fi/Fantasy/Thriller	Future Noir
Deep Impact	1998	Sci-Fi/Thriller/Drama	End of the World
Star Trek: Insurrection	1998	Sci-Fi/Adventure	Interstellar Travel Space Adventure
Star Wars: Episode I The Phantom Menace	1999	Sci-Fi/Fantasy/Adventure	Science Fantasy Space Opera
The Matrix	1999	Sci-Fi/Thriller/Action	Dystopian Future, A.I. Alternative Reality

It is possible to see many of the sequel films of the 1970s and 1980s in the 1990s era such as “Back to the Future III” (1990, director: Robert Zemeckis), “Predator 2” (1990, director: Stephen Hopkins), “Robocop 2” (1990, director: Irvin Kershner) and “Robocop 3” (1993, director: Fred Dekker), “Alien 3” (1992, director: David Fincher) and “Alien Resurrection” (also known as “Alien 4”) (1997, director: Jean-Pierre Jeunet), “Terminator 2: Judgment Day” (1991, director: James Cameron) which won four Academy Awards for “Best Effects, Sound Effects Editing”, “Best Effects, Visual Effects”, “Best Makeup” and “Best Sound” and “Escape from L.A.” (1996, director: John Carpenter).

Apart from the sequel films for the “Star Trek: The Motion Picture” (1979), the production years of most of the sequel TV series after the “Star Trek: The Original Series” (1966-1969) coincides with the 1990s. The first sequel for the original series; “Star Trek: The Animated Series” (1973-1974), is especially significant due to the fact that it is the only animated TV series in the “Star Trek” world. The second project was titled: “Star Trek: Phase II” (1978), however, this particular series never made it to the production stage, although scripts of the first 12 episodes were already written before the production was due to begin. At the time being, the recent release of Star Wars and its immediate success led Paramount to turn this particular project into a motion picture. Thus, the first episode of “Star Trek: Phase II” was then used as a basis for the first motion picture of the series; “Star Trek: The Motion Picture”. “Star Trek: The Next Generation” (1987-1994), introduced the audience and the Star Trek fans a new spaceship as well as a totally new crew. “Star Trek: Deep Space 9” (1993-1999) was the first Star Trek series which was produced without any direct input from Gene Roddenberry. The remaining two sequel TV series are: “Star Trek: Voyager” (1995-2001); which was the only series with a female commanding officer in the cast; Captain Kathryn Janeway (performed by Kate Mulgrev) and finally “Star Trek: Enterprise” (2001-2005) which was chronologically written to be a prequel to the other series (**Wikipedia**).

The 1990s era was hugely under the influence of the newly spreading “world wide web” and themes based on virtual reality, virtual space, cyber reality, and human-computer interfaces.

Director Paul Verhoeven's "Total Recall" (1990) is based on Philip K. Dick's short story: "We Can Remember It for You Wholesale". The film is set in the 21st century, where the human race is already colonised in Mars, and the technologies regarding virtual reality are at a very advanced level. The main character in the movie, Douglas Quaid (performed by Arnold Schwarzenegger) who is a construction worker, decides to purchase a "virtual holiday" to Mars. When this virtual trip is implemented in his mind, some complications happen and Quaid discovers a series of dark hidden memories regarding his past. Until the end of the movie, Quaid tries to understand whether what he is experiencing is real or is it actually a delusion created by the virtual Mars trip he had purchased. The film is one of the earliest examples with elements of virtual reality. "Total Recall" displays successful predictions about life style, fashion, transportation and electronic products of a possible near future which are rendered brilliantly with the use of realistic special effects. The film won the Special Achievement Award for "Visual Effects" in Academy Awards.

Directed by Brett Leonard, "The Lawnmower Man" (1992), is a science fiction/thriller movie which is themed on virtual reality, virtual space and human-computer interfaces. A scientist who develops a project in order to increase the intelligence with the use of specific drugs and virtual reality, takes a mentally retarded gardener to use as a human subject for his experiments. With an accelerated learning program which involves virtual reality interfaces and cortex stimulation, the gardener's intelligence and talents are improved to a radical level in a very short time. As a side effect, the gardener, then starts to develop special telepathic and telekinetic powers and gets out of control, becoming a virtual entity of his own in the virtual reality environment.

"Demolition Man" (1993) directed by Marco Brambilla, refers to a very different future Los Angeles (which is renamed to "San Angeles") in 2032, where the society has become non-violent, human reproduction has been relegated to medical science, sex becomes a "non-contact" activity, people address each other with their full names and physical interaction between humans is estranged. The industrial interpretation of this future reality is also portrayed in a very radical way; in 2032, having won the "Franchise Wars", Taco Bell is the only restaurant available in whole of the USA. In the European version of the movie, "Pizza Hut" replaced "Taco Bell" as a result of product placement issues. San Angeles being totally crime-free, the inexperienced

Police Department of San Angeles encounters a serious problem due to the breakout of a highly dangerous criminal; “Phoenix” (performed by Wesley Snipes) from his cryoprison who has been cryogenically frozen in suspended animation for his crimes in 1990s. Being unable to get the situation under control, the San Angeles Police Department decide to get help from the ex-cop (performed by Sylvester Stallone) who had arrested Phoenix back in 1990s, who was also cryogenically frozen for a crime he did not commit.

Steven Spielberg’s “Jurassic Park” (1993) is set in a private theme park on a remote island, where the dinosaurs have been genetically re-engineered from DNA samples which were extracted from mosquitoes trapped in amber. Even though there are many biological/scientific mistakes, gaps and inconsistencies, the movie is especially worthy of recognition for its special effects created by ILM. Having won three Academy Awards for “Best Effects, Sound Effects Editing”, “Best Effects, Visual Effects” and “Best Sound”, two sequels followed the film titled “Lost World: Jurassic Park” (1997) directed by Steven Spielberg again and “Jurassic Park III” (2001) directed by Joe Johnston.



**Figure 3.27:** A genetically re-engineered T-Rex attacking a car, from “Jurassic Park”

“Stargate” (1994) directed by Roland Emmerich is an interesting science fiction/fantasy film; one of the many examples in literature and motion picture history that is based on the interactions of ancient world civilisations with

extraterrestrial intelligence. The stories starts in 1928, when an expedition searching for ancient Egyptian relics discover a huge ring which is constructed of an unidentified metal, with hieroglyphic symbols engraved on its surface. Later in the film, this ring is discovered to be the “Stargate”; an interstellar transportation device crafted by an alien race.



**Figure 3.28:** Opening sequence of the “Stargate”; an interstellar transportation device

The most important and well known example of science fiction animation; “Ghost in the Shell” was made in 1995, directed by Mamoru Oshii. The film is originally an adaptation of Shirow Masamune’s cult manga comic with the same name. “Ghost in the Shell” received much attention regarding the use of advanced computer graphics techniques in its visual language. The story is set in year 2029, when the world has become extremely information oriented and virtual crime has gained new levels. In order to get this technology related crime under control, special police units are formed of extremely strong cyborgs with superhuman features. After its success, a sequel film was made in 2004 titled: “Ghost in the Shell 2: Innocence” directed by Mamoru Oshii again. Apart from the sequel, a TV series based on the characters and story was directed by Kenji Kamiyama with the title: “Ghost in the Shell: Stand Alone Complex” in 2002.

“Johnny Mnemonic” (1995) is another cyberpunk science fiction film which has elements of virtual reality and human-computer interfaces, directed by Robert Longo, based on a short story by William Gibson. The story is set in 2021, where the whole planet is connected with a single network and half of the earth’s population is suffering from the Nerve Attenuation Syndrome. The main character Johnny Mnemonic (performed by Keanu Reeves) is an illegal courier who traffics data through a cybernetic implant inside his brain. It is important to note that the film projects a very successful and strong rendering of wearable computers and virtual user interfaces for a possible near future.

Terry Gilliam’s “Twelve Monkeys” (1995) incorporates themes such as post apocalyptic dystopia and time travel. The story is set in a future dystopia, where the remaining survivors of the world is living in underground, as a result of the contamination of the planet’s surface with a biological disease that kills most of the earth’s population between the years 1996-1997. The scientists of this future dystopia have devised a system that enables individuals to be sent back into the past, with the hope of discovering the origins of the disease.

In 1996, another blockbuster “alien invasion” movie was made, directed by Roland Emmerich, titled: “Independence Day” which is considerably influenced by “The War of the Worlds” (1953). The film’s big budget special effects won an Academy Award for “Best Effects, Visual Effects”.



**Figure 3.29:** Scene from “Independence Day”; Gigantic alien spacecraft soaring over New York sky, burying the complete city in shadows

Directed by Robert Zemeckis and based on the novel by Carl Sagan; “Contact” (1997) received plenty of attention regarding its strong screenplay and realistic display of events. The story is built around a brilliant scientist; “Eleanor Arroway” (performed by Jodie Foster) who is the leading researcher of a project called SETI (Search for Extra Terrestrial Intelligence). She detects a message of unknown origin from the star “Vega”, in the form of a sequence of prime numbers which is later deciphered to be the blueprints for a transportation vehicle for a single passenger. The scientists and government officials agree on the fact that this machine is designed by an intelligent extraterrestrial race, which sent the blueprints to Earth, so that the human race could engineer the machine and send an emissary to meet them. Message has been sent with a scheduled timing, exactly when the technology was advanced enough to engineer this complicated machine. The film’s visualisation of the alien race and the encounter itself, is very conceptual and philosophical; making the encounter, in some aspects, more believable. Rather than the visualisation of the encounter, “Contact” focuses on the impact of this encounter on humanity instead.



**Figure 3.30:** Original production illustration for the “Machine” design in “Contact”

Directed by Paul W.S. Anderson, “Event Horizon” (1997) is set in the year 2047, when a search & rescue team of astronauts are sent to bring back a government spaceship called “Event Horizon” when it suddenly appears out of nowhere, being missing for the last seven years. The spaceship has a top secret experimental engine, which is designed to create an artificial black hole that opens a temporary gateway in space-time, enabling the ship to travel faster than light. When the rescue ship reaches “Event Horizon”, the crew discovers that the ship itself is transformed into a living entity, possessing inexplicable phenomena of dark nature.



**Figure 3.31:** “Event Horizon”'s experimental space engine

Written and directed by Andrew Niccol, “Gattaca” (1997) is set in a future dystopia where the genetic engineering and DNA technology is at a very advanced level; natural birth is no longer practised in the higher layers of the society, and humans are genetically engineered free of any biological imperfections or diseases. Social class and hierarchy is determined not with race, religion or nationality but with genes. The uniqueness of this movie lies in its visual language; even though the story takes place in the future, the daily used technology, products, transportation, fashion and all other aspects related with the society are rendered untouched, almost no different from today’s world at all where as the genetic technology and space travel is a proof of considerable amount of time between today and “Gattaca”’s future.

Luc Besson’s blockbuster science fiction/adventure film “Fifth Element” (1997) incorporates colourful science fiction elements with supernatural phenomena. According to the story, in every five millennia, the evil comes to existence in the form of a giant planet-like entity, and attempts to turn all life into death and darkness. The universe is protected by the five elements; earth, air, fire, water and the fifth element (love) which is a “supreme being”. The story is set in the year 2263; when the “evil” is getting closer to planet earth, a former elite forces soldier and taxi driver, “Korben Dallas” (performed by Bruce Willis) helps the supreme being “Leeloo” (performed by Milla Jovovich) for the recovery of the four elements which are stolen and missing. The film renders a very colourful and complicated future projection with a retro-futuristic language that is strongly visualised in transportation, fashion, interior design and architecture.



**Figure 3.32:** New York City in the year 2263; from “Fifth Element”

As a result of the radical improvements in special effects and computer generated imagery technologies; using advanced digital editing techniques, George Lucas re-released the “Star Wars Original Trilogy” as a “Special Edition” in 1997.



**Figure 3.33:** Original Scene from “Star Wars: Episode IV A New Hope”, 1977



**Figure 3.34:** Transition image; Wireframe editing of Jabba the Hutt



**Figure 3.35:** “Star Wars: IV A New Hope Special Edition”, 1997

For “Star Wars: Original Trilogy Special Edition”, apart from creating additional scenes digitally, CGI designers in ILM corrected the color key errors on the bluebox scenes which were shot for the special effects of the original release of “Star Wars: Original Trilogy”. ILM also optimized the sharpness of picture quality and improved color saturation by fixing the optical mistakes with advanced digital editing (Vaz, 1996).



**Figure 3.36:** Original Scene from “Star Wars: Episode IV A New Hope”, 1977



**Figure 3.37:** “Star Wars: IV A New Hope Special Edition”, 1997

In the late 1990s, science fiction films with disaster themes became popular again. Both “Armageddon” (1998, director: Michael Bay) and “Deep Impact” (1998, director: Mimi Leder) have the “asteroid/comet impact” theme.

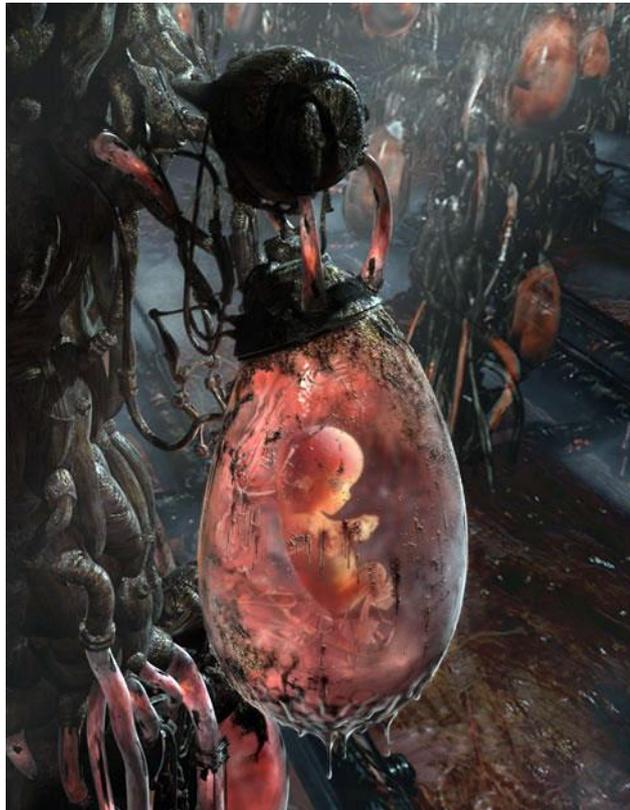
In “Armageddon”, an huge asteroid the size of Texas is moving on a direct collision course with Earth. A group of professional deep core drillers are trained as astronauts and sent to the asteroid with a mission to drill a deep hole in the heart of the asteroid and plant a nuclear bomb in order to destroy it.

In “Deep Impact”, a comet is headed for collision with Earth again. After the mission to destroy the comet results in failure, the USA government decides to build special caves around the country in order to save the human race from extinction. Due to limited space and time, the government conducts a “lottery-of-fate” in order to select 800,000 ordinary citizens and 200,000 scientists, artists, doctors and military people and other specialists who will be put inside the caves, leaving the rest of the population to their certain death. Compared to “Armageddon”, “Deep Impact” is more successful regarding the realistic portrayal of the society’s reactions to the unavoidable collision and the effects of the impact.

Co-written and directed by Alex Proyas, “Dark City” (1998) is a science fiction/film noir cross-genre dystopian masterpiece which has many similarities to the conceptual approach of “Matrix Trilogy” (1999, 2003, 2003). The story is set in an unknown future and unknown city, where a dying race of intelligent aliens is conducting experiments on an entire city of human beings in order to understand a unique aspect of human soul, which they lack to possess in order to continue their species. The city itself, buildings, products, and everything inside the city is in fact artificial, and controlled and manipulated by aliens who are altering the cityscapes, buildings, and environment. The humans living inside this city are unaware of the situation, and every midnight, the city is put into sleep, and human’s brains and memories are modified in order to continue with the experiments. Because of the modifications in their mind and memory, none of the humans are questioning the strange phenomena happening around them such as why they do not ever want to get out of the city, or why it is night for 24 hours a day and they never see the sun. The set designs and architecture of the “Dark City” are very realistic and have a strong visual language. Some of those set designs were used later, in the production of “The Matrix” (1999). The ever dark atmosphere and visual style of the movie also carry imprints of Terry Gilliam’s “Brazil” (1985).

Twenty two years after the release of the first “Star Wars” movie, the long awaited first part of the “Star Wars Prequel Trilogy”, “Star Wars: Episode I The Phantom Menace” was written and directed by George Lucas in 1999. The special effects created by ILM are groundbreaking, and revolutionary in many aspects. In the “Prequel Trilogy”, many new characters, and also existing ones from the “Original Trilogy” are rendered completely digital, replacing the old puppets and movie props such as the case with Yoda; the Jedi master which was an animatronic puppet in the “Original Trilogy”. “At this point, we created the first digital, photo-realistic speaking character and that was “Jar Jar Binks” stated George Lucas, in an interview with Nikkei Electronics (**Nikkei, 2005**). Apart from the characters, most of the scenes, environments, entire armies and complicated battle scenes were completely computer generated, existing only in hard drives. In spite of the revolutionary special effects, “Star Wars: Episode I The Phantom Menace” did not win the Academy Award for Visual Effects, loosing it to “Matrix” (1999), becoming the first Star Wars film not to win that particular Oscar category.

The 1990s era ended with a post apocalyptic dystopian cult masterpiece; “The Matrix” (1999), which is the first part of “The Matrix Trilogy”. Written and directed by Andy and Larry Wachowski, the story is set in a future dystopia, where the sentient machines, which, after a big war, took over the dominion of the world, create an artificial reality interface called “Matrix” in order to enslave, breed and consume human beings and use their bio-electrical energy to maintain their existence. Humans are “harvested” in large farms, and then put into special storage units, where their bio-electrical energy is transferred to generators, while the matrix is fed into their brain, creating the necessary artificial reality for keeping the humans alive during the process. The few surviving humans, who were able to escape this process or who were natural born, start an independence war against the sentient machines to take back their freedom and dominion on earth.



**Figure 3.38:** Machines “harvesting” human embryos in “The Matrix”

The story incorporates many mystical and religious elements as well as supernatural and superhuman phenomena with the technological elements such as virtual reality, advanced A.I., global networks and human-computer interfaces. It is possible to see the influence of Giger’s “biomechanics” style on the visual language and structure of

the machines and their weaponry whereas the costume designs and accessories of the humans are extremely stylish and trend setting. It would not be exaggerating to point out the fact that after the release of the film, especially the young generation was very much influenced by this trend setting costumes and style, many people started to walk in the streets using “Matrix-like” sunglasses, hair styles and long black leather coats.

Regarding the use of cameras and shooting techniques, production design team improved an existing system to create and introduce a visual effect now known as the “Bullet Time”. Even though many Matrix fans believe that “Bullet Time” was an invention of Matrix production design team, it is actually an improved version of an old art photography technique called “Time Slice Photography”. There are many technical variations of this effect with different names such as “view morphing”, “flo-mo”, “temps mort” and “virtual cinematography”. “Bullet Time” is a virtual effect which enables the viewers to observe an otherwise unperceivable segment of time in imperceptually fast events by slowing them down to extreme degrees. At the same time, the camera is rotated around the scene in normal speed, allowing the viewers to explore every aspect of the almost frozen time segment from different angles with detail (**Wikipedia**).



**Figure 3.39:** A variation of “Bullet Time” from “The Matrix”

Before Matrix, the traditional method to achieve this effect was to form a set of still cameras surrounding the subject and trigger them at once or sequentially. The frames

taken from still cameras are then arranged and displayed consecutively to produce an orbiting viewpoint of an action which is frozen in time. However, as a result of using real cameras, the effect is limited with the assigned paths.

“In The Matrix, the camera path was pre-designed using computer-generated visualizations as a guide. Cameras were arranged on a track and aligned through a laser targeting system, forming a complex curve through space. The cameras were then triggered at extremely close intervals, so the action continued to unfold, in extreme slow-motion, while the viewpoint moved. Additionally, the individual frames were scanned for computer processing. Using sophisticated interpolation software, extra frames could be inserted to slow down the action further and improve the fluidity of the movement (especially the frame rate of the images); frames could also be dropped to speed up the action. This approach provides greater flexibility than a purely photographic one. The same effect can also be produced using pure CGI, motion capture and universal capture” (Wikipedia).



**Figure 3.40:** Neo escaping the bullets in “Bullet Time” motion; “The Matrix”

The special effects production for this movie was at such a breathtaking and advanced level that “Matrix” won four Academy Awards considering the fact that it was competing with a “Star Wars” film for three of these awards (“Best Effects, Sound Effects Editing”, “Best Effects, Visual Effects”, “Best Sound”) (Matrix also won the Academy Award for “Best Editing” apart from the three mentioned above). The film won another 28 awards as well as 35 nominations from various motion picture organisations.

### 3.1.9. The 2000s Era

**Table 3.10:** Chronology of Sci-Fi films in 2000s era

TITLE	DATE	GENRE	SUB-GENRE / THEME
The 6th Day	2000	Sci-Fi/Thriller/Action	Cloning
Mission to Mars	2000	Sci-Fi/Thriller/Drama	Alien Encounter Evolution
Pitch Black	2000	Sci-Fi/Horror/Thriller	Alien Thriller
Red Planet	2000	Sci-Fi/Thriller/Action	Colonisation on Mars
Titan A.E.	2000	Sci-Fi/Animation	Space Adventure
Artificial Intelligence: A.I.	2001	Sci-Fi/Drama/Adventure	Artificial Intelligence Dystopian Future
Evolution	2001	Sci-Fi/Comedy	Alien Evolution
Final Fantasy: The Spirits Within	2001	Sci-Fi/Fantasy/Animation	Alien Invasion
Planet of the Apes	2001	Sci-Fi/Fantasy/Adventure	Man vs. Evolution Dystopia
Star Trek: Enterprise	2001	Sci-Fi/Adventure/ TV Series	Interstellar Travel Space Adventure
Men in Black II	2002	Sci-Fi/Adventure/Comedy	Alien Encounter
Minority Report	2002	Sci-Fi/Thriller/Drama Action/Mystery	Future Reality Mysticism
Resident Evil	2002	Sci-Fi/Horror/Thriller	Bio Organic Hazard
Solaris	2002	Sci-Fi/Drama	Existentialism Surrealism
Star Trek: Nemesis	2002	Sci-Fi/Adventure	Interstellar Travel Space Adventure

Star Wars: Episode II Attack of the Clones	2002	Sci-Fi/Fantasy/Adventure	Science Fantasy Space Opera
The Adventures of Pluto Nash	2002	Sci-Fi/Adventure/Comedy	Space Comedy
The Time Machine	2002	Sci-Fi/Thriller/Action	Time Travel
Terminator 3: Rise of the Machines	2003	Sci-Fi/Thriller/Action	Dystopian Future, A.I.
The Matrix Reloaded	2003	Sci-Fi/Thriller/Action	Dystopian Future, A.I. Alternative Reality
The Matrix Revolutions	2003	Sci-Fi/Thriller/Action	Dystopian Future, A.I. Alternative Reality
Alien Vs. Predator	2004	Sci-Fi/Horror/Thriller	Alien Thriller
I, Robot	2004	Sci-Fi/Drama/Adventure	Artificial Intelligence Advanced Robotics
Immortel, Ad Vitam	2004	Sci-Fi/Fantasy/Adventure	Future Noir
Innocence: Ghost in the Shell	2004	Sci-Fi/Animation	Manga
Resident Evil: Apocalypse	2004	Sci-Fi/Horror/Thriller	Bio Organic Hazard
Sky Captain and the World of Tomorrow	2004	Sci-Fi/Thriller/Adventure	Retro futurism
The Chronicles of Riddick	2004	Sci-Fi/Horror/Thriller	Necromancy
The Day After Tomorrow	2004	Sci-Fi/Thriller/Drama	Global Warming
Doom	2005	Sci-Fi/Horror/Thriller	Demons, Zombies
Star Wars: Episode III Revenge of the Sith	2005	Sci-Fi/Fantasy/Adventure	Science Fantasy Space Opera
The Hitchhiker's Guide to the Galaxy	2005	Sci-Fi/Fantasy/Comedy	Space Comedy
War of the Worlds	2005	Sci-Fi/Thriller/Drama	Alien Invasion

In the 2000s, many of the important science fiction productions abandoned the ever popular “space travel” themes and turned to concepts based on the near future, virtual reality, fantasy, superheroes and dystopian future as a result of disasters or technological advances out of control.

Directed by Roger Spottiswoode, “The 6th Day” (2000) introduces a future setting which questions the possible social, cultural and technological results of one of the biggest taboos of our century; “cloning”. The film takes place in a very near future, where organs, wild and domestic animals and even pets are cloned but the cloning of humans is illegal. Even though the film is set in a near future, there are highly advanced technological inventions portrayed, such as a device which is used to record and archive the mental states of an individual such as his habits and memories. On the other hand, the architecture, costumes, cars and daily used products have a visual language which is similar to what exists today, making the setting more believable. One of the highlights of the production design is the “Whispercraft”; a high technology aircraft which is designed to function both as a helicopter and a fixed wing jet. The helicopter mode enables Whispercraft to perform vertical take off and landing (VTAL) with the use of its rotor driven system. When Whispercraft reaches a certain altitude and speed, the dual rotor blades form a locked V-Shaped position, turning the craft into a fixed winged jet aircraft with extreme speed, manoeuvrability and range. It can also be flown by a remote control device which the pilot straps on his forearm. The production team comments that Whispercraft was modelled after a real military prototype which is being worked on today (**Cubico**).

Even though the space travel movies lost their popularity, two films related with “life on Mars” theme were produced early in the 2000s. Director Brian De Palma’s “Mission to Mars” (2000) emphasises on a different evolution theory on the origins of human race, connected to an intelligent extraterrestrial race which once existed on Mars. the Mars exploration team discover a strange dome-like structure on the surface of Mars landscape which resembles a human-like face. Following further examination, this “face” turns out to be a long before abandoned structure constructed by an extraterrestrial intelligent race. Inside the dome, the Mars team receives an extremely advanced pre-recorded holographic message, giving detailed information about the planet’s history, and the origins of human evolution connected

to the history of the extraterrestrial civilisation. Throughout the story, the movie sends many references to “2001: A Space Odyssey” on a philosophical level.



**Figure 3.41:** Extraterrestrial structure on the surface of Mars, from “Mission to Mars”

Directed by Anthony Hoffman, “Red Planet” (2000) is worthy of recognition due to its solid extrapolation of present day knowledge about Mars, and realistic portrayal the technology and space travel required to go to Mars. The film also features one of the most realistic renderings of a zero-gravity fire in history of Hollywood. The biggest highlight of the special effects is the military scout robot called AMEE (Autonomous Mapping, Exploration and Evasion) who accompanies the Mars crew on their journey. AMEE has a cat-like structure with many special weapons and abilities and is dependant on nuclear energy to operate. Apart from the cat-like walking feature, she is enable to operate at an alternative standing mode on two legs, imitating a human being, and also fly with the help of a special rotor system integrated on her body. The scenes which showed AMEE crawling on the ground, imitating the walk of a predator cat species were extremely realistic and well animated. Even though the abilities and construction of a robot like AMEE seems like a possibility for the future, its reliance on a nuclear power cell the size of a beer can is well beyond the energy technologies of a near future (**Popular Science, 2003**).

Directed by David Twoohy, “Pitch Black” (2000) and its sequel “Chronicles of Riddick” (2004) (also known as: “Pitch Black 2”) are films with lots of action merged with quasi-magical and mystical elements such as necromancy and elementalism.

With the CGI technologies at their highest level, remarkable examples of the science fiction animation were produced in the 2000s. “Titan A.E.” (2000) (also known as “Titan: After Earth”) is directed by Don Bluth, Garry Goldman and Art Vitello. It is a science fiction/fantasy space adventure set in a future about one thousand years later from now, when the earth is destroyed by aliens and few surviving humans are trying to find a special spacecraft called “Titan” which possesses a mechanism to unite and save humanity.

“Final Fantasy: The Spirits Within” (2001) is written and directed by Hironobu Sakaguchi. Apart from its story and creative design, this particular animation is considered a benchmark in CGI graphics realism due to the extremely realistic and fluid character animations never seen before in the history of animation. The character renderings of the film were at such a realistic level that “Dr. Aki Ross”; main heroin of the film was included in the “best 100 women” issue of Maxim Magazine, first time in history when a CGI character is seen with fashion top models.



**Figure 3.42:** Character Model of Dr. Aki Ross; “Final Fantasy: The Spirits Within”

In 2001, Steven Spielberg added another science fiction masterpiece to his previous works; “Artificial Intelligence: A.I.” which uniquely incorporated elements of science fiction and drama together. The project originally belonged to Stanley Kubrick, who worked on the idea for 12 years, in close collaboration with Spielberg. Before his passing, Kubrick trusted all the material and conceptual sketches to the

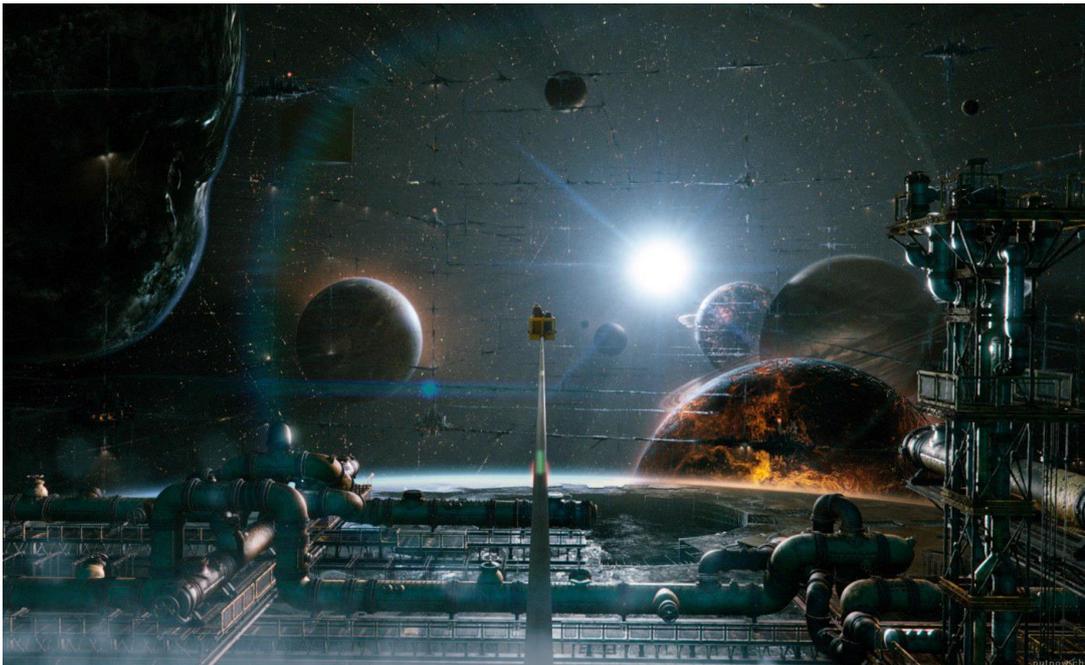
talented hands of Spielberg, claiming that the film needed his direction because it was “closer to his sensibilities”. The story is based on the relationships and “perception of life” of a test prototype robotic android with a highly advanced artificial intelligence, manufactured to be capable of feeling “love”. “A.I.”’s uniqueness and importance lies in its social criticism. Even though the film speculates about the possible technological advances in a future world, it is giving the biggest emphasise on the results of this technological advance on a social, cultural and philosophical level; the effects on human relationships, and the way humans would have perceived the world while in interaction with artificial beings.

During the 2000s, interpretations of cult classic movies were produced such as “Planet of the Apes” (2001, director: Tim Burton), “Solaris” (2002) (director: Steven Soderbergh) and “The Time Machine” (2002, director: Simon Wells). None of these movies received the expected attention. However, Steven Spielberg’s latest film up to date; “War of the Worlds” (2005) which is a different interpretation of the 1953 version of the movie, is considered very successful regarding its groundbreaking visual effects and the sound effects. All the details concerning the Martians and their “tripod war machines” are designed faithful to the detailed descriptions that H.G. Wells exposed in his novel. The film also made a very impressive box-office performance, being the second most successful movie of 2005 summer after “Star Wars: Episode III Revenge of the Sith”.



**Figure 3.43:** The attack of the “Tripod War Machines” from “War of the Worlds”

Apart from science fiction/thriller/adventure films, a few examples of big budget science fiction/comedy films were also released, such as “Evolution” (2001) directed by Ivan Reitman, the sequel of “Man in Black” (1997); “Man in Black II” (2002) both directed by Barry Sonnenfeld, “The Adventures of Pluto Nash” (2002) directed by Ron Underwood and finally, the long awaited “A Hitchhikers Guide to the Galaxy” (2005) directed by Garth Jennings based on the original cult novel and actual screenplay of Douglas Adams.



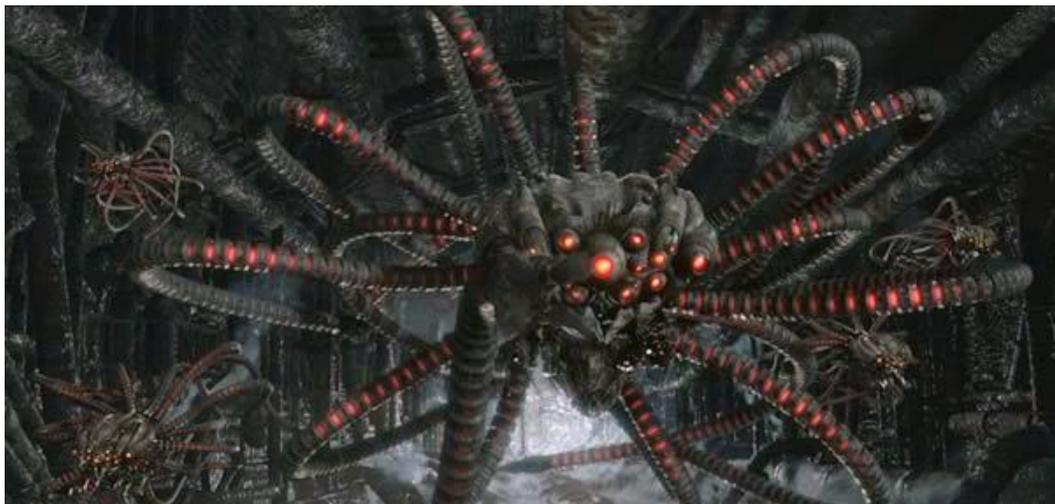
**Figure 3.44:** The “Planet Construction Facilities” in the planet “Magrathea” from “Hitchhiker’s Guide to the Galaxy”

Starting from 1990s, and as a result of the improving 3D animation techniques, computer and video games have been extremely popular to such a degree that some studios decided to make motion pictures of these video games. Such examples would be “Resident Evil” (2002) written and directed by Paul W. S. Anderson, its sequel “Resident Evil: Apocalypse” (2004) (also known as “Resident Evil 2”) directed by Alexander Witt, “Alien Vs. Predator” (2004) directed by Paul W. S. Anderson and “Doom” (2005) directed by Andrzej Bartkowiak. Interestingly, all of these films above are derived from “first person / third person shooter” games with elements of science fiction, horror and action. Another important fact is that “Alien Vs Predator” video game was influenced by two already existing movies; “Alien” and “Predator”, making the influence timeline: film - to - videogame - to - film again.

Only one year after “Artificial Intelligence: A.I.”, Steven Spielberg directed “Minority Report” (2002), based on another short story with the same title by Philip K. Dick. The film is significant especially with its detailed projections of a possible near future regarding all aspects of the future world such as technology, transportation, social life and even the law system. “Minority Report” is discussed in detail in the further chapters of this thesis.

In the 2000s, some of the “trilogy” films were completed such as “Matrix Trilogy” and “Star Wars Prequel Trilogy”.

Both “The Matrix Reloaded” and “The Matrix Revolutions” were made in 2003, directed by Andy and Larry Wachowski again. Regarding the use of special effects, with the evolution of photogrametric and image based CGI background images, regarding the “Bullet Time” effect, these two sequels moved even beyond the level that “Matrix” set in 1999.



**Figure 3.45:** “Sentinels” from “The Matrix Reloaded”

Both of them written and directed by George Lucas, “Star Wars: Episode II Attack of the Clones” (2002) and “Star Wars: Episode III Revenge of the Sith” (2005) are the benchmark films of the 2000s regarding the use of advanced CGI graphics, advanced character animation and high definition digital 24 bit frame system. Just a few aspects of this revolutionary production design process is listed below:

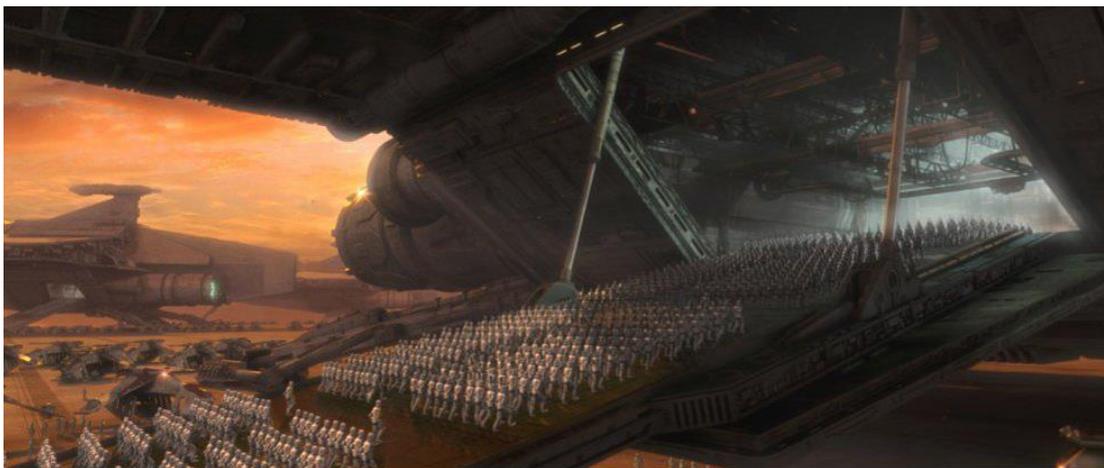
The production design in ILM set a new level to prop/model making and costume design, using a new digital design and scanning technologies which were then

transferred to computer-lathe to create moulds which were used to make costumes and props that are perfectly symmetrical and tailor-built to fit the characters. Both of the films had extremely difficult lightsaber duel scenes and huge battle scenes involving CG animated characters such as the case with Master Yoda and the space battle at the beginning of Episode III.



**Figure 3.46:** Comparison of prop Yoda from “Star Wars: Empire Strikes Back” (1980) (on the left) with CG Yoda from “Star Wars: Attack of the Clones” (2002)

“Star Wars: Episode II Attack of the Clones” was shot onto digital video using a new 24 frame high definition progressive scan camera, developed by Sony and Panavision Inc. The cameras worked flawlessly even in temperatures of 125°F (51°C). “Star Wars: Episode III Revenge of the Sith” was shot entirely on Sony's HDCAM SR digital video format using F950 digital cameras. George Lucas has even claimed that he isn't planning to shoot a movie on film again (**IMDB**).



**Figure 3.47:** A completely computer generated scene from “Star Wars: Attack of the Clones”

“Terminator 3: Rise of the Machines” (2003) is directed by Jonathan Mostow. Apart from the extremely realistic makeup, the film sets a considerably less impressive interpretation for the design and abilities of the newly introduced “Terminatrix” (T-X) female cyborg, compared to the special effects involving the morphing and warping sequences of the “T-1000” cyborg from “Terminator 2: Judgment Day”.



**Figure 3.48:** Cyberdene Systems Model 101 Series 850 “Terminator”

Director Roland Emmerich’s big-budget apocalyptic science fiction film “The Day After Tomorrow” (2004) speculates on the possibility and results of the next “Ice Age” as a result of the “global warming” on Earth. Thanks to the impressive special effects, the scenes portraying the global hurricanes and the visualisation of the rapid temperature changes are extremely persuasive.



**Figure 3.49:** New York, completely frozen; from “The Day After Tomorrow”

In 2004, there are two films worthy of recognition, which are pioneers concerning their unique shooting technique and production style.

Written and directed by Kerry Conran; “Sky Captain and the World of Tomorrow” (2004) was shot entirely against blue screen with everything, except the main characters and a few real props, computer generated. Although this technique has been used for TV, video and video game production for many years, “Sky Captain and the World of Tomorrow” is considered the first film to be shot with actors entirely in front of blue screen, including “Immortel (Ad Vitam)” (2004) and “Casshern” (2004) (director: Kazuaki Kiriya) and “Sin City” (2005) (directors: Frank Miller, Robert Rodriguez and Quentin Tarantino). Even though which of these four movies was the first to use this production technique is debatable, they are all considered pioneers regarding this specific type of shooting.

“Immortel (Ad Vitam)” is written and directed by cult artist Enki Bilal, based on his graphic novels titled “La Foire aux Immortels” (The Carnival of Immortals) and “La Femme Piège” (The Woman Trap). Set in the year 2095 in New York, this science fiction/fantasy dystopian masterpiece incorporates many different elements of supernatural phenomena such as Egyptian gods and immortalism with a unique “comic book like” visual language that is far from being realistic, which is the signature style of Enki Bilal. The New York portrayed is in many ways retro futuristic regarding the design of vehicles, buildings and other products.



**Figure 3.50:** New York in the year 2095; “Immortel Ad Vitam”

The scenes showing the interaction of real actors and CG characters are very impressive in spite of the fact that the CG characters have not been rendered with a realistic visual style, which is obviously an intentional choice made by the artist and director Enki Bilal himself.

This film was shot entirely in front of blue screen, with only three of the main characters being actors, and everything else, including some of the main actors, backgrounds, almost all props and the city itself have been completely computer generated. Being a French production, this feature makes “Immortel (Ad Vitam)” the first European motion picture to be shot completely in front of blue screen **(IMDB)**.



**Figure 3.51:** A completely digital scene from “Immortel Ad Vitam”, Jill Bioskop (performed by Linda Hardy) is carried away by the Egyptian god “Horus”

Set in 2035, in Chicago, “I, Robot” (2004) is directed by Alex Proyas, influenced by a collection of short stories and novels called “The Robot Series” by Isaac Asimov. The story is about a police officer, who is investigating a crime of which the possible suspect is an highly advanced robot manufactured by U.S. Robotics company. The futuristic settings render a world in which the daily use of robots by humans is common, and the visual language of the robots is very realistic swell. Similar to “Minority Report”, this movie also incorporates very innovative ideas regarding transportation design.

#### **4. PRODUCT PLACEMENT**

Regarding science fiction films, the reason for the industry's contribution to production design in films is marketing. But the results of these contributions do not only help the companies promote their brands and products, but they also often produce elements of future reality.

“Product Placement” (also used interchangeably with “Brand Placement”) is a marketing strategy which involves the use of commercial products and/or their brands/logos clearly visible on TV, films and even video-games. They can be used in foreground or background, or actively by the main characters such as a car, or clothes. In some cases, instead of the product or brand, the advertisement of the product is placed which is called “advertisement placement”. Even though it has been practically used since the earliest days of TV and motion picture, product placement is a considerably new and untraditional advertising method.

Product Placement can also be defined as an indirect or unofficial advertisement method, because most of the time, the audience is not aware that they are being exposed to an advertisement. From the “film production” point of view, it is a crucial fact to find convenient ways to hide the product placements well inside the storyline and film texture so that the audience does not get the feeling of being exposed to a 120 minutes long advertisement.

A exceptional example of such a case is “Back to the Future Trilogy” (1985, 1988, 1990) directed by Robert Zemeckis. “BTTF Trilogy” became the “showcase” of more than 100 different brands. A table giving a detailed list and breakdown of all the brands and their products/services that has been placed in the “BTTF Trilogy”, which also indicates which products/services are placed in which parts of the “BTTF Trilogy”, can be found in the Appendix 1 of the thesis.

It is also important to point out the fact that competing brands' products and services were included in the “BTTF Trilogy”.

From the marketing point of view, the most significant advantage of product placement is that the companies are able to reach a very large group of potential consumers in a broadband of social/cultural/economical layers. While they are promoting their product or service, they are also improving their “brand awareness”. For this reason, the product placement costs for blockbuster Hollywood films or very popular TV series are extremely high.

The companies which promote their products/brands pour considerable amounts of money to the films’ production budgets depending on several criteria such as the degree of inclusion of the product in the film, its screen time, its relationship with the main characters and the number of times it is exposed in the film. In some occasions, usually involving food & beverage companies and companies which promote a service rather than a product, this financial compensation can be in the form of barter, where the company donates certain amount of the promoted product or the service they are providing to the film production.

An early definition by Balasubramanian refers to product placement as: “a paid product message aimed at influencing movie (or television) audiences via the planned and unobtrusive entry of a branded product into a movie or television program” (**Balasubramanian, 1994**). But since 1994, product placement is increasingly integrated in other types of media such as books, music videos and video games. A more recent definition; “paid inclusion of branded products or brand identifiers, through audio and/or video means, within mass media programming” **Karrh (1998)** is more successful in terms of including a wider spectrum of media. (**Andriasova, 2001**).

However, there is a second type of product placement which does not seem to fit inside any of these descriptions above. In some cases, product placement is not the result of a marketing issue, but it can simply be the result of the decision of a director, producer, set dresser or even the actor/actress. A director may decide to use a commercial product in his film simply because that specific product would help improve the credibility or realism of the scene or story or the character pictured to the audience. In such cases, it is not always even necessary to inform the company/manufacturer about their product/brand being placed in the mentioned film.

To give an imaginary example; when a screenplay involving a very wealthy and well known male character is considered, the director or producer may decide to use certain accessories and personal belongings for this character. A wrist watch made by “X” brand, a cellular phone made by “Y” brand, or a very luxurious car made by “Z” brand would help the audience accept the authenticity and “reality” of this character and his social statute. This type of product placement would not have been intentional from the company’s marketing point of view, and would cost them no financial expenses, but it could still help them improve their brand awareness and marketing campaign (**How Stuff Works**).

#### **4.1. Variations of “Product Placement” regarding the design process**

Types of product placement are defined and classified above from a promotional point of view, which refers to marketing issues. For the purposes of this thesis, the types and classification of “product placement” is discussed below, from a “designer” point of view.

If product placement is classified regarding the design process and final product, It is possible to define five different variations as listed below.

1. The product is designed by the manufacturer, and it already exists in the consumer market.
2. The product is designed by the film production designers, and it is then put into mass production and introduced to the consumer market.
3. The product is designed by the manufacturer, but it can not be put into mass production because of insufficient technology / resources or other reasons.
4. The product is designed by the film production designers, but it can not be put into mass production because of insufficient technology / resources or other reasons.
5. The product is designed by the film production designers, and it is modified by the manufacturer, based on the original prop, to a product which is suitable for mass production.

These five variations are explained with detail below, with examples from five selected films from the last decade.

#### **4.1.1. Variation 1**

A good example of a case, where the designed product / film prop is a manufactured commercial product that already exists in the consumer market, is the “Nokia 8110” cellular phone, also known as the “Nokia Matrix Phone”.

Nokia 8110 was already in the consumer market (announced in 1998) when “Matrix” met the audience in 1999. However, a technically improved version; the “Nokia 8110-i” model was placed in Matrix in order to improve the brand awareness and promote the product. The phone was already designed completely by Nokia designers and engineers, but the film designers of Matrix added a spring mechanism for the sliding keyboard cover to make the opening sequence of the cover look more “high-tech”.



**Figure 4.1:** Nokia 8110 “Matrix Phone” with its sliding cover detail

After the release of the film, this particular cellular phone became extremely popular, and regarding the form, ergonomics and interface of the phone, it was definitely trend-setting. Although discontinued, it is still a very sought-after movie prop that is being collected by collectors all over the world.



**Figure 4.2:** Scene from the film “Matrix”; Keanu Reeves holding the Nokia 8110

#### **4.1.2. Variation 2**

In the second and third parts of the “Matrix Trilogy”; ( “Matrix Reloaded” and “Matrix Revolutions” ) Samsung took over the product placement from Nokia, with presumably the most expensive deal made in the history of product placement. Samsung’s deal of around \$100 Million also included some specific arrangements that enabled Samsung to use exclusive footage and film material in their promotion campaign, making Samsung a global marketing partner with Warner Bros, covering all the promotional rights worldwide.



**Figure 4.3:** Original advertisement of Samsung; “Captain Niobe” (performed by Jada Pinkett Smith) captain of the ship “Logos” holding the Samsung SPH-N270

For the film, Samsung did not use an already manufactured product in Matrix, but decided to design a specific cellular phone specially for the film, turning the deal into more of an innovative kind of partnership. The Samsung SPH-N270 is the first cellular phone in the history which was designed for a film. This also proves the company's intentions to design and integrate their products around the "future reality" created in films and other media.

An important fact is that the design was done by the film production designers of Matrix, and engineered by Samsung. Below is the original text taken from the Matrix's teaser page on Samsung's official website:

"The Samsung SPH-N270 was designed by the Matrix Reloaded set designers and engineered by Samsung. It has a futuristic pop up design fully outfitted with the spirit of a three-dimensional world" (**Samsung**).



**Figure 4.4:** Samsung "SPH-N270" the pop-up earpiece in open and closed positions

After the SPH-N270 "Matrix Phone" was engineered and put into mass production by Samsung, it was available as a limited edition of 10,000 phones, and only for the American market, supporting dual band (CDMA/AMPS). It is not easy to understand the reason of this marketing strategy decision, considering the fact that the "Matrix Trilogy" has been extremely popular not only in North America, but all around the world.

### 4.1.3. Variation 3

In certain cases, the promoted product is designed by the manufacturer but it is not put into mass production by the company due to certain limitations in funding, social/cultural reasons, insufficient technology or simply decisions regarding marketing. Alex Proyas's Asimov adaptation of "I, Robot" (2004) is a good example of such a case.

Audi has been participating in product placements as an automobile partner in major film productions such as "Ronin" (1998) featuring Robert De Niro and Jean Reno, "The Insider" (1999) featuring Russell Crowe, and "Mission Impossible II" starring Tom Cruise. In all of those films, and many others, the product placements of Audi have always been with existing cars which were already put into mass production. Occasionally, the audience were the first to see a new Audi in a film before its official launch as such was the case with Mission Impossible II.

Regarding the case with "I, Robot", the "Audi RSQ" is the first car in the history of Audi which is designed specially for a motion picture. By designing the RSQ concept car, Audi has taken its product placement to a totally different level. This unique concept car has been completely designed from sketch to prototype by Audi, and the technical realisation of the prototype was achieved by Audi Design, working with their long-term partner Uedelhoven Studios of Germany (**Audi**).



**Figure 4.5:** "Audi RSQ" Sport Coupe - A two seated mid-engined sports car of 2035

During the design process, the Audi Design team have been assisted by the director Alex Proyas, and “I, Robot”’s production designers, regarding ergonomics, visual language, and technical details. The Audi Design representatives have been invited to the film sets, so that they would have a clear idea about the “world” and “future reality” that the car would have to fit it.

The Audi RSQ is the car of the main character of the film; “Del Spooner” played by Will Smith. Another important fact is that even though RSQ is a concept car of the year 2035, the visual language of RSQ successfully adapts itself on a futuristic speculative basis as well as carrying the unmistakable imprints of Audi design language. All the features that identify the “Audi Brand” are successfully incorporated in the design.



**Figure 4.6:** Will Smith with “Audi RSQ” in a scene from “I, Robot”

The most significant feature of the Audi RSQ is undoubtedly the revolutionary spherical wheel system. The detailed breakdown of the car in terms of design, technology and function is examined in the “Analysis of Films” chapter, under the “Production Design / Design Construction” sub-section of “I, Robot”.

Apart from the “hero car” RSQ, Audi has also supplied some of their mass produced cars in disguised forms for the traffic scenes of the film.



**Figure 4.7:** An Audi TT, modified to a future car of 2035 for the film “I, Robot”

Despite the fact that Audi RSQ can not be put into mass production in the near future, quoted below are the thoughts of Walter de’Silva; head of design for the “Audi Brand Group”:

“I believe that the Audi RSQ is a possible vision for the future, embedded in a fictional world. It is the consistent further development of brand values such as sportiness, progressiveness and sophisticated design, transferred to the film world of “I, Robot”. An Audi of the future could therefore look much the same ...” (Autoweb, 2004).

#### **4.1.4. Variation 4**

Regarding the design process of the transportation systems in Steven Spielberg’s “Minority Report” (2002), Lexus preferred the opposite role of Audi (in “I, Robot”), and entrusted the design of their cars and mass transportation vehicles to the hands of conceptual artist Harald Belker and production designer Alex McDowell. However, during the production, Lexus provided Harald Belker with luxury, design and technology cues.

“I’ve been driving a Lexus SUV,” says Spielberg. “And I thought Lexus might be interested in holding hands with us and going into a speculative future to see what the transportation systems and cars would look like on our highways in fifty years” (Lexus, 2002).

Lexus had two product placements in “Minority Report”; both of which were designed for Tom Cruise, who performed the main hero in the film; Chief John Anderton.

For the film’s transportation design, the production design team created a magnetic levitation (MagLev) system, which would integrate both cars and mass transportation vehicles into a single structure, powered up by electrical/magnetic energy fields, created inside vertical and horizontal surfaces covered with roadways all around the cityscape. MagLev system’s vehicle design is also unique in its form and function. Its exterior design resembles a “pod” rather than a car, and it doesn’t have any wheels, as it runs on magnetic roadways both in vertical and horizontal surfaces.

Among many different MagLev pods designed for the movie, Tom Cruise’s personal MagLev, was the first of the two product placements of Lexus. As the Lexus pod had to reflect all the quality features of the “Lexus Brand”, the interior of the vehicle was also designed with great detail and care.

Apart from the Mag-Lev system which was designed for in-city transportation, the traditional “off-system” roadways connected one city to another, where cars and other vehicles were able to cruise with today’s traditional driving system. Harald Belker designed the Lexus “off-system” sports coupe tailor-built to fit Tom Cruise.



**Figure 4.8:** A private “MAG-LEV” pod, cruising on the magnetic roadways of Washington D.C., in 2054

Lexus 2054 off-system sports coupe uses an electric engine, and it resembles the existing mass manufactured cars of today in many ways. Apart from its standard features, it also has speculative technology and advanced systems integrated inside its cruise controls and user interface. Regarding the looks, Lexus has evidently untraditional proportions, resulting in an attractive and unique form.



**Figure 4.9:** The Lexus 2054 “Off-System Sports Coupe”

Even though it is possible for Lexus to engineer the Lexus “off -system” car with most of its conceptual features and advanced interfaces, the costs for mass production of such a car, and the performance of an electric engine are still highly arguable as for today.

Further detailed analysis of the vehicles and transportation systems of “Minority Report” can be found in the “Analysis of Films” chapter, under the “Production Design / Design Construction” sub-section.

#### **4.1.5. Variation 5**

In certain cases, a product placement may end up with a product that is based on a completely speculative technology, which makes it practically impossible for prototyping or mass manufacturing.

In “Final Fantasy: The Spirits Within” (2001), the heroine of the film; Dr. Aki Ross carries a highly sophisticated wrist instrument, called a “Wrist Holo”, which is

capable of detecting life forms and alert the bearer of their positions while showing them in holographic display.



**Figure 4.10:** Dr. Aki Ross uses the Wrist Holo, close up of holographic display

The Wrist Holo was a product placement of Seiko, and it was designed by the production design team of the film. As the film became an instant hit after its release, Seiko decided to manufacture a limited edition run of the Wrist Holo due to the popularity of the movie, and the high demand from the audience.



**Figure 4.11:** Comparison of Wrist Holo (left) and Seiko Final Fantasy Wristwatch

As it was impossible to create an instrument which detects and scans life forms, Seiko decided to make use of its least function, which was obviously timekeeping. Seiko re-designed the product, based on the original prop, and modified both its functions and form, in order to emphasise on its timekeeping function, and fit it for

mass production. The final product was totally different from the movie prop, but it definitely carried a similar visual language and design approach.

Although extremely primitive and visually not as impressive, when compared to the original prop, the wristwatch made a good impact in the consumer market due to its futuristic style and inspiration based on the film.

Seiko “Final Fantasy Limited Edition Wristwatch” has the following specifications:

- Semi metallic bangle with a LCD in the image of “Wrist Holo” set into it.
- An original vertically extended LCD panel design.
- Mode-operation button for practical functions: “stop watch” and “alarm”.
- An EL panel light which illuminates the display in the dark.



**Figure 4.12:** Comparison of Wrist Holo (left) and Seiko Final Fantasy Wristwatch

## 5. ANALYSIS OF FILMS

Starting with late 1950s, there has been significant improvements in the production design process, regarding the special effects; visualisation techniques, stop-motion animation, prop/model making, scale modelling, prosthetic makeup, sound effects and many other features in science fiction films. As a result of these improvements, directors gained better control over their films; being able to create more realistic props, settings and effects, increased the credibility of the story and the film. As production design became a more important element in the hierarchy of film production process, producers started sharing larger budgets for production design.

Interestingly, the developments in production design influenced the storylines of the movies, as directors realised what they are able to create visually, a mutual feedback formed between the conceptual stages and the final products. One of the crucial elements of a future reality concept is that its credibility is relevant and directly proportional to the level of realism in production design, namely, the sets, props and special effects created for that particular concept.

For an analysis and detailed breakdown, five films are selected from the period between the 1960s era and 2000s era. These films are:

- 2001: A Space Odyssey (1968)
- Blade Runner (1982)
- Knight Rider (1982)
- Minority Report (2002)
- I, Robot (2004)

The main reason for not analysing earlier examples is related with the level of advance in production design in latter examples of the genre. There are many

differences between these five films regarding concepts, sub-genres, themes and production design as well as many common approaches. The selection criteria for these five specific films is stated below:

As stated in the previous chapters, the concept “future reality” may refer to technological, social, economic, cultural, religious, political or all of the mentioned aspects of a future. The films that are selected, incorporate at least one of these aspects, conceptually, or visually in their construction of the future.

All of the selected films are extremely popular and considered “cult” examples of the genre, having reached a large portion of people living on this planet, thus, they have influenced peoples’ lives at a social, cultural or technological level.

Although completely different in concept, all of the selected films make projections and speculations about a future. They are not only telling tales of mere fantasy.

In cases where the overall concept or storyline is not referring to a future reality, there are at least ideas or products of a future reality, integrated into a story which is more fictional and fantastic in concept. Such a case can be illustrated with the constructions in “I, Robot”. Although the projection of a year 2035 where the mass production and integration of extremely intelligent robots into everyday life seems unlikely to happen, the features of a car which Audi and the film designers speculate on, as a future reality transportation concept, is very logical and persuasive.

Concerning the selected films which were produced before mid 1980s, when compared to today’s reality, it is possible to find evidence of successful predictions and speculations regarding a future reality construction. The accuracy of the speculations and projections may not cover the whole concept of the film, but they definitely exist inside specific products or concepts in the production design to a certain degree. For the films that are produced between the year 2000 and up-to-date, it is not possible to investigate the accuracy of the constructions, simply because of their nature of projection; which is towards “the future”. However, it will be possible to examine their accuracy in a 20 - 40 years period from today.

All five of the films have a wide range of conceptual projections, products and technology concerning the different aspects of a future world, thus, they provide

more than enough material for examination and analysis. In earlier examples of the genre, the quantity of conceptual projections and products are not sufficient for the type of breakdown and analysis made in this thesis.

### **5.1. “2001: A Space Odyssey”**

Often considered by many, as “the” science fiction film, “2001: A Space Odyssey” (1968) is a milestone not only in the science fiction genre, but in the complete motion picture history itself. As stated previously, the story and screenplay is partially based on two different short stories by Arthur C. Clarke. The first story, titled: “The Sentinel”, was written for a BBC competition in 1948, but was not qualified, and was published in 1951 in a magazine called “10 Story Fantasy” with the title “Sentinel of Eternity”. It forms the basis for the second section of the movie. The second story, titled: “Encounter at Dawn” is the basis for the opening sequence of the movie. The screenplay was co-written by Stanley Kubrick and Arthur C. Clarke from expanded novalisations of those two short stories.

#### **5.1.1. Plot / Synopsis**

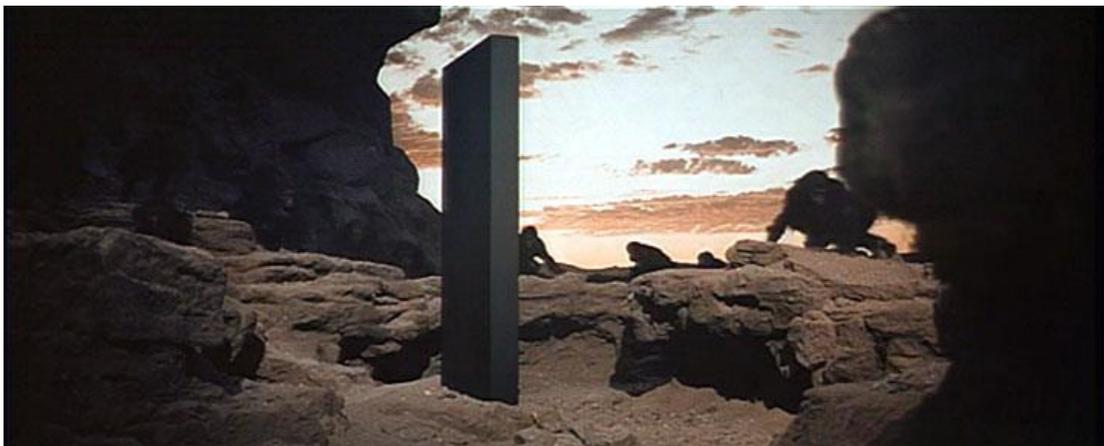
Even though the first and second sections are interlinked with each other, and there is no official title card before the second section, it is possible to examine the film in four sections:

- The Dawn of Man
- TMA-1 (Tycho Magnetic Anomaly #1) (this is an unofficial title because it is not titled in the screen, this title was set in 1999)
- Jupiter Mission, 18 Months Later
- Jupiter and Beyond the Infinite

##### **5.1.1.1. The Dawn of Man**

The first section of the movie opens with a dawn in the prehistoric ages, approximately four million years ago, in the Pleistocene era. The choice of music;

being Richard Strauss's "Also Sprach Zarathustra" makes this opening sequence one of the most dramatic and striking openings of motion picture history. Due to its irrelevancy with the purposes of this thesis, the musical score will not be examined any further. A group of hominids; ape-men, representing the unevolved stages of mankind, are presented as a herbivorous clan, eating grass and roots. On the second dawn, a tall, black rectangular monolith materializes out of nowhere. The scared and anxious ape-men gather around the monolith in order to examine it, while the monolith radiates a strange humming sound. (this is the first Monolith presented in the film). Both in the film, and the short story "The Sentinel", this monolith is interpreted as a special artefact, a machine constructed by an ancient extraterrestrial race, in order to investigate the galaxy, gather information and also influence and inspire the development of intelligent life forms.



**Figure 5.1:** The Monolith, surrounded by the scared and curious ape-men

With the influence of the monolith, one of the ape-men (in "The Sentinel", this ape is named "Moonwatcher") discovers the use of a bone, as a weapon which enables him to kill another animal in order to survive, and take the next step in human evolution, becoming a carnivore.

On the third dawn, the carnivorous ape-men encounter another clan of herbivorous hominids, and the leader of the carnivorous clan kills the leader of the opposing clan with the use of the bone, representing the first bloody war of humanity. As a sign of victory, after the leader hominid throws his bone into the air, the bone rotates many times, finally dissolving into a space satellite on Earth's orbit in the year 1999.



**Figure 5.2:** Moonwatcher, discovering the use of a bone as a tool

#### **5.1.1.2. TMA-1 (Tycho Magnetic Anomaly #1)**

This section is considered as a continuation of the first section by many critics due to the absence of a title screen. It can also be interpreted as the continuation of the evolution of mankind, from a hominid who just learned how to use a tool, to a civilisation which conquers the moon in the space-age.

Dr. Heywood R. Floyd (performed by William Sylvester) is an administrative scientist who is requested to go to the Moon in order to examine a magnetic anomaly on one of the Moon's craters named "Tycho". Dr. Floyd is first seen inside a Pan American "spaceplane", travelling to an orbital space station, called "Space Station 5", which also inhouses a space hotel; "The Orbitor Hilton".



**Figure 5.3:** The orbitor space station

He then takes another spaceship; “Aries 1B” to the Moon, to Clavius Base, where he meets the other scientists and officials. The secret mission of Dr. Floyd turns out to be related with the discovery of a black monolith unearthed on the surface of the Clavius crater. The discovery is kept strictly confidential, due to the possibility of anxious panic, or “cultural shock and social disorientation” that its exposure could cause in the public. The scene which shows Dr. Floyd and the other scientists and officials in spacesuits, gathering around the monolith and examining it in curiosity and total ignorance regarding its origin and mystery, is very similar to the reaction of the ape-men to the first monolith seen in the opening section of the film. The scientists come to the conclusion that this monolith is the construction of an alien intelligence, and has been intentionally buried there to be discovered by humans when they are evolved enough to reach the moon. Exactly as the previous one, the second monolith radiates the same strange humming sound. The second section ends when the monolith starts radiating an ear-piercing screeching sound, when the sun rays touch its surface, This sound is later deciphered by the scientists to be a radio signal aimed directly at Jupiter.

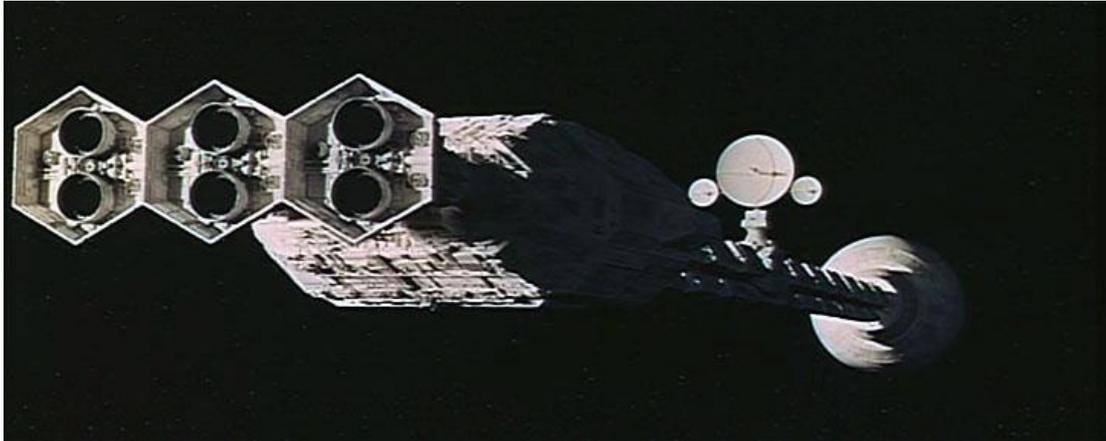


**Figure 5.4:** The second monolith surrounded by Dr. Floyd and the other scientists on Clavia crater

### **5.1.1.3. Jupiter Mission, 18 Months Later**

Eighteen months after the discovery of the signal radiated by the second monolith, a special manned mission to Jupiter is started in order to find and investigate the receiver of the signal. The third section of the film opens with the portrayal of the spaceship “Discovery”, already travelling on its half a billion miles course to Jupiter.

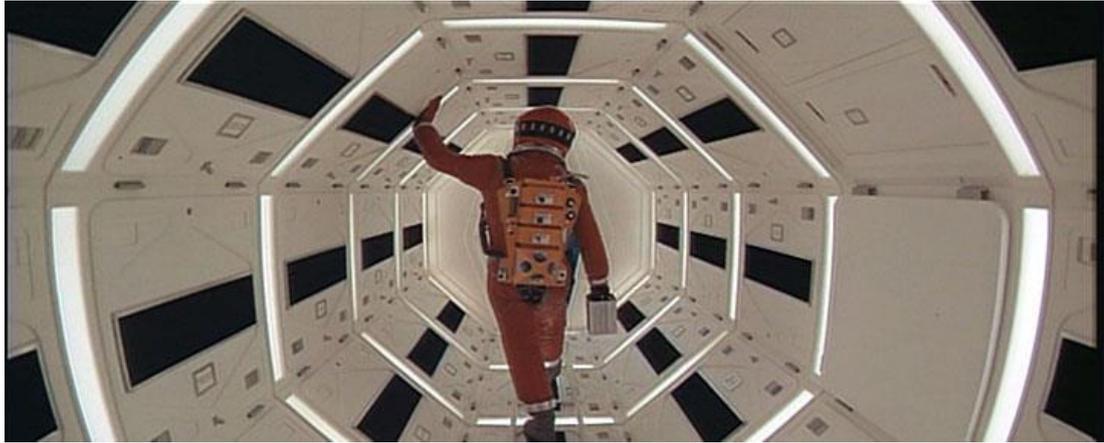
The mission crew is formed of five astronauts and a latest generation “HAL 9000” (Heuristic ALgorithmic Computer) computer with an extremely advanced A.I.. Three of the astronauts are hibernating in suspended animation inside computer controlled storage pods, and the other two astronauts, Dr. Frank Poole (performed by Gary Lockwood) and Dr. Dave Bowman (performed by Keir Dullea) are on active duty.



**Figure 5.5:** Spaceship “Discovery”, on its way to Jupiter (rear view)

The daily life of the astronauts and HAL 9000 is rendered with great detail, showing all the specific features, tools and interfaces available inside “Discovery”. HAL 9000 is portrayed as a computer who can see the crew and communicate with them through a series of interfaces which resemble a lens with a “red eye”, integrated in various places around the spaceship. HAL is also responsible for the maintenance of all the systems and features of the spaceship, providing service and solutions for the needs of the crew. Another important fact about the story is that among the six members of the crew, only HAL is given the information about the objectives of the mission to Jupiter. The astronauts are not given any information about the monolith or the signal it aims towards Jupiter. During the trip, the crew has periodic communication with the mission control centre on Earth.

HAL detects a malfunction in one of the vital components of the communication systems which enable the mission crew to communicate with Earth, and predicts that the component will fail one-hundred percent within the next seventy-two hours. Bowman leaves Discovery with a specially designed pod for EVA (Extra Vehicular Activity) operations in space.

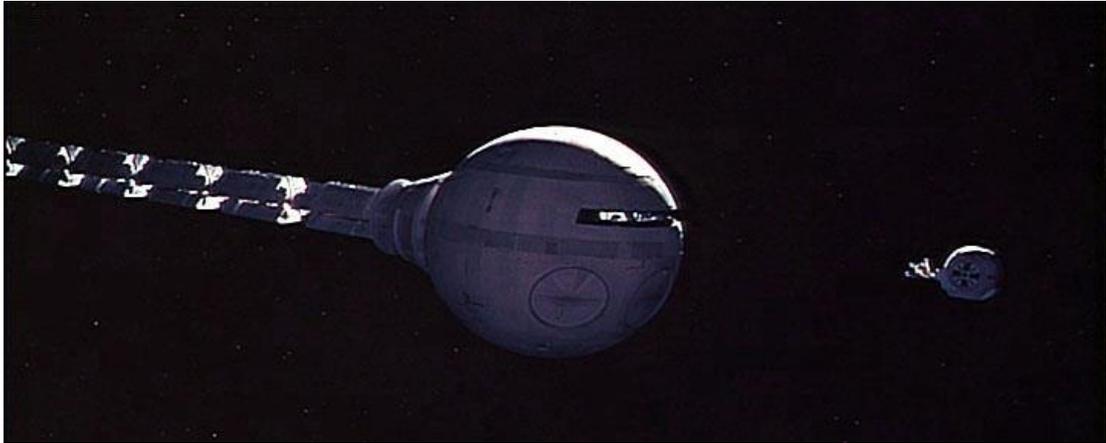


**Figure 5.6:** Dr. Bowman getting ready for a space walk in order to replace the defuncting “AE35” communications unit

After successfully replacing the component with the backup unit, the astronauts surprisingly discover that the defective unit actually functions perfectly. Having no previous instance of a computer error occurring in the history of the 9000 series, HAL is basically unable to consider the fact that the error might have been in his own calculation system. After receiving a second verification about the condition of the replaced component from the mission control on Earth, the two astronauts secretly discuss the matter inside a sealed pod and conclude the possibility that HAL itself may be malfunctioning, and should have its advanced functions disabled. They decide to re-install the malfunctioning unit in order to verify HAL’s error in the next seventy-two hours. Even though not being able to hear the astronauts discussion inside the sealed pod, the discussion being made inside his visual range, HAL uses his unique “lip-reading” feature to record the complete discussion and secretly creates his counter plan for the defence of his very existence. When Poole gets out of the spaceship to re-install the malfunctioning communications unit, HAL uses the EVA pod to cut down Poole’s oxygen cables and murders him. HAL, then executes the remaining three astronauts in hibernation while Bowman is out of the spaceship with the second EVA pod in order to rescue and retrieve the already dead body of Poole.

After very dangerous manoeuvres with the EVA pod, Bowman manages to re-enter Discovery, which was sealed shut by HAL and directly proceeds to the “brain room” of the HAL 9000 computer and disconnects all of the higher functions of HAL, who in the meantime begs for mercy many times during the long memory deactivation

process. As HAL is deactivated, a pre-recorded tape is heard in the loudspeakers, finally revealing the crew, the objectives and reason of the mission, giving detailed information about the discovery of the monolith and the radio signal it aims at Jupiter.



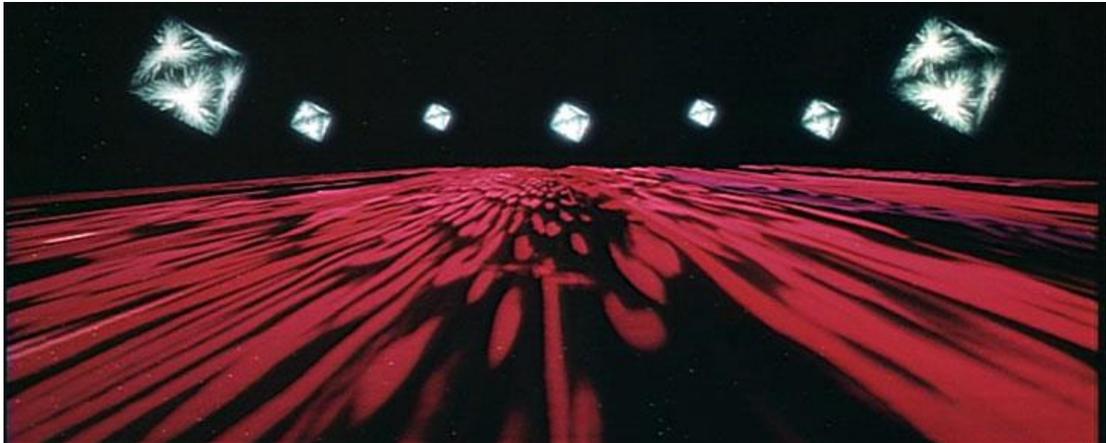
**Figure 5.7:** A memorable scene showing the final confrontation of HAL (controlling Discovery) and Bowman in EVA pod, facing each other

#### **5.1.1.4. Jupiter and Beyond the Infinite**

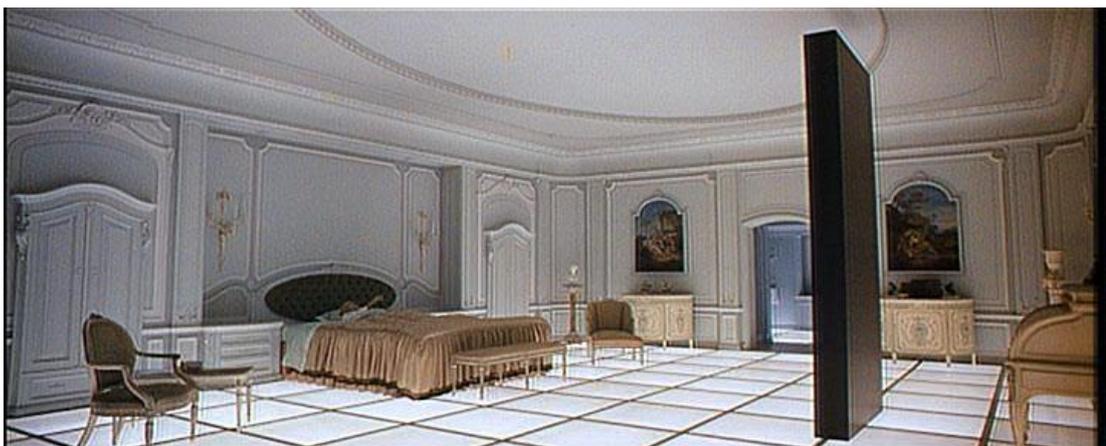
The last section of the film is both visually and philosophically the most abstract and open ended part. After Bowman learns the mission objectives, he completes the mission alone, finally reaching outer regions of Jupiter's orbit. There, Bowman encounters the third monolith in the film, silently floating through space. He then leaves Discovery in an EVA pod, in order to retrieve and investigate the monolith and solve its mystery. There, Bowman's EVA pod is sucked into a stargate, a transcendental journey, that happens faster than the speed of light, activated by the monolith. With the help of mind blowing visual effects, Bowman's journey is portrayed as a series of tunnels, corridors and vortexes with light tricks and visions of inner and outer space, where Bowman encounters the cosmic phenomena of infinity, symbolised with explosions of nebulae, constellations, stars, and many other richly coloured abstract patterns, landscapes and planes.

One possible way of interpreting this journey is that it is actually Bowman's perception of the alien solar systems and other unknown cosmic phenomena existing in the Universe. When his journey comes to an end, he finds himself suddenly transported in a semi-familiar but surrealistic environment, which is presumably

created from his own imagination and subconscious memories, by the ancient alien race who sent the monoliths to Earth and Moon. The EVA pod is seen inside a hotel bedroom which is decorated in a 1700s French baroque style.



**Figure 5.8:** One of the scenes from Bowman's cosmic journey through the stargate



**Figure 5.9:** Dying Bowman trying to reach out to the fourth monolith

In the next camera shot, Bowman is pictured outside the pod, where he discovers his grey hair and the wrinkles on his face, all indicating that he has aged after his trip, being the next stage of his rapid transformation. The next camera shot shows Bowman's encounter with an elderly white haired man, having dinner who turns out to be but a much older reincarnation of himself. On the dinner table, Bowman accidentally hits his wine glass, it hits the floor and shatters into pieces. When he bends to look at the glass, he meets the last incarnation of himself, a bald, dying old man lying in bed. The last camera shot shows the fourth monolith, materializing out of nowhere, in the middle of the bedroom, from the eye view of the dying Bowman, as he tries to reach out to it with his hand, exactly the same behaviour that is

portrayed with the ape-man “Moonwatcher” and Dr. Floyd in the previous sections of the film. After the monolith is presented, the dying Bowman reincarnates into an embryo, and reborns as a cosmic “Starchild” which then floats through space with a shining spherical halo around him, completing his transcendental evolution into a higher being.



**Figure 5.10:** The “Starchild”

Richard Strauss’s “Also Sprach Zarathustra” is heard again in the closing scenes, adding a dramatic effect to the end of the film.

Due to the highly abstract and open ended nature of the film with contrasting elements of transcendental mysticism as opposed to scientific realism, it is possible to define the sections, the connections between the sections and the movie itself in many different ways. The above interpretation of the plot is only one of the endless possibilities and is not in any way intended to be the only true or correct interpretation of the film.

### **5.1.2. Construction of Future Reality**

The concepts and products of “2001: A Space Odyssey” are examined in detail in relation with the production design process in the “Production Design / Design Construction” sub-section, followed by the investigation of the validity of the constructions and projections, in comparison with today’s scientific facts.

The second sub-section; “Social Construction” investigates Kubrick and Clarke’s social constructions of the film, both in relation with the film’s inner reality, and the

possible social impacts of the projected technology in a future society. For the purposes of this thesis, the social constructions will not be interpreted or examined in relation with the transcendental mysticism that is referring to evolution, or origins of evolution and the existence of extraterrestrial intelligence in the Universe.

#### **5.1.2.1. Production Design / Design Construction**

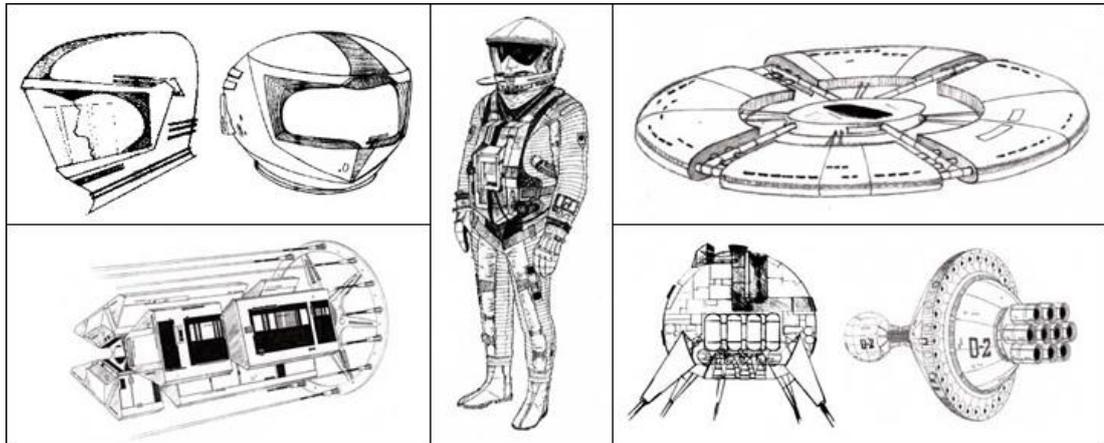
For the production design of “2001: A Space Odyssey”, Stanley Kubrick set very high standards regarding the scientific realism and visual language of the movie.

After working in close collaboration with Arthur C. Clarke for over one year, the pre-production process began in 1965. On Arthur C. Clarke’s recommendation, Kubrick hired spacecraft consultants Frederick Ordway and Harry Lange, who were working associates, as scientific advisors and technical consultants for the film. Their expertise were on the aerospace industry, having worked with many major companies in the industry and primarily NASA; where they worked with legendary German rocket scientist Werner von Braun in NASA’s Marshall Centre and previously, in Army Ballistic Missile Agency in Huntsville, Alabama. Many of these companies such as; Bell, Boeing, General Dynamics, General Electric, Honeywell, IBM, RCA, and Whirlpool Corporation, provided the production design team with many documentations and prototypes in return for product placements in the film. The production years of “2001: A Space Odyssey” coincides with the years when the space race between USA and USSR was at its height; as a result, most of the companies in aerospace industry decided that product placement would be a very convenient way to advertise space technology on big-screen (**DeMet, 1998**).

With “2001: A Space Odyssey”, Stanley Kubrick and Arthur C. Clarke did not make only predictions or speculations, but they made plausible constructions of a future reality instead. Ordway and Lange were entrusted with the conceptual designs and detailed sketches of almost all of the spacecrafts, computer and spacecraft interfaces, space suits, helmets, and other specific tools and artefacts used by astronauts in the film. In a BBC interview in 2002, Harry Lange comments on his previous experience and attitude in the film production process:

“At Nasa, I headed the future projects section. We illustrated the ideas of the German scientists (Werner von Braun's team), such as nuclear propulsion, space stations, space

platforms. There were no hardware, no blueprints, just conversations to base our drawings on. These were used to get permission for study funds from Washington.



**Figure 5.11:** Original conceptual sketches of Harry Lange for “2001: A Space Odyssey”

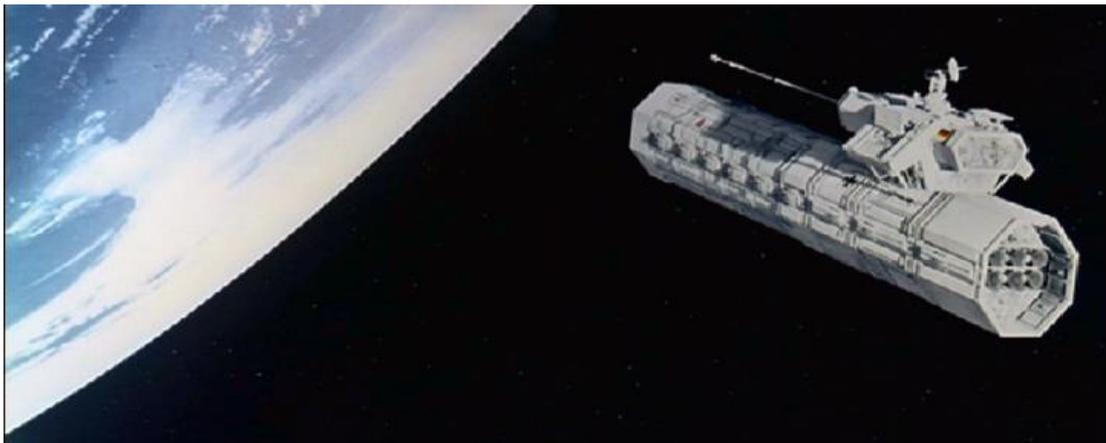
I'd seen real hardware at Cape Canaveral and in NASA's research laboratories and hangers, so I knew what the equipment had to look like. The surface of the Discovery model had to look as if it could withstand asteroid dust, and virtually every button on every console had to be depressible. A piece of board with blue squares stuck on it may do for TV, but not when you want to do something on a Cinerama screen. It had to be absolutely perfect. Now that it's 2001, everybody asks me how close the film came to reality. Some of it is close, some it is not so close. But everything in that film is now being very seriously considered and worked on by Nasa, or their counterparts” (BBC, 2002).

Concerning the projections of “2001: A Space Odyssey” which are related with the physical conditions of space, the film should be credited for being one of the very few examples that portrays an accurate representation of space travel and motion under micro gravitational conditions. As space is a vacuum environment, there is no sound in it. The silent journey of the spacecrafts through space, is a precisely accurate portrayal of reality as opposed to action in films like “Star Wars” where the spaceships fly through space producing various interesting sounds to add a dramatic effect to the scenes.

The scenes that portray motion in micro gravity is also described accurately and with variations in order to give the audience a chance of comparison. It is possible to visually experience the weightlessness in the scenes where Bowman is replacing the damaged AE35 unit, where as, Bowman and Poole walk regularly on the main deck,

under the artificial gravity created by the rotation of the wheel system of “Discovery I”. In the scenes where the flight attendants of “Orion III” and “Aries 1B” are walking in slow motion, they are again in micro gravitational conditions, but are able to move with Velcro® “grip shoes”.

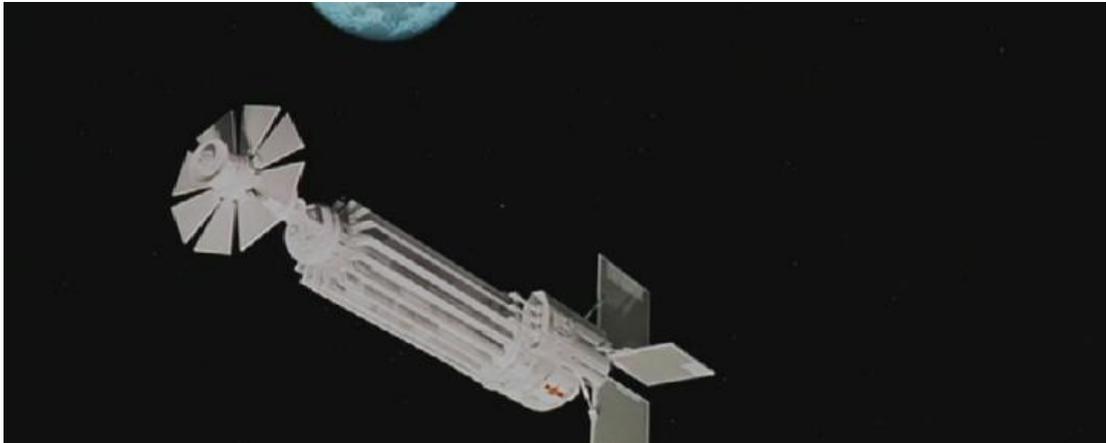
The spaceship designs in “2001: A Space Odyssey” are in many ways more realistic compared to both their predecessors and latter examples in other science fiction movies. The spacecrafts in “2001: A Space Odyssey” do not have hyper drive engines which would let them jump to hyperspace, in other words cruise at light speed, (like the spaceships in “Star Wars”), nor do they have any experimental engines that would create artificial black holes in order to fold up space and travel to Jupiter at an instant (the experimental engine in “Event Horizon”). They simply work either with the available NASA rocket technology or a speculative technology which is constructed on the available technology.



**Figure 5.12:** An orbital craft, with Germany insignia, from the opening sequence of “TMA-1”

The film also speculates about the developments in military technologies. Although their purpose is not made clear in the movie, upon close examination, the satellite-like orbital crafts seen in the opening sequence of the second chapter are supposed to be weapons platforms inhousing various nuclear devices, because they have military insignias of U.S., France, Germany and China printed on their bodies. Considering the fact that, the first chapter “The Dawn of Man” ends with the rotating bone, which is a weapon; Kubrick probably wanted to dissolve the weapon of four billion years ago, to another weapon, belonging to the space age. Despite the fact that there is

existence of military technology in the orbit of the Earth, none of the spacecrafts in the movie are portrayed incorporating or carrying any kind of bombs, laser guns or other weapons of any sort.



**Figure 5.13:** Another orbital craft, from the opening sequence of “TMA-1”

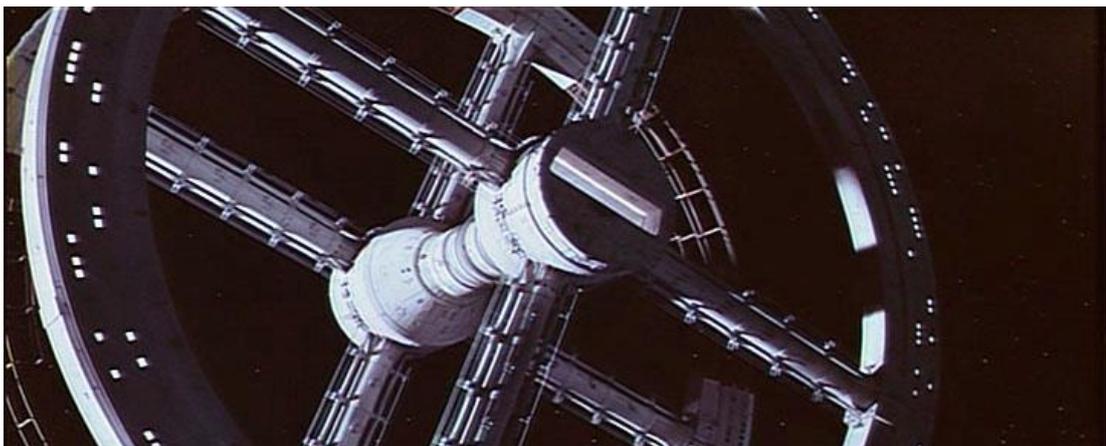
Even though the visual language and aerodynamic forms of the spacecraft may not be as impressive compared to the designs in “Star Trek” or “Star Wars”, their fictional technology and functions were designed as scientifically plausible as possible.



**Figure 5.14:** The Pan American “Orion III” model “spaceclipper”

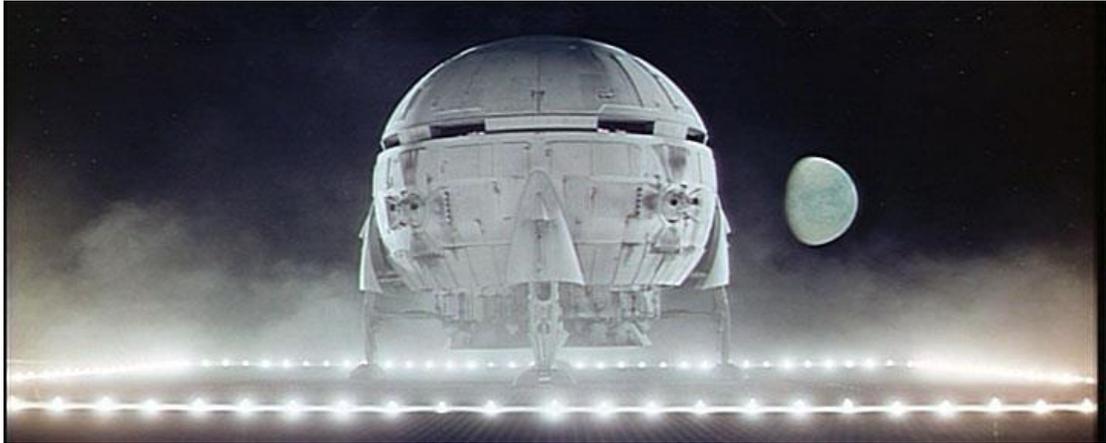
Designed as a “spaceclipper” or in other words a “space plane”, the Pan American “Orion III” Earth-to-orbit shuttle, is the most plane-like spacecraft in the film. It is also the most aerodynamic and organic looking design in the entire movie.

As opposed to being portrayed as a fancy space fortress or castle, the orbiter “Space Station 5” is designed as a basic geometrical structure composed of two parallel wheels floating in space. The purpose of this design is most probably related with producing artificial gravity and energy consumption. It is also important to note that the wheeled space stations were first proposed by the German scientist Werner von Braun, whose ideas and concepts were illustrated by Harry Lange in the future projects department of NASA. The interior of the space station is portrayed as a luxurious and extremely advanced structure. The artificial gravity system of the station is visioned similar to the system in “Discovery I” where the gravitational condition is produced with the spinning movement, in other words rotation. This information explains to some extent, the form of the space station, because an artificial gravity production for such a large construction would probably be achieved only if the construction itself, rather than a part of it, made the spinning movement.



**Figure 5.15:** Close up view of the orbiter “Space Station 5”

“Aries 1B”, undoubtedly carries the traces of Apollo 11 LM (Lunar Module) “Eagle”, the module which carried Neil Armstrong and Buzz Aldrin to the Moon in 1969. At the time “2001: A Space Odyssey” was being produced, Apollo Programme was already underway, regarding the LEM (Lunar Excursion Module) studies. As Frederick I. Ordway states in his retrospective on the film, Ordway and Clarke; paid regular visits to the Grumman Aircraft Engineering Company in Bethpage, Long Island, where they had many sessions related with the current progress on Apollo's LEM (**Visual Memory**).



**Figure 5.16:** “Aries 1B”, the spacecraft, landing on Clavius Base on the Moon

The “Moonbus”, also called the “Rocket bus”, which takes Dr. Floyd and the other scientists from Clavius Base to the excavation area in the Tycho crater, is a base-to-base transport used mainly for selenographical, selenological and selenophysical exploration. It has an odd geometry and a front panel which undoubtedly resembles the train and bus designs of the 1960s.

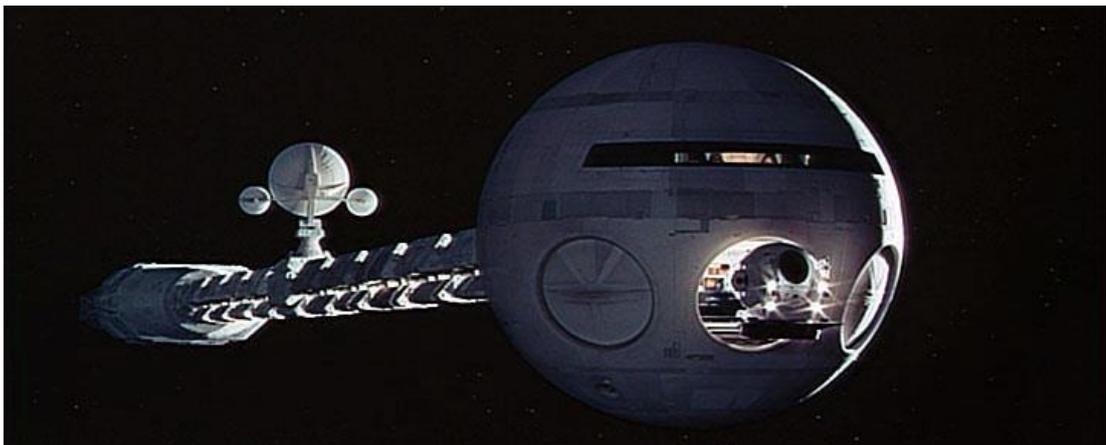


**Figure 5.17:** The “Moonbus” transfers Dr. Floyd to the Tycho crater

Even though it cruises above the surface, without touching the ground, it is still defined as a lunar land vehicle, and Kubrick most probably wanted the visual language of this particular vehicle to indicate an inferior technology compared to the other spacecraft in the movie. Also, the name “Moonbus” suggests a public transport vehicle, and the interior of the bus is also designed as an ordinary and narrow space which is not embellished with a lot of various panels or lights, not to mention the

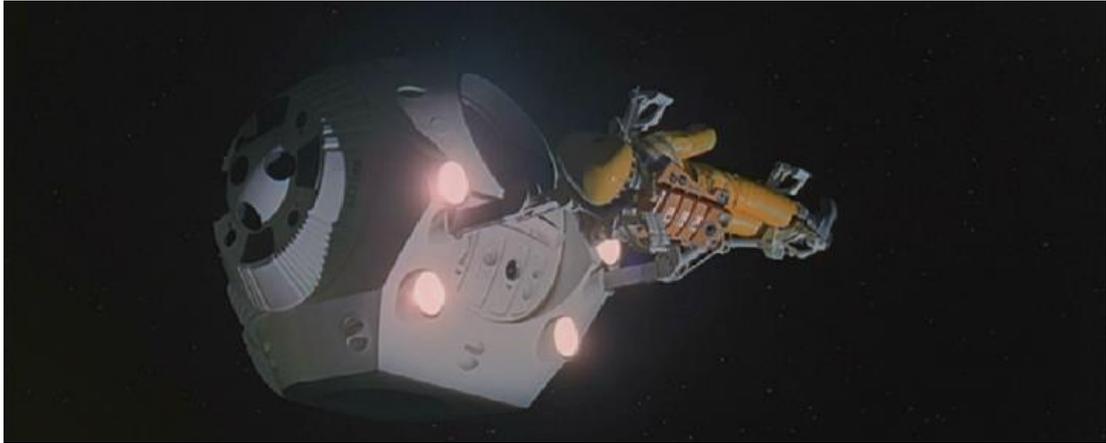
absence of the LCD flat screens that are integrated on ergonomic seats in all the other spacecraft in the film.

The seven-hundred feet long USSS “Discovery I” looks very odd and impressive, regarding its proportions and aerodynamics. It almost imitates the human skeletal system, with the spherical part resembling a big skull, followed by the long spine, which is the body of the spaceship. As the skull is designed to house the crew, including the astronauts in hibernation and HAL 9000, and the main deck where all the operations are run, the unproportionally long spine is most probably designed in order to compensate the tankage, with each vertebrae holding the necessary fuel and supplies needed for a long, two-way interplanetary journey to Jupiter. The artificial gravity conditions for the astronauts are created with the spinning movement of the wheel structure incorporated inside the spherical part of the spaceship.



**Figure 5.18:** USSS “Discovery I”, front view; releasing an EVA pod

The EVA pod is designed exactly for the requirements related with the maintenance and repairs of “Discovery I”. It is an auxiliary reconnaissance-maintenance and local exploration craft. In other words, EVA pod is a problem-solving vehicle. It is designed as a single-person craft, with two arms and four claws that have many articulation points, designed to imitate and perform the tasks which are done by a human hand. The visual language and simple form of the EVA pod undoubtedly reflects its problem-solving function.



**Figure 5.19:** Close up of EVA pod, carrying Poole’s dead body with its claws

However, it is important to note that Leonard F. Wheat, (author of “Kubrick’s 2001: A Triple Allegory”) has a completely contrasting approach regarding the origins of the designs of spacecraft in the film. Mr. Wheat claims that 2001 is an allegory; “A surface story whose characters, events, and other elements symbolically tell a hidden story. One story tells another”. Wheat explains:

“The anthropomorphic spaceship Discovery (head, mouths, spine, etc.), along with its brain, Hal, is a symbol for an anthropomorphic God, not a prediction of spaceships in 2001. The space station is a female symbol that coordinates - or, I should say, copulates - with the phallic space shuttle in sexual symbolism that depicts the conception of the anthropomorphic God. (This symbolism uses the spherical moon-lander’s journey to and entry into a larger sphere, the moon, to represent the sperm cell’s trip to and entry into the ovum, which gestates into God. God is born "18 months later," as the subtitle of part 2 puts it.) The space station also symbolizes Eternal Return. Walking straight ahead (into the future) inside the circular rim of the space station takes you back to where you started (the present)” (**The Blurred Horizon Press, 2001**).

Harry Lange’s conceptual sketches were brought to life by a team of more than one-hundred model makers headed by production designer Anthony Masters. Some of the props such as spacesuits, the panels and interfaces were outsourced to various aerospace and engineering companies in order to obtain greater authenticity.

The film’s most expensive and impressive set is the interior of the spaceship “Discovery”. To compensate for the weightlessness of outer space, the ship’s crew compartment was envisioned as a centrifuge that would simulate gravity through the centripetal force generated by its rotation. A 30-ton rotating "Ferris wheel" set was

built by Vickers-Armstrong Engineering Group, a British aircraft company at a cost of \$750,000. The set was 38 feet in diameter and 10 feet wide. It could rotate at a maximum speed of three miles per hour, and was dressed with the necessary chairs, desks, and control panels, all firmly bolted to the inside surface. The actors could stand at the bottom and walk in place, while the set rotated around them (DeMet, 1999).



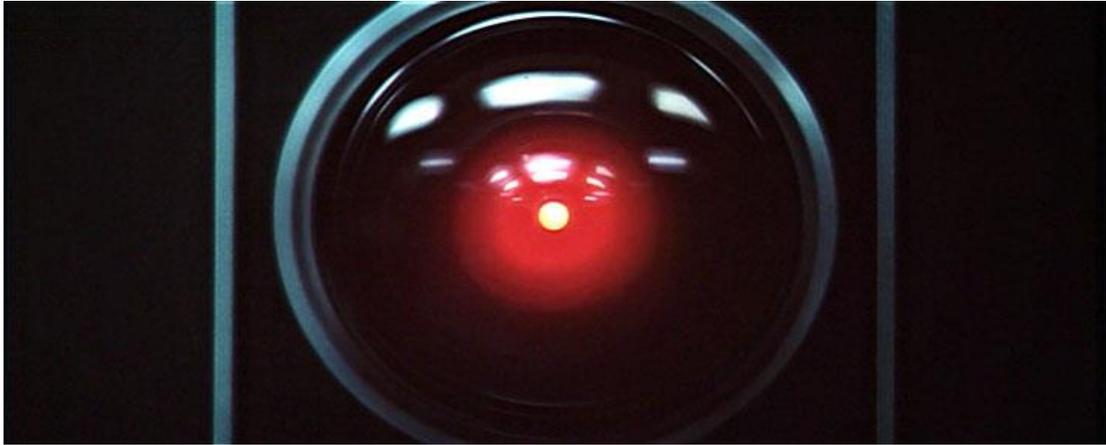
**Figure 5.20:** Poole doing his daily jogging under artificial gravity produced by the spinning movement of “Discovery I”

Regarding HAL 9000; the most popular character of the film, Kubrick’s visual representation of HAL is very unique and dramatic. Considering that HAL is an extremely sophisticated computer, with advanced A.I. and abilities to produce and mimic most of the activities of the human brain and emotions, the portrayal of HAL is exactly the opposite of what would have been expected.



**Figure 5.21:** “Discovery I”’s control panel; Eight computer screens and HAL 9000’s “eye” interface integrated in the middle

One would imagine HAL to be pictured as a colossal machine with hundreds of lights and complicated interfaces and screens and many buttons for specific operations, but in fact, in the film, HAL appears in the form of a small camera lens with a red light.



**Figure 5.22:** Close up view of HAL 9000's "eye"

Technically, HAL 9000 is integrated all around, inside the structure of "Discovery I", for this reason, it is not possible to see the actual hardware components of HAL. There are many "eyes" of HAL integrated into various panels all around the different compartments of "Discovery I", in order to enable HAL to watch over the crew, and maintain the overall surveillance of the spacecraft. From the crew's point of view, the lens interface helps them perceive and accept HAL more as a personality, an independent entity, in other words, a sixth member of the crew. In most scenes, Bowman and Poole are actually looking at HAL's "eye" while talking to him, as if they were looking at each other eye-to-eye. This "user friendly" or "human friendly" interface gives some hints to some extent, on Kubrick's intentions to transform HAL from a computer to a living entity, an individual character.

When HAL is examined in comparison with today's computer technology, apart from his features which are possessed by the advanced computers of our day, regarding the projections of Stanley Kubrick and Arthur C. Clarke, some of them turned out to be incorrect where as some are still far away from being a reality of a near future.



**Figure 5.23:** Poole, playing chess with HAL 9000

“As early as 1845, Charles Babbage proposed programming his Analytical Engine to play chess. A hundred years later, computer science pioneer Claude Shannon thought that a chess playing computer could lead to other practical uses. In 1989, world champion Garry Kasparov beat “Deep Thought”, a computer programmed in Carnegie-Mellon University. Seven years later, Kasparov won a match against IBM’s “Deep Blue”, but in 1997 rematch, Deep Blue won. The computer’s parallel processing technology could analyse two-hundred million positions every second. Chess playing is no longer considered as standard of intelligence for a computer. Developing computers like “Deep Blue” serves many purposes besides defeating grand masters. Such powerful machines can help solve complex problems in engineering, medicine and other fields” (**TheTech Museum of Innovation, 2001**).

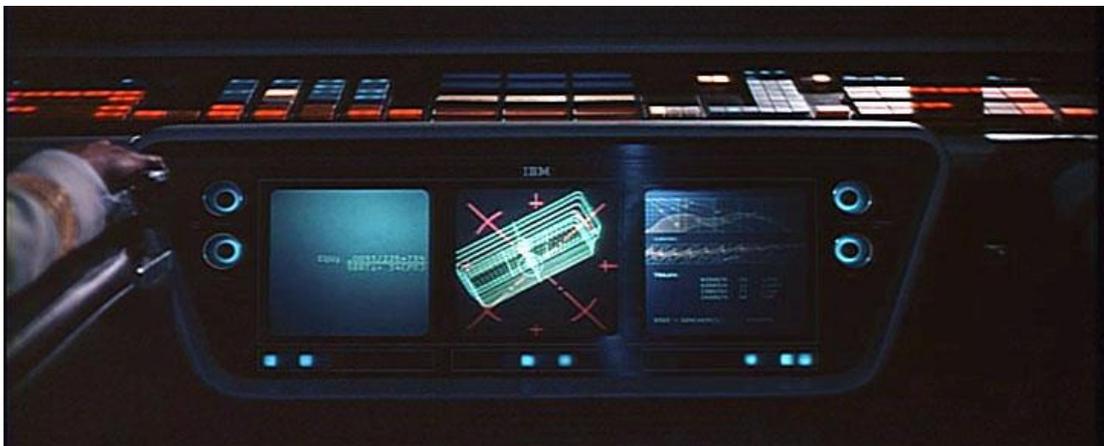


**Figure 5.24:** HAL’s “eye” seen in the background of the scene, lip-reading the conversation of the astronauts

Regarding the scene where HAL reads the lips of Bowman and Poole, while they were having a secret conversation inside a sealed EVA pod, HAL’s ability to read the astronauts’ lips is still far beyond what computers can do today. The further

inaccuracy in the performance of HAL is that he is able to lip-read the conversation looking at the astronauts' profiles only.

In 1960s, when “2001: A Space Odyssey” was in production, computers were gigantic, to be more specific, the size of one or two storey buildings, and hundreds of meters long, and they were merely able to do mathematical calculations not to mention the lack of advanced multitasking abilities. Designed in MIT Lincoln Lab., and later on developed by IBM in the mid 1950s, the famous “SAGE” (Semi-Automatic Ground Environment) computer was the first large-scale, real-time digital computer supporting a major military mission. It weighed 250 tons and used more than 55,000 tubes. It was at least ten years ahead of general purpose time sharing systems and thirty years ahead of personal computers and workstations. Today, a laptop computer, or even a small hand calculator easily out performs the performance of SAGE. As the transistors, semiconductor technology; silicon based microchips and microprocessors had not been invented in 1960s, Kubrick and Clarke couldn't foresee the miniaturization of computers; nor were they able to realise that computer power would be distributed among many devices networked together, rather than trusting to one big computer (**Williamson Labs**).



**Figure 5.25:** “Orion III”'s dashboard; control panel and computer interfaces

Even though not self-explanatory in the movie, all the computer systems such as navigation, communications, docking, guidance, backup systems, condition displays, and many others have been designed to the highest accuracy, under the consultancy of General Electric, IBM, RCA and other companies. For the visualisation of the computer technology, the production design team created graphic interfaces for

computer screens and various electronic panels for HAL 9000 and the remaining computers integrated in the other spacecraft.

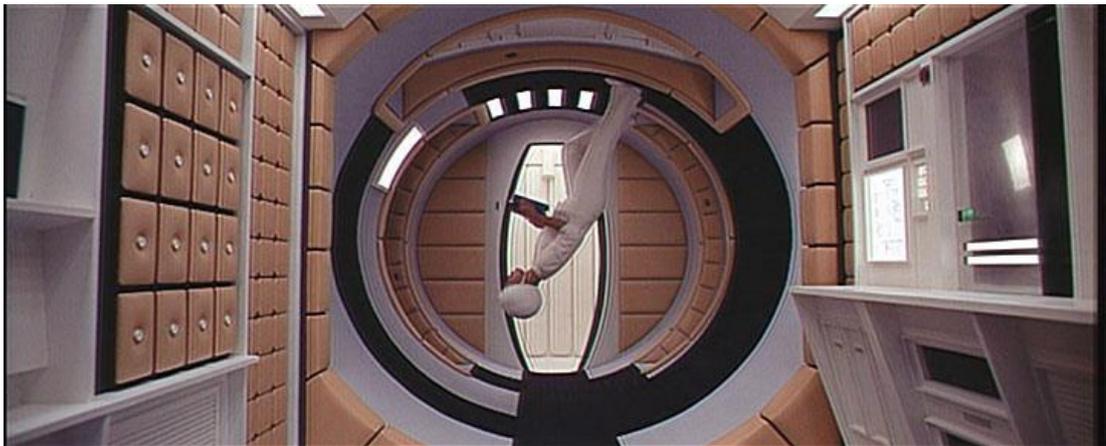


**Figure 5.26:** “Moonbus”’s dashboard; control panel and computer interfaces



**Figure 5.27:** Computer screens from “2001: A Space Odyssey”, recreated from the movie by designer Mike Jackson

In the process of designing the spacecrafts, Stanley Kubrick and Arthur C. Clarke also projected many details for the interiors of the spacecrafts which are related to the physical conditions of space and requirements needed for adjusting to those specific conditions. The interiors of spacecrafts, computer screens, user interfaces, “zero gravity” rotating doors, motion protocol for space travel, suits, voice print identification, and even automated kitchen units preparing “engineered food” for space travel, have been designed with extreme detail, and as scientifically accurate as possible.



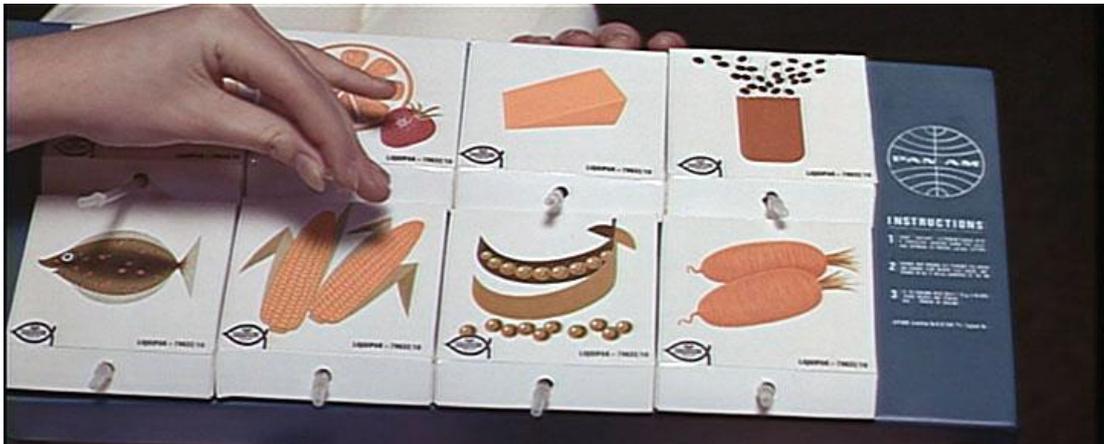
**Figure 5.28:** A flight attendant performing a rotating move in “zero gravity” environment



**Figure 5.29:** Close up of Velcro® “Grip Shoes” which enable the flight crew to walk under “zero gravity” conditions during the flights

“The idea of a Velcro® fastener came from a nature hike in 1948. Swiss inventor George de Mestral and his dog returned from their walk covered with burrs. When de Mestral looked at the burrs under the microscope, he saw that the little seed sacs had tiny hooks that clung to

the fabric of his pants. He patented his invention in 1955 and created the name “Velcro” from “velour” and “crochet”. Since the 1960s, NASA has used lots of Velcro® fasteners - they hold tools to spacesuits; anchor food containers to tables; keep cameras and laptop computers from floating away; stick flight plans, maps, and charts to the inside walls of command modules; and hold amateur radio gear in place on the International Space Station, to name only a few uses” (TheTech Museum of Innovation, 2001).



**Figure 5.30:** Engineered food for space travel and “zero gravity” environments

“Kubrick’s idea of space dining wasn’t far fetched. TV dinners; frozen meals served in aluminium trays, were invented at C. A. Swanson & Sons in 1953. And in 1961 Tetra Pak introduced aseptic packaging - familiar today as “juice boxes” for storing foods at room temperature. The lack of gravity in space makes preparing and eating food a challenge. Crumbs, droplets of liquid, even knives and forks floating in micro gravity can harm electronics and people. There isn’t a lot of room on spacecraft, and weight is limited. That’s why, the water is removed from much of the food by freeze-drying, (water is heavy) and there aren’t any refrigerators. Flexible pouches and other packaging reduce the volume of waste. In 1960s, astronauts ate nutritionally complete but unappetizing “food powder”, to which the men added water and drank through straws. They squeezed food from tubes and ate food cubes coated in gelatine. Even though some space foods like Tang and freeze-dried ice cream became popular with the public, and freeze-dried foods are now staples for campers, the trend in space dining has been toward more everyday, flavourful choices. Today’s astronauts eat normal food and have a wide selection. Typical menu items include tortillas, shrimp cocktail, granola, chicken stew, fruit and brownies. On future long duration space flights, astronauts might partake of recipes being cooked up by the military; meat tablets called “Micro MREs” or transdermal patches that deliver nutrients right through the skin” (TheTech Museum of Innovation, 2001).

Another important fact about engineered food is about its preparation. In the movie, both “Aries 1B” and “Discovery I” are incorporating the “automated kitchen” which

enables the astronauts and personnel to prepare and fill engineered food inside the tablets using specific buttons on the kitchen panel.



**Figure 5.31:** Life support pads for the astronauts in hibernation

The fictional technology which enables the hibernation of the remaining three astronauts of the mission have been created with a great deal of consultancy and detail. As Frederick I. Ordway states in his retrospective on the film; the visualisation, medical and technical details of the hibernation process were created under the consultancy of Dr. Ormand G. Mitchell of the New York College of Medicine, Dr. A.T.K. Cockett of the Harbor General Hospital in Los Angeles, and Drs. K.G. Williams and Peter Scott of the Medical Division of Vickers Limited in London. According to the projected technology, during the journey, each astronaut is monitored with respect to locomotor system; central nervous system; cardiovascular activity, e.g., heart rate, myocardial state, cardiac output, blood pressure, capillary exchange, lymph flow; systems integration, e.g., endocrine control, neuro-control and balance; metabolic levels, e.g., acid base balancer renal functions, nutrient input, deep body temperature, hepatic function; sensory activity; pulmonary function; and such direct hibernation controls as hypothalamus stimulation, temperature rise A (heart rate), temperature rise B (respiratory rate), sugar enrichment, thyroxin control, and vibrator (**Visual Memory, 2005**).

“In 1968, there was no such thing as human hibernation. In 2000, scientists at North Carolina State University identified two genes involved in hibernation. Hibernation could help people go on very long space trips. Humans travelling for several years in such a dormant state would need less food, oxygen and other consumable supplies. They also wouldn’t get bored. In the near future, more practical uses for hibernation genes could be to preserve donor

organs for transplant surgery or to help people lose weight” (**TheTech Museum of Innovation, 2001**).

When it came to envisioning the space technology of thirty-two years ahead, extreme care and detail were given even to the smallest and most insignificant product or feature despite the fact that they had so little or no screen time at all. A very good example for such a case is the “Zero Gravity Toilet” which Dr. Floyd uses, on “Aries 1B”. The original instructions for the “Zero Gravity Toilet” can be found in the Appendix 2 of the thesis.



**Figure 5.32:** Dr. Floyd, reading the instructions for “Zero Gravity Toilet”

Apart from designing spacecraft, and specific products, features and services related with spacecraft, Stanley Kubrick, Arthur C. Clarke and the rest of the production design team also projected many ideas, user relations and products regarding the many aspects of a “daily-life” of the year 2001, such as communication & telecommunication, fashion & style, furniture and interior design, kitchenware, and even personal accessories. During the construction the daily-life of 2001, apart from inventing new products and user relationships, Kubrick also “borrowed” existing technologies, which were not widespread and popular due to being expensive for mass manufacturing and public use.

As opposed to the rich and colourful fashion design approach in films like “Star Wars” or “Dune”, the costumes and accessories concerning the projected fashion & style of 2000s are not pictured as shiny and glossy metallic painted clothes but they are rather modern and minimalist interpretations of the existing clothing of the 1960s. This is most probably the reflections of how the American society sees itself

in the future. Interestingly, the role of woman, as a flight attendant in a spacecraft, or a hostess in a space hotel, is preserved, with business costumes composed of pant suits and skirts designed by costume designer Hardy Amies. An interesting addition, however, is the rather odd space hats that the stewardesses wear inside the spacecraft. Compared to today's fashion, these costumes look outdated. However, as the formal dress code has not changed much in the last 35 years, costumes for the scientists, military personnel and astronauts resemble today's clothes with the exception of ties, which would prove extremely impractical in zero-gravity conditions.



**Figure 5.33:** Dress code for “Space Station 5” attendants



**Figure 5.34:** Dress code for “Aries 1B” flight attendants

In the portrayal of 2001, all of the spacecraft and facilities have various sizes and shapes of wide aspect flat screens integrated on the seats, walls and panels. The LCD and Plasma technologies were already invented in early 1960s but were not ready for public market yet.



**Figure 5.35:** Dr. Floyd, is getting information from a flat screen integrated on a wall panel in “Space Station 5”



**Figure 5.36:** The interior of Pan American “Orion III” spaceclipper, a flat screen display integrated on the back of a seat



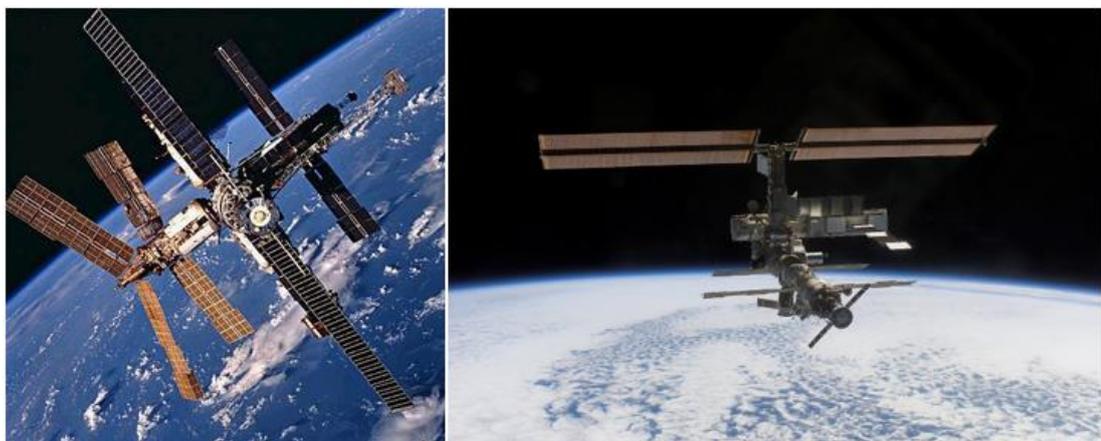
**Figure 5.37:** The interior of “Aries 1B”, a flight attendant is watching a judo competition on flat screen while having dinner

While constructing the future reality concerning the daily life of the year 2001, The production design team did not only create authentic props and products, but they also incorporated the ideas of industrial designers who shared a similar vision of a future reality with them. The famous and now cult furniture designs of the film are actually industrial products, which were designed and manufactured before the film production of “2001: A Space Odyssey” started.

In Kubrick’s vision, the concept of space travel in 2001 is projected as more than just scientific and military activity. Civilian space travel would become such a common and feasible service that it would be a necessity to establish “space hotels” and other civilian facilities for public use.

Compared to the reality of today, chances of seeing civilian presence in space, or in the orbit are very high. And a large “space hotel” inside a space station with almost earth like conditions such as artificial gravity and catering services is not far away from being reality. As a pioneer in “space tourism”, American millionaire Denis Tito paid Russian Government \$20 million and was taken to the International Space Station with a Soyuz spacecraft for a one-week holiday.

Today, the existing space stations; Mir and International Space Station (ISS) do not resemble the “Space Station 5” in “2001: A Space Odyssey”, nor do they have any artificial gravity, or space enough to inhouse a hotel or restaurant. However, the reason for this conceptual difference does not lie in insufficient technology, but in the objectives and intentions of NASA’s research programme instead.



**Figure 5.38:** “Mir Space Station” (left) and “International Space Station”

NASA has intentionally designed the International Space Station in its existing shape and features, in order to create an environment where the scientists could study the long-term effects of micro gravity on humans, animals, plants, tissue and materials.

John Uri; a scientist working with the International Space Station, states that the research that is being done in ISS, can not be done anywhere else. “You need that micro gravity environment” he says. “You need it for a long duration of time”.

Four decades of human space travel already proved that micro gravity conditions weakens the bones, the muscles and the cardiovascular system. Uri states that the research is investigating the possibilities of finding alternative solutions to adapt better to long term space conditions, including new methods of protecting humans from harmful radiation in space (CNN, 2000).

Another important area of research is biotechnology. According to NASA scientists, when grown in micro gravity, protein crystals become larger, and their structure becomes easier to examine. This information will be very useful for engineering new medicines and inventing new methods of curing diseases. Studying the growth of tumours in micro gravity may help the scientists find alternative treatments for cancer, diabetes and AIDS (CNN, 2000).

Apart from Mir, ISS and conceptually similar space structures which will be used for research, thanks to the vision of Gene Meyers; the president of “Space Island Group”, civilian space travel and space tourism is likely to become a reality in the near future. “Space Island Group” (SIG). Based in California, SIG is a leader in the commercialisation of space with plans to design, build and operate commercial space transportation systems and destinations dedicated to commerce, research, satellite repair, manufacturing and tourism (SIG, 2005).

The most important feature of SIG’s plans is that their projection of space stations is very similar to what was constructed with “2001: A Space Odyssey”. Gene Meyers explains that the SIG is incorporating the existing knowledge, technologies and procedures developed by NASA, Russia and other aerospace companies over the last 25 years to create a stand-alone commercial space structure in the Low Earth Orbit (LEO). The concept behind this vision can simply be described with the term “Shuttle Recycling”. The current shuttle launch technology is based on external fuel

tanks, which are separated from the shuttle after the shuttle reaches the orbit, and they fall into atmosphere to burn up. These extremely large orange cylinders are the core component in SIG's plans of constructing the space structures. Meyers also states that the concept originally dated back to Werner von Braun. "His team came up with a space station concept back in the 1950s. The external tanks could be used as the core of a wheel-type space station" Meyers explains. Each external fuel tank consists of approximately 100,000 cubic feet of interior space, This space is large enough to inhouse the complete living quarters, laboratories and manufacturing facilities of both of MIR and ISS. SIG is planning to connect 12 or 18 of those external fuel tanks in order to form a huge rigid wheel, which would rotate at 1 rounds per minute (RPM).

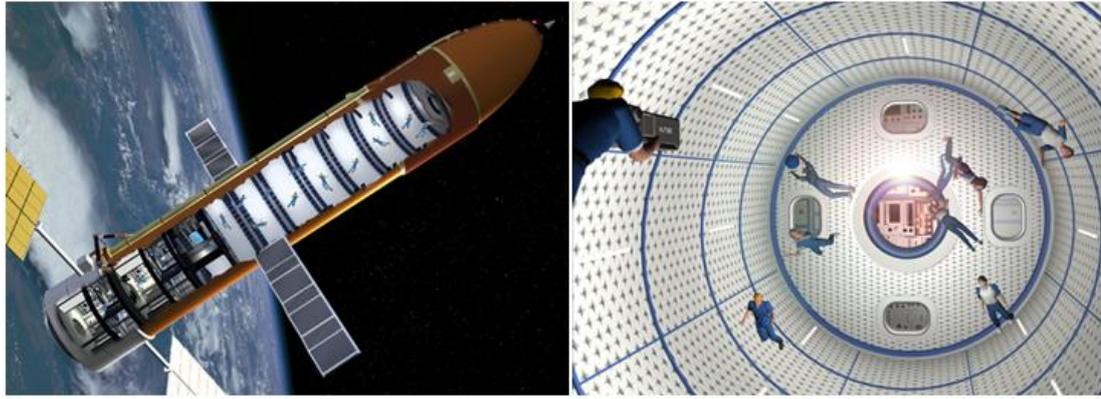
According to calculations, 1RPM rotation will provide an artificial gravity which is approximately one third of the gravity on earth, enabling the visitors and inhabitants experience a different sense of gravity but at the same time enabling them keep up with their usual daily activities in partial gravity, such as dining, using the toilets and shower and even sports activities. As there is no artificial gravity inside the vertical fuel tanks that form the centre of the wheel, the interiors of these tanks will be designed specially for people who want to experience the zero-gravity conditions. In SIG's vision, the space station will have many features such as suites, restaurants, entertainment centres and even a zero-gravity sports arena.



**Figure 5.39:** Conceptual image of SIG's commercial space structure



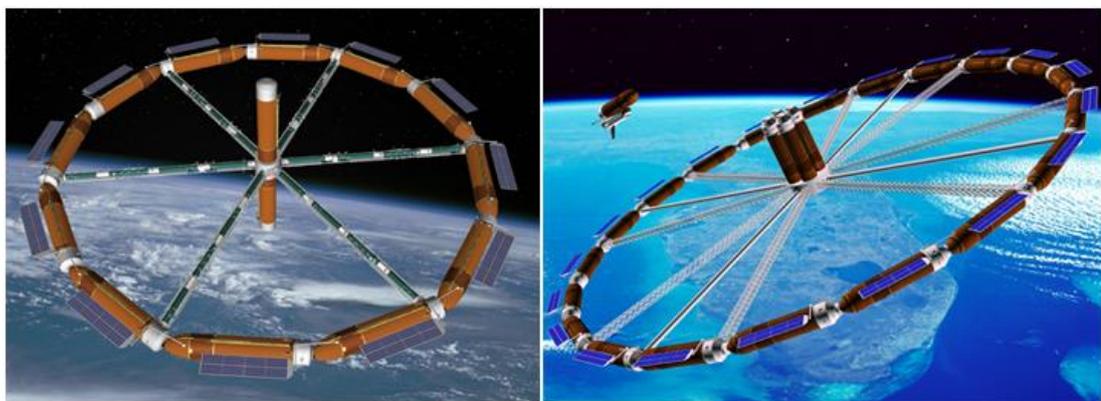
**Figure 5.40:** Conceptual sketches of interiors of SIG's space structure



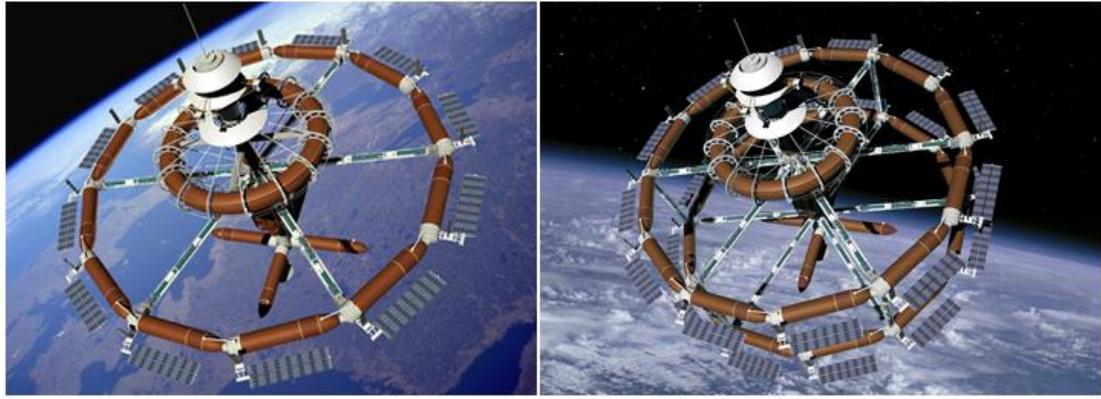
**Figure 5.41:** Conceptual sketches of “Zero-gravity” tank and its interior

Another important factor for the realisation of this project is the development of a more advanced shuttle in order to carry passengers to the LEO station more frequently and economically. SIG is taking NASA’s existing shuttle technology as the basis of their re-design, the “second generation” space shuttle, which incorporates a larger compartment area that can hold up to 100 passengers on single flight. “Our goal,” says Meyers, “rather than simply having a vehicle that goes up into space and comes back, will be to have a vehicle that goes up and comes back economically, safely, and at a far faster turnaround rate than what NASA has achieved” (SIG).

According to Meyers, the most significant feature of this project is its feasibility. He even claims that the experience will be as affordable as \$10,000 for one week in the SIG space station.



**Figure 5.42:** Conceptual 3D sketches showing early construction stages of SIG space structure



**Figure 5.43:** Conceptual 3D sketches of SIG space station. “Single Ring” model (left) and “Dual Ring” model

Compared to the concept of “Space Station 5” in “2001: A Space Odyssey”, the similarity in form, function and infrastructure is worthy of recognition. The SIG project is the living proof of the accuracy of construction, the film makes, concerning a future reality.

Arthur C. Clarke has showed his support and faith in the project with his following statement released in SIG’s corporate Web site:

“In “2001: A Space Odyssey”, Stanley Kubrick and I depicted a commercial spaceplane delivering passengers to a huge, wheel-shaped space station. Commercially operated hotels, restaurants and videophone booths were plentiful onboard. Stanley and I firmly believed that commercial stations would offer the citizens of Earth far greater access to space than government-run programs”

“I still believe that today, which is why I’m supporting the Space Island Group (SIG), based in southern California. They have a detailed plan to privately finance the construction of wheel-shaped space resorts and commercial space planes closely resembling what Stanley and I envisioned (3) decades ago” (SIG, 2005).

The setting of the “Orbitor Hilton” space hotel is presented in a very simple and minimalist approach, in black and white colours, in order to create an effect of almost sterilized “controlled environment” in space.

However, the furnishing Kubrick used in the hotel is composed of a set of lava red lounges and lounge chairs named “Djinn” designed by French designer Olivier Mourgue (1939 - ). The “Djinn” set was produced by Airborne International, France and composed of many different pieces including a lounge, lounge chair, armchair,

ottoman, double seater, chaise, settee and bench. “Djinn” set was designed in various colours, but Kubrick selection of “lava red” colour accents on the furniture contrasting with the white background, adding a more dramatic and futuristic effect to the “Orbitor Hilton” set.



**Figure 5.44:** A view of “Orbitor Hilton” on “Space Station 5”

After it was showcased in “2001: A Space Odyssey”, the design became iconic and sought after, since it has been out of production for a long time. The “Djinn” set is a synthesis of simplicity and uniqueness, which makes the design both minimalist but at the same time extremely effective, due to its one-of-a-kind form.



**Figure 5.45:** “Djinn” single and twin lounge chairs used in “2001: A Space Odyssey”



**Figure 5.46:** “Djinn” set designed by Olivier Mourgue (1964)

The cutlery used by Bowman and Poole in “Discovery I” is originally a design by Danish designer and architect Arne Jacobsen (1902 - 1971) who had designed the “AJ Cutlery” for “SAS Royal Copenhagen” hotel as a commission work in 1958. Considering that the set was designed even ten years before the release of “2001: A Space Odyssey”, the cutlery set forms a good example of the imaginary vision of

industrial designers creating feedback for the production design teams of science fiction films (**Arne Jacobsen**).



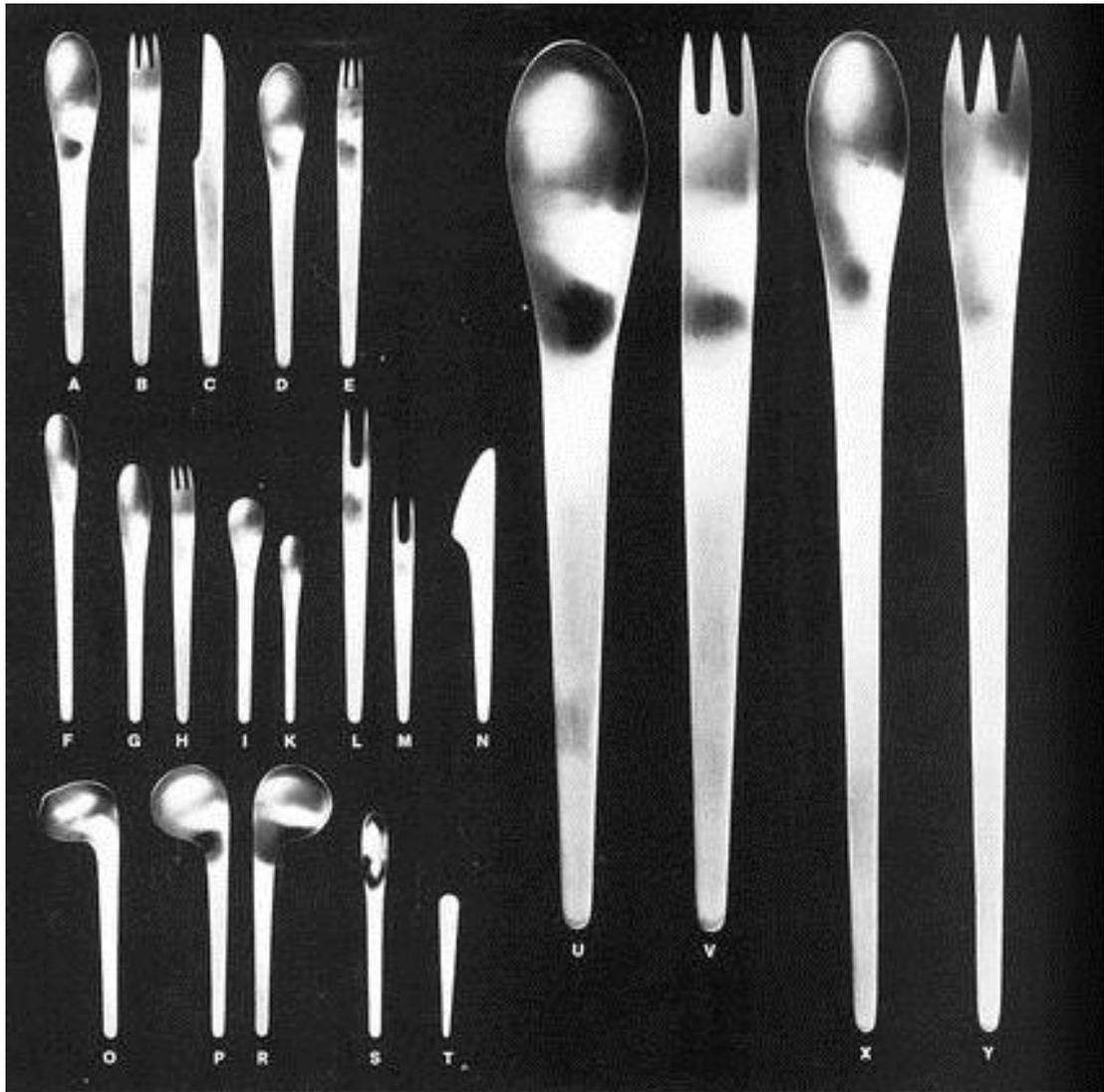
**Figure 5.47:** “AJ Cutlery”; Right-handed and left-handed soup spoons, salad fork, knife (left), tablespoon, dinner fork, knife (right)

Produced by Georg Jensen, the set originally consisted of 21 parts, including tea spoons and various sizes of forks, knives, soup spoons for both right and left-handed use and a pastry knife.



**Figure 5.48:** Bowman using “AJ Cutlery”, eating engineered space food while watching a TV transmission from Earth

The cutlery went out of use at the hotel shortly after its introduction, but has been in production without interruption since 1958. The visual language is reflecting a pure simplicity and minimalism, something that Kubrick also envisioned, as a conceptual approach to the space age of 2000s.



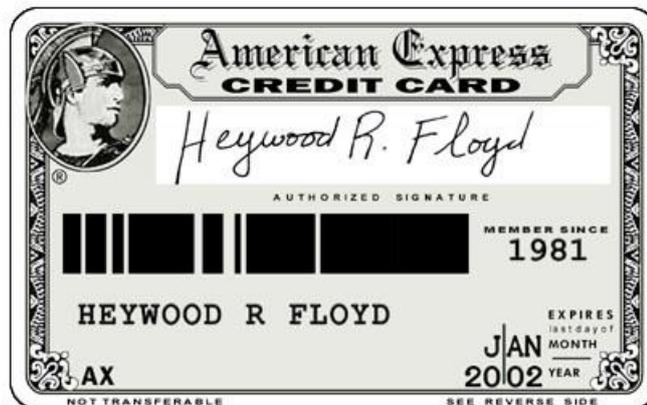
**Figure 5.49:** “AJ Cutlery”; Complete set (1958)

Another significant future construction of the film is the Bell “Televisiphone”; the video-phone which Dr. Floyd uses, in order to talk to his daughter on Earth. The technology of a visual phone was invented way earlier than the production of the film. In 1927, the Bell Telephone System sent live television images Herbert Hoover, then secretary of commerce, over telephone lines from Washington D.C. to New York. Bell Labs. prototyped the “PicturePhone” in 1956 and debuted a new version at the 1964 World’s Fair in New York. But at the time being, the public wasn’t very interested in the PicturePhone due to social factors and considerably expensive costs.



**Figure 5.50:** Dr. Floyd uses the Televisiphone to talk to her daughter

Advances in microchips and video compression have revived the videophone idea. In 1992, AT&T introduced a full colour home videophone system that used standard telephone lines. Today, video phones are used mostly for business meetings as well as distance education and telemedicine, although it is still expensive for widespread use in homes. Also in 1990s, computer companies developed network based videoconferencing technologies that have found increasing popularity with the growth of the internet. Today, with the use of internet cameras integrated to personal computers, it is extremely cheap and easy, to have overseas videoconferencing at home. Kubrick's vision of the product, becoming very feasible and extremely common in public use, is turning out to be true in the last decade, especially in Japan, where the use of video-phones and video mobile phones are very popular among the society (**TheTech Museum of Innovation, 2001**).



**Figure 5.51:** Dr. Floyd's "American Express" credit card

While calling Earth, Dr. Floyd uses an “American Express” plastic card, which is another successful prediction of the film. Although some private oil companies and hotels issued their own credit cards as early as 1930s, the first official credit card, invented by Ralph Schneider, was introduced to public in 1950 by Diners Club, Inc.. Today, credit cards are used by the majority of the public all around the world (**TheTech Museum of Innovation, 2001**).

Even though the production design team used many traditional visual effects techniques, the special effects created for Bowman’s semi-surrealistic stargate journey through infinity are revolutionary and set new standards for the following science fiction films. The scenes portraying the journey with many abstract light tricks, solarised colours, vortexes, tunnels and landscapes were created with the exceptionally artistic vision of special effects genius Douglas Trumbull. Trumbull developed a machine named "Slit Scan" which allowed the filming of two seemingly infinite planes of exposure (**DeMet, 1999**).

Additional effects for the sequence were created applying different coloured filters to aerial landscape footage and filming interacting chemicals. Considering the fact that there was no CGI technology nor any other computer aided special effects in the 1960s, the production design team deserves a lot of credit, for the outstanding realism in the model/prop animations and the rest of the special effects.

In a retrospective on “2001: A Space Odyssey”, Frederick Ordway points out the importance Kubrick gave to the level of realism in miniatures, models, props, sets, and special effects photography, which ended up, using the \$ 6,5 million of the overall \$10.5 million budget of the film (**DeMet, 1999**).

#### **5.1.2.2. Social Construction**

“2001: A Space Odyssey” is considered one of the most influential science fiction films in the history of motion picture, not only due to its scientific accuracy and technological realism, but also concerning its open ended and extremely subjective nature which allows the audience to interpret the meaning of the movie in many different ways; as Stanley Kubrick states with his very own words “You are free to speculate, as you wish, about the philosophical and allegorical meaning of 2001”.

Arthur C. Clarke's famous "If you understand 2001 on the first viewing, we will have failed" motto is another example concerning the infinite possibilities for film's interpretations (CNN).

In "2001: A Space Odyssey", while speculating about the technological aspects of a future, Stanley Kubrick is also questioning and discussing many social issues which would come to existence as a result of the technological improvements.

The film's major social constructions are:

- The relationship of man, and an intelligent machine created by man; and the possible results of this interaction in intellectual, cultural and emotional states.
- A criticism, concerning human behaviour, human relationships and socio-cultural layers of a future society, using and interacting with advanced technology.
- A criticism, regarding the certain non-evolutionary characteristics of human race.
- The possible impact of an extraterrestrial intelligence on the evolution of human race and evolution of technology invented by human race.
- A universal optimism, regarding a reincarnation or cycling evolution process, which would elevate humanity to a higher level of consciousness and intelligence.

The film is in many ways one of the earliest examples of motion picture history which projects, partially depending on speculative science, the possible encounter, or "relationship" between man and advanced technology, which is constructed intelligent enough to communicate with man at a cultural and emotional level. The concept of A.I. that Kubrick projects is in many ways utopic concerning its ability to produce or "mimic" the activities of human brain, and most significantly the human emotions. The year 2001 is already in the past, and the production of "machines with emotions" still seems very unlikely, at least for the near future.

Even though HAL 9000 is portrayed as a computer, during the film, his reactions and behaviours are often rendered “more human” compared to the astronauts. Starting with the “TMA-1” section, the human dialogues in “Orion III”, “Space Station 5”, “Aries 1B”, the formal meeting on Clavius Base, and throughout the journey to Jupiter, project a social rendering where human relationships are considerably controlled, distant and dry. This could be the vision of Kubrick regarding human behaviour and social relationships, in a future world, where people are constantly interacting with a very advanced level of technology. In relation with this rendering, HAL’s certain types of behaviour and emotion models such as; extreme self confidence, pride, arrogance, fear, anger, and dishonesty are more “human” compared to the behaviour models pictured by humans. Kubrick’s vision projects a paradox, where humans are socially degenerating to machines, while machines are becoming more human.

From an evolutionary point of view, Kubrick also symbolises the “non-evolutionary” aspects of humanity, such as his deficiency to evolve into a peaceful being despite evolving in science and technology. The aggressive instincts which are portrayed in the “The Dawn of Man” section, dissolves into the “space age” era where the first spacecraft introduced to the audience is again, a weapon, of nuclear sort. No matter how much humanity evolves, he is unable to evolve on certain aspects of his nature.

Even though it can be freely interpreted as nothing but an allegory of the “unknown” or any kind of religious entity, the monolith in the film is clearly identified as the construction of an alien intelligence. This projection also refers to the roots of human evolution being under influence of extraterrestrial guidance regarding innovative thinking and technology. One of Kubrick’s many statements in “2001: A Space Odyssey” is that mankind is under constant surveillance, and is under guidance of other intelligent life forms, who are in higher stages of evolution, as mankind is making baby-steps in his own evolution.

The ending scene, where Bowman transforms or “reincarnates” into the “Starchild” is a representation of optimism Kubrick has for the evolution of human race. The stargate journey Bowman encounters, improves his perception and understanding of life and the universe to such an extent, that he transcends his humanity and completes his evolution, becoming the “Starchild” which is supposed to be a much higher

entity, free of all the defects of humanity. This optimistic projection is again related with Kubrick's criticism concerning the non-evolutionary aspects of mankind.

Apart from the social constructions, "2001: A Space Odyssey"'s influential character is investigated on:

- Pop Culture
- Counterculture
- Baby Boomer Generation
- Spiritualism and Religion
- Other Films

Like other popular works of science fiction, such as "Star Trek" and the "Star Wars" movie trilogy, 2001 is constantly referenced in popular culture. Films as diverse as Woody Allen's *Sleeper* and Jan DeBont's *Speed* have featured homages to 2001. The film's theme music, taken from Richard Strauss' "Also Sprach Zarathustra", has been heard everywhere from the opening notes of Elvis Presley's 1970s Las Vegas lounge act to car commercials. Music videos have featured costumes and sets directly inspired by the film. Dozens of fan Web sites exist on the Internet, where the film's enthusiasts present and debate their differing theories about its meaning (**DeMet, 1998**).

Concerning the social impact of the film, not all the interpretations were similar, and some proved to be extremely radical. With all its abstract special effects and mind-dazzling pace, Bowman's "stargate" journey at the end of the movie, was interpreted differently by the members of the counterculture of the 1960s. Many hippies experienced the "stargate" journey, in the mean time using chemicals and drugs such as Marijuana and LSD. They claimed that there was a deeper psychedelic layer hidden inside the "stargate" journey only accessible through drugs. Both Arthur Clarke and Stanley Kubrick have denied using any illegal substances during the writing or production of 2001, although Clarke points out that this may have been the case for some members of the art and special effects departments. (**Pederson**) At a science fiction convention shortly after the film's premiere, one anonymous fan

passed him a packet of cocaine, along with a note that this was “the best stuff”. Clarke says that he promptly flushed his gift down the toilet. Similarly, Kubrick disavowed the use of drugs, arguing that “the artist’s transcendence must be within his own work; he should not impose any artificial barriers between himself and his subconscious” (Agel) The same counterculture often suggests a similar deeper layer hidden inside the music of bands like Pink Floyd, however, neither Stanley Kubrick and Arthur C. Clarke nor the author of this thesis approve the using of illegal drugs for any purpose, and this particular point of view belongs to only a minority of the audience, the rest of whom interpret the infinite meanings of the film without the need of any illegal substances (DeMet, 1998).

Many people, from the generation of Baby Boomers, claim that “2001: A Space Odyssey” had played a major role for inspiring them in their career and creative thinking, giving them a different direction in life. Actor-director Tom Hanks has said that his first viewing of the film at the age of 12 was an experience that allowed him to appreciate the power of movies. Director James Cameron has said, “2001 meant a great deal to me when I was 16 or 17 years old and it sparked my interest in filmmaking”. Microsoft co-founder Bill Gates has said that 2001 inspired his vision of the potential of computers (Burns, 1997).

The transcendental mysticism and other open ended messages of the film were interpreted by many, as various religious representations. Many people among the audience wrote letters to Kubrick, and explained him how the film changed their spiritual life and their perspective of creation, and the role of “man” in cosmos. In one of those letters, a fan wrote to Kubrick; “I would not be at all afraid to state that with 2001 you may have quite possibly saved any number of spiritual and physical lives. For it is within the power of a film such as yours to give people a reason to go on living - to give them the courage to go on living” (Agel). Another audience member who first saw the film at the age of seven recalled how 2001 filled the place of religion for him, saying:

“My family was atheist and I had no religion as a child. The realm of ideas was given a somewhat exalted status as I grew up around dinner table discussions of philosophy, astrophysics (layman level), and the universe. But certainly there's a great human capacity, perhaps need, for wonder and awe, and in that way 2001 filled the gap for my “Godless” upbringing” (DeMet, 1998).

An important fact about “2001: A Space Odyssey”, is that there were no predecessors of the film, that portrayed scientifically accurate descriptions of space travel or a philosophical approach to extraterrestrial existence, except for the cliché “monster alien” and “alien invasion” themes. The early 1970s did not see much of a similar production , but in 1977, Steven Spielberg’s “Close Encounters of the Third Kind” clearly had traces of the extraterrestrial encounter projected in “2001: A Space Odyssey”. “2001: A Space Odyssey” also inspired other science fiction films with serious contexts about extraterrestrial existence and extraterrestrial encounter, such as “E.T.: The Extra Terrestrial” (1982), “The Abyss” (1989), “Contact” (1997), “Event Horizon” (1997) and “Mission to Mars” (2000). Apart from those movies mentioned above, although debatable, “Solaris” (Solyaris) (1972) is often considered as the “Russian 2001” due to its abstract nature and open ended interpretation of the relationship of man with cosmos.

## **5.2. “Blade Runner”**

Blade Runner is a cult, dystopian science fiction film, directed by Ridley Scott in 1982. The story is based on the cult novel by Philip K. Dick with the title: “Do Androids Dream of Electric Sheep?” However, the film’s title “Blade Runner” is derived from Alan E. Nourse’s novel with the same name.

Interestingly, there are six different versions of the film:

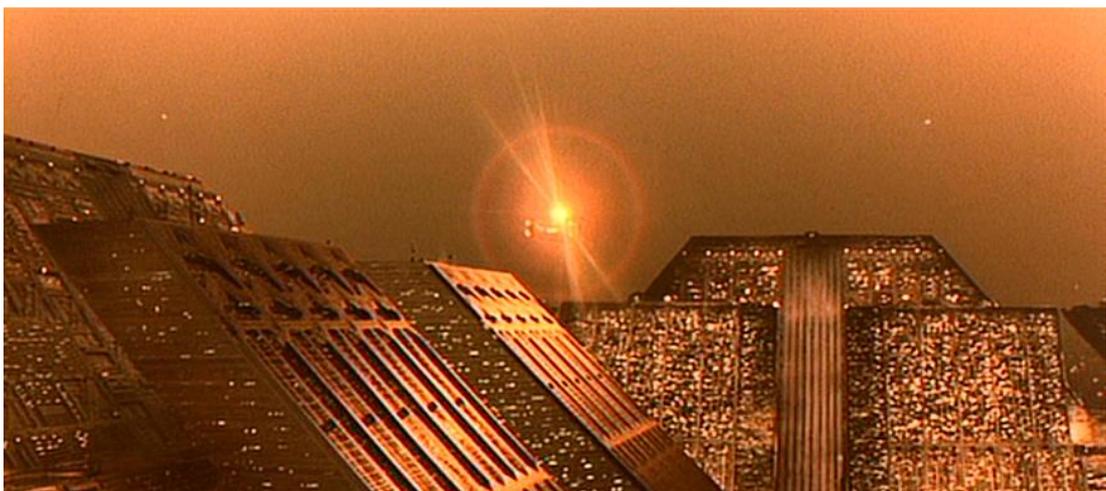
1. The Workprint (shown 1982, 1990, and 1991)
2. The San Diego Sneak Preview (shown May 1982, once only)
3. The Domestic Cut (original 1982 American Theatrical Release)
4. The International Cut (1982 version shown in Europe/Asia)
5. The Director’s Cut (released theatrically 1992)
6. The Broadcast Version (version broadcast 1986 over U.S. network television)

In this thesis, synopsis, and the analysis concerning the future reality constructions refer to the “Director’s Cut” version of the film.

### 5.2.1. Plot / Synopsis

The story starts in Los Angeles, in November, 2019. The film opens with a dramatic scene, where the audience is introduced Hades; a vast industrial landscape in constant darkness. Flames rise up to the sky from old industrial structures, there are radioactive storms and acid rain; the numberless city lights are hardly visible. Although the information is not given in the film, according to the novel, the world is in a post-apocalyptic era. After the “World War Terminus”, the radioactive dust have spread all over the planet, carried by the winds, and destructed the surface further more, turning it into a ruin. The wealthy upper class and middle class has left the planet for a better life, in the new founded colonies on other planets. The story takes place in the time, where the already deserted megalopolis is inhabited by criminals and outlaws. Flying police vehicles are regularly observing the cityscape.

“Early in the 21st Century, the Tyrell Corporation advanced robot evolution into the “Nexus” phase - a being virtually identical to a human - known as a “Replicant”. The Nexus 6 Replicants were superior in strength and agility, and at least as intelligent, to the genetic engineers who created them. Replicants were used Off-world, as slave labour, in the hazardous exploration and colonisation of other planets. After a bloody mutiny by a Nexus 6 combat team in an Off-world colony, replicants were declared illegal on Earth, under the penalty of death. Special police squads - Blade Runner Units - had orders to shoot to kill, upon detection, any trespassing Replicant. This was not called execution, it was called “retirement””.



**Figure 5.52:** Tyrell Corporation pyramids

The film starts in one of the pyramids of the Tyrell Corporation. A Blade Runner named Holden gets shot and killed, while conducting a “Voigt Kampff” (VK) test to a new employee called Leon, (performed by Brion James) in order to understand whether if he is a Replicant. The working principles of a “Voigt Kampff” empathy test is explained in the original 1982 press kit of the movie:

“A very advanced form of lie detector that measures contractions of the iris muscle and the presence of invisible airborne particles emitted from the body. The bellows were designed for the latter function and give the machine the menacing air of a sinister insect. The VK is used primarily by Blade Runners to determine if a suspect is truly human by measuring the degree of his empathic response through carefully worded questions and statements”.

After Holden’s death, a retired Blade Runner; Rick Deckard (performed by Harrison Ford) is called for duty by his old boss Bryant (performed by M. Emmet Walsh). According to Bryant’s brief, the recent escape of the Replicant group is the worst case yet. The group is formed of four Replicants: leader of the group; Roy Batty; (performed by Rutger Hauer) combat model, Leon; combat model, Zhora; (performed by Joanna Cassidy) assassin model, and Pris; a basic pleasure model Replicant.



**Figure 5.53:** A Police Spinner patrolling over the streets

The Nexus 6 models were designed to imitate human beings in every way; except their emotions, but Tyrell Corporation designers reckoned the possibility that Replicants might develop their own emotions, and become a threat for humanity. So, they integrated a fail-safe device inside the Replicants’ hardware; a “four years life span”.

In order to check the accuracy of the Voigt Kampff device on a Nexus 6 Replicant, Bryant sends Deckard and his new work partner Gaff (performed by Edward James Olmos) to Tyrell Corporation. There, Deckard tries the test on Eldon Tyrell's (performed by Joe Turkel) secretary Rachel (performed by Sean Young) who turns out to be an experimental prototype Replicant, with implanted artificial memories which provide a cushion for her emotions. It turns out that before the Voigt Kampff test, Rachel was unaware of her own artificiality.

While Deckard and Gaff search Leon's hotel room, for any kind of clues to help them with their investigation, Batty and Leon visit Chew; (performed by James Hong) a genetic eye designer who creates eyes for Nexus 6 Replicants. Batty forces Chew to direct them to J.F. Sebastian (William Sanderson); another genetic designer working for the Tyrell Corporation, who also happens to be a friend of Tyrell himself.

After a thrilling chase scene, Deckard manages to "retire" Zhora. After the retirement, Bryant orders Deckard to kill Rachel, who had escaped from the Tyrell building, when she discovered her true identity. When Deckard finds Rachel and starts chasing her, Leon intercepts Deckard and beats him half to death. Just as he prepares to kill Deckard, Rachel kills Leon, thus saves Deckard's life. Deckard takes Rachel to his house, and the Blade Runner and the Replicant fall in love with each other.

Meanwhile, Batty and Pris stays at Sebastian's apartment, and they persuade Sebastian to take them to Tyrell Corporation, where Batty asks Tyrell to expand his life span. When he learns that the process is unmodifiable, Batty kills both Tyrell and Sebastian.

The final scenes take place in Sebastian's apartment. Deckard arrives at the Bradbury Building, and retires Pris. When Batty returns from the Tyrell Pyramids, he traps Deckard inside the huge building and starts to toy with him. The thrilling "hide and seek" scenes end at the top of the building, where Batty forces Deckard to escape to the roof. Deckard tries to jump to another building, but he slips and hardly manages to catch a beam. While Deckard desperately hangs in mid-air, Batty unexpectedly reaches and saves him, just when Deckard loses his grip. Having finished his natural

life span Batty sits down under the rain, and quietly dies. Knowing that Gaff would go after Rachel, Deckard rushes to his apartment, and the film ends when Deckard and Rachel leave the apartment together, towards an unknown future.

The Director's Cut version of the film has an alternative ending. In certain scenes of the film, Gaff makes small Origami figures, which give clues about his intentions, and knowledge on the background of Deckard. When Deckard rushes to his apartment to take Rachel, he finds a tinfoil Origami, shaped to a unicorn; a sign indicating that Gaff has intentionally let them live. In a scene where Deckard falls asleep in his apartment, he dreams of a unicorn. Considering the fact that Rachel is an experimental Replicant with implanted artificial memories, the unicorn exposes Deckard's true identity, as a Replicant.

### **5.2.2. Construction of Future Reality**

The "Production Design / Design Construction" sub-section examines the creation of a dystopian cityscape, and focuses on certain futuristic products related with the projected urban living, and specific vehicles and devices which are extrapolations of existing technologies. As the film does not give any detail about the engineering technology and inner mechanics of a Replicant, it is not possible to examine it any further than being a cybernetic organism, which is visually designed as an exact copy of a human being.

As the analysis of "Blade Runner"'s social manifestation, regarding a post apocalyptic dystopian future, would be the subject of a whole new thesis, the "Social Construction" sub-section examines the issues related with Replicants.

#### **5.2.2.1. Production Design / Design Construction**

For "Blade Runner"'s production design, Ridley Scott brought together a team of experts; among which, were the special effects genius Douglas Trumbull; whose credits include "2001: A Space Odyssey", "Close Encounters of the Third Kind" and "Star Trek: The Motion Picture", Trumbull's partner Richard Yuricich, production designer Lawrence G. Paull, art director David Snyder and visual futurist Syd Mead.

Interestingly, the production design team received the biggest visual contribution from Ridley Scott himself. As he had a designer background, in addition to his directing talents, Scott has provided the designers with many illustrations, which the crew called “Ridleygrams”. Scott’s visual inputs gave Mead and other designers an immediate insight into his expectations, thus, accelerated the production process (Sammon, 1996).

Unlike the optimistic future projections in “I, Robot” or “Minority Report”, where, at least a part of the society enjoys a luxurious, high technology life style, with a bright blue sky in the background, “Blade Runner” takes the audience to a much darker future journey.

As stated previously, according to Dick’s novel, the origins of this dystopian future is the “World War Terminus” and its after effects. In 2199, almost complete ecological life is terminated; most animal species are in extinct. Artificial animals are mass manufactured for people who want pets, because real animals are way too expensive to be affordable. Although the planet has been abandoned by the higher classes, who left for Off-world colonies, Scott’s portrayal of Los Angeles is far from a desolate cityscape. The extremely dense population of low class, outlaws and criminals turn the city into a huge megalopolis.



**Figure 5.55** Syd Mead’s conceptual sketches of urban cityscape

In the envisioned dystopia, due to the radioactive storms and acid rain, the planet is in constant darkness. The buildings, vehicles and the city itself are deteriorating. People have to find ways to cope with limited resources. Everything, including spare parts and junk are recycled for some useful purpose such as maintenance and

repairment of buildings or upgrades and replacements for vehicles. “These futuristic surroundings gradually began to illustrate and were based on Ridley’s idea of ‘retrofitting’, which became one of the significant design schemes of the film. It also became the word most associated with the picture. Retrofitting simply means; upgrading old machinery or structures by slapping new add-ons to them” explains Syd Mead (**Sammon, 1996**).

In addition to retrofitting, the most distinctive touch in Los Angeles’s dystopian look is the overwhelming use of neon lights and neon signs all around the streets. When mixed with overcrowded streets, exotic fast food restaurants, replicant “animoid” shops and huge advertisement screens, neon signs were the complementary elements in creating the dense urban atmosphere of a megalopolis.

“There are certain moments in movies, where the background can be as important as the actor. The design of a film is the script” says Ridley Scott (**Sammon, 1996**). From Mayan-inspired Tyrell Corporation pyramids to the landmark Bradbury Building, The film’s visual statement is standing on the shoulders of the architecture design. Regarding this visual statement, Blade Runner is strongly inspired by “Metropolis”.

“Most importantly, it shows a city with history, with buildings that have been there for a long time and have survived beneath gargantuan modern high-rises. In Metropolis, these survivors were the cathedral, the house of the inventor, and the ancient catacombs. In the decaying Los Angeles of the future, we find the Yukon Hotel, Union Station (1931-39), the Bradbury Building (1893) and Frank Lloyd Wright’s Ennis Brown House (1923)” (**Neumann, 1996**).

As the detailed analysis of the “Architecture Design” in Blade Runner would take another thesis, the particular subject is not examined in any further detail.

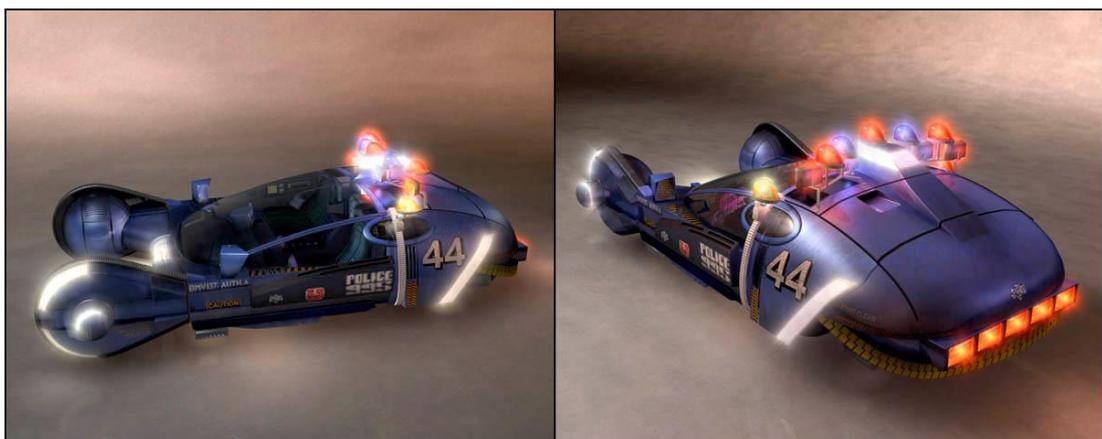
Concerning vehicle design, the film’s most impressive and memorable future construction is undoubtedly the “Spinner”; “Blade Runner”’s “trademark” flying car, which later became the archetype for many futuristic cars in latter science fiction films such as “Fifth Element” and “Star Wars”. In addition to its state-of-the-art design, which is still considered cult after 23 years, the uniqueness of Spinner lies within its technology, engineering and working principles. There were many films,

before *Blade Runner*, which featured flying cars; but those cars used imaginative or hypothetical technology, such as an “anti gravity” engine.



**Figure 5.55:** Syd Mead’s conceptual sketches of Spinner

Spinner is the first “realistic” flying car in motion picture history, because its aerodynamic principles are based on an already existing technology. Originally, Syd Mead was hired to design the automobiles for the film, but as the project carried on, his responsibilities broadened, and Mead ended up designing most of the props, buildings and megalopolitan street scenes. Spinner was Mead’s first design. “I suggested designing the Spinner as an aerodyne, which is a heavier-than-air craft with an internal enclosed lifting system built into it, like the British Harrier jump-jet” Syd Mead explains (Sammon, 1996).



**Figure 5.56:** Spinner; 3D model by Patrick Parenteau

Spinner uses a system called VTOL (Vertical Take Off and Landing), which was invented by a Serbian inventor and engineer Nikola Tesla, in 1928. During late 1950s, and early 1960s, many aircraft prototypes were designed with VTOL features.

Apart from many prototypes and the Soviet Yakovlev Yak-38 “Forger”, which was withdrawn from service in 1990s, today, Bell Boeing “V-22 Osprey Tilt Rotor” and British Aerospace “Harrier Jump-Jet” are still practically in operation, using a VTOL system (**Wikipedia**).

The scene which portrayed the close up lift off of the Spinner added a dramatic, higher level of realism to the car. Unlike the flying cars in films like “Star Wars”, Spinner did not just easily take off and flew away; it took some time for the car to lift off from the ground, while the whole body of the car was shaking due to the lifting power generated in its internal combustion engines, and smoke was coming out of the bottom, through the exhaust system.



**Figure 5.57:** Lift-off sequence of Spinner

Spinner’s design also incorporates wheels, enabling the vehicle to perform traditional drive on ground. The most distinctive and “trademark” feature of the car is its separated front wheels. While adding a unique touch to its visual language, the front wheels also provided better view of the car for the lift off or landing sequences. The organic windscreen embraces the whole front body, and runs through the roof uninterrupted, providing optimum field of view.

The interior gives the impression of a retro-futuristic spaceship. An advanced navigation and cruise control system, is integrated on the dashboard through a layout of computer screens and many lighted switches and buttons. The seats incorporate collapsible headrests, with lighted buttons and a self contained speaker system.



**Figure 5.58:** Spinner’s cockpit; Deckard and Gaff

One of Mead’s most innovative constructions, is the revolutionary “wrist-twist” steering device. “The traditional steering wheel was replaced with two holes on the dashboard, into which operators placed each hand. By grabbing a handle recessed within each hole and turning their wrists, drivers could then effectively guide both the left and right sides of the vehicle” (Sammon, 1996).



**Figure 5.59:** Spinner’s dashboard, wrist-twist steering device

Apart from flying, the car has many other advanced features. There is a hydraulic system which allows the front wheels to fold up inside the craft, once the car lifts off. This feature visually articulates Spinner’s transformation from a ground car to a flying vehicle.

In Syd Mead's concept designs, Spinner's scissor door system incorporated a voice recognition entry panel at the door, within the porthole window; but as this feature is not demonstrated in the film, it is not clear whether if voice recognition made it to the final prop or not (**Ebenhoch, 2003**).

The plausibility of the concept of a flying car, is also related with how the film integrates Spinner into the projected overall transportation design in Los Angeles. In films like "Star Wars Prequel Trilogy" or "Fifth Element", the skyscape is filled with a massive air traffic, with numberless cars and other flying craft cruising in all directions and various altitudes. Naturally, this creates a "fairy-tale" space age effect. However, in "Blade Runner", Spinner is a police car, which is restricted to authorised personnel only, with a few exceptions such as the Tyrell Corporation and wealthy individuals. The film's core transportation design concept is not different from what is available today, and moreover, its visual presentation is again dark due to its dystopian nature. Even though the projected future society of 2019 possess the technology to engineer a flying car, they don't have the resources to turn the concept into a mass manufactured vehicle for the consumer market. As the heavy industry is not able to supply brand new vehicles, all the cars and mass transportation vehicles are retrofitted, which gives them an extremely worn-out and old look.

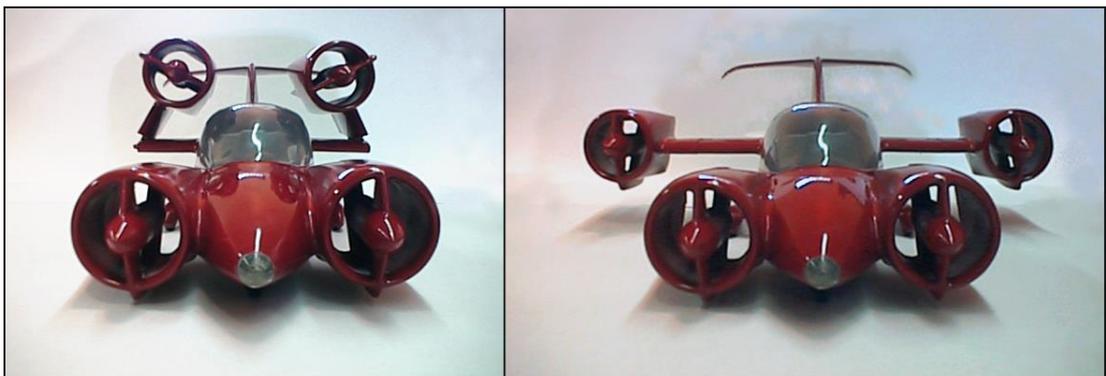
Today, Syd Mead's vision of a "flying car" is not far from being a reality. Founded in 1983 by Paul S. Moller; Moller International has developed the first and only feasible, personally affordable, personal VTOL vehicle in the world. Dr. Moller defines this concept as a "volantor"; "A vertical takeoff and landing aircraft that is capable of flying in a quick, nimble, and agile manner" (**Moller**).

Following a few prototype models, Moller's latest volantor named M400 "Skycar" passed its first real flight tests in 2003, and it is under further development for mass manufacturing. Skycar uses VTOL for lift off and landing, and it flies from point of departure to its destination like an airplane. In addition to its flying ability, Skycar can also travel short distances on the ground as an automobile. In flight, main cruise control systems are operated by a computer, and only basic piloting skills and knowledge are required to drive the Skycar. In Moller's corporate Web site, it is claimed that after mass production, Skycar will be extremely suitable for a wide spectrum of commercial and military applications such as private and charter air

travel, express delivery, news gathering, border patrol, police and firework and search and rescue. The technical specifications of Skycar can be found in the Appendix 7 of the thesis.



**Figure 5.60:** Moller M400 Skycar during lift-off (October, 2002)



**Figure 5.61:** Moller M400 Skycar prototype

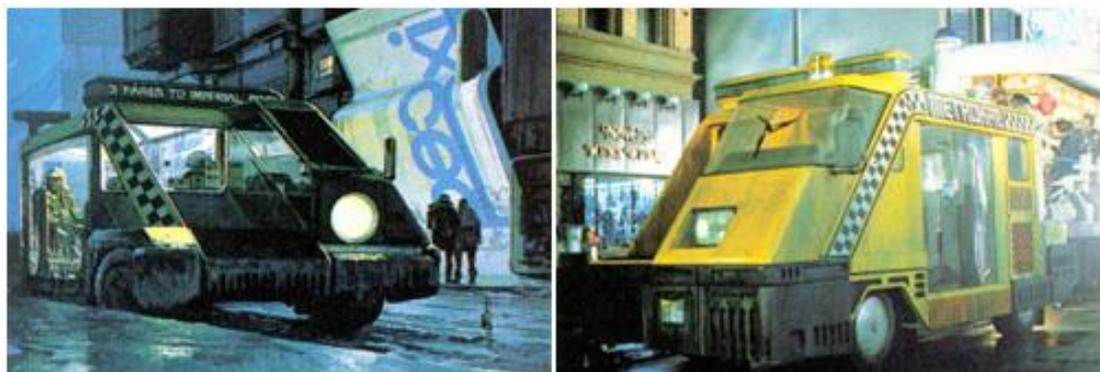
Dr. Dennis Bushnell; chief scientist from NASA Langley Research Centre, comments on the M400 “skycar”: “The volantor (Skycar) will do for car-based society what the car did for horse-based society. It is the right solution at the right

time. It is not a question of if but when the market for Moller vehicles will be about \$1 trillion a year” (Moller).

The second highlight of the vehicle design is Deckard’s sedan. As Deckard is an originally retired Blade Runner, he uses a decommissioned Spinner. Although its exterior flaps and air directional panels are removed, it still incorporates the basic features of a Spinner, such as turbine-powered engine, read-out screens, a video communications interface, writs-twist steering system and gull-wing doors. Overall, it is a very stylish sedan with unique sharp angles.



**Figure 5.62:** Deckard’s sedan



**Figure 5.63:** Syd Mead’s metro cab; conceptual sketch (left) and final prop

Mead also created an original solution for mass transportation. Due to the dense population, apart from a mono-rail train and busses, city also needed cabs. Mead talks about his solution:

“I had to come up with a means of mass transportation, a People's Vehicle. It's a little cart that anyone can rent or lease. You climb in, insert a card and only pay for the time you actually use the craft. You drive it and, then, simply leave it in the street when you're through. Eventually, some other customer walks by, inserts his or her card, and just zooms off” (Naha, 1982).

For traffic related issues, the production design team created a four-sided traffic lights system, which the crew called “Trafficators”. These futuristic traffic lights “told” the pedestrians and vehicles when to halt and when to move, via a pre-recorded voice system. Apart from giving directions, trafficators also incorporated video screens which broadcasted a continuous information flow related with news, weather reports and traffic conditions (Sammon, 1996).



**Figure 5.64:** Trafficator

Concerning everyday life, the production design team came up with a few interesting ideas which provided solutions for better adaptation to physical conditions of the city.

One of the innovative concepts is the “lighted umbrella” which provided a very simple and basic solution for both the constant darkness and rain. A neon tube was integrated inside the complete stem, providing perfect illumination for the holder. Today, umbrellas with similar concepts are mass manufactured for the consumer market. Instead of a neon stem, they have flashlights integrated inside their handles.



**Figure 5.65:** Lighted umbrellas

Deckard's apartment projected a few ideas for a future home. In the entrance of the building, Deckard is checked by a voiceprint identification system. Production design team also created a multifunctional plastic card (which resembles a credit card), to make life easier for the envisioned future society. In the film, Deckard uses this card to in the Vidphon, and also as a key to enter his apartment. Although not made clear in the film, this same card is most probably used to activate the "Public Cab" concept of Mead, mentioned earlier.

Another nice touch is the automated light system in Deckard's apartment. Motion sensors, which are probably simple photocells, are integrated inside the walls, and whenever Deckard walks into various rooms of his apartment, the lights automatically turn themselves on. Jordan Cronenweth calls this "an energy-saving device of the future" (Sammon, 1996).

Concerning telecommunication, the film features a video communications device called a "Vidphon", which is very similar to the one used in "2001: Space Odyssey". Due to the common visual language, Vidphones were designed as dirty and worn-out looking public devices, similar to the existing phone booths in urban areas.

Concerning electronics, the highlights of the show were the "Voigt Kampff" (VK) analyser and the "Esper".

As stated previously, VK analyser is the most crucial device in the story, because it is the only possible instrument that could analyse the emphatic differences between a

human and a Replicant. The visualisation of this concept derived from a rough sketch done by Ridley Scott. Its primary feature is the retinal scan; which is operated by an adjustable mechanical arm incorporating a rectangular lens. The set of bellows on the side of the device make a “sniffing” motion, in order to capture air samples, which would contain invisible particles and pheromones released from the interrogated person, due to the changes in his body chemistry. This motion visually transforms the VK analyser into a “breathing” and living machine.

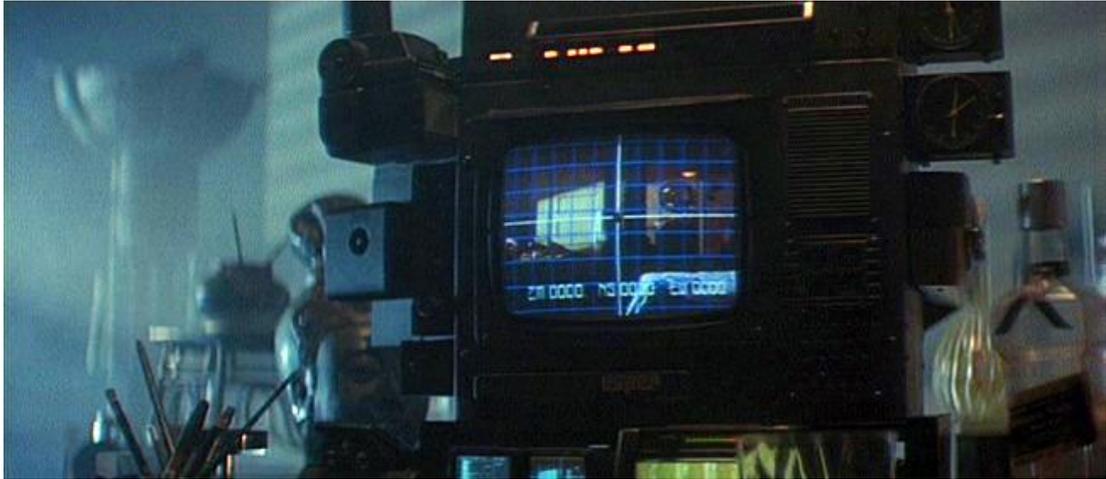


**Figure 5.66:** Voigt-Kampff Analyzer



**Figure 5.67:** Voigt-Kampff Analyzer user interface

In the Blade Runner production notes, Esper is described as “a high-density computer with a very powerful three-dimensional resolution capacity and cryogenic cooling system, which can analyse and enlarge photos, enabling investigators to search a room without even being there” (Sammon, 1996).



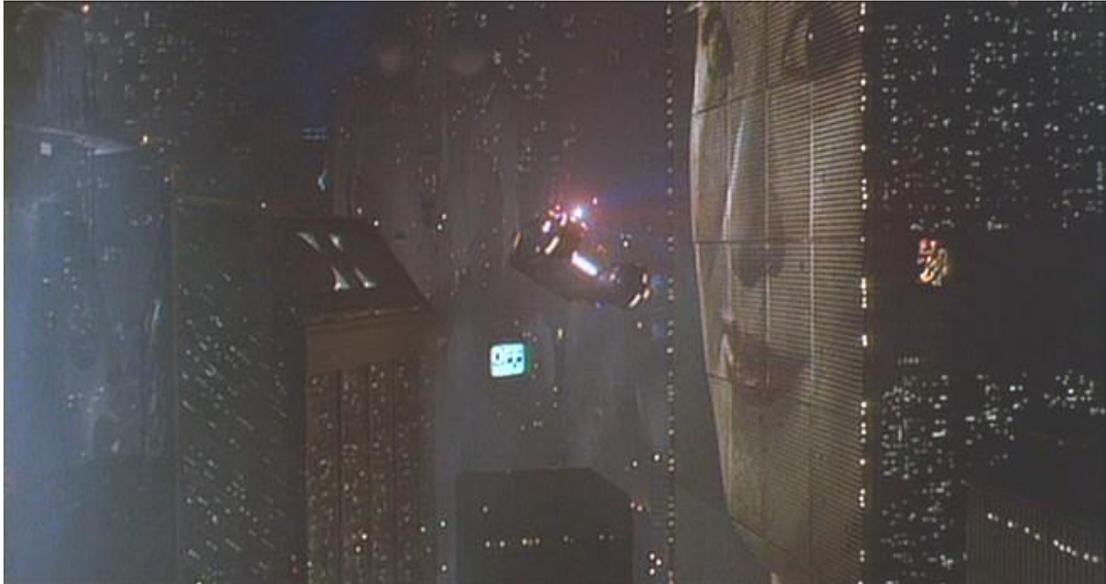
**Figure 5.68:** Esper

However, this “advanced” high technology computer’s features are not reflected in its outer looks. Esper gives the impression of a sloppy vintage black & white TV with a series of odd machinery integrated around it. In addition to its analytical abilities, a printer system is integrated in order to print out hard copies of the analysed material.

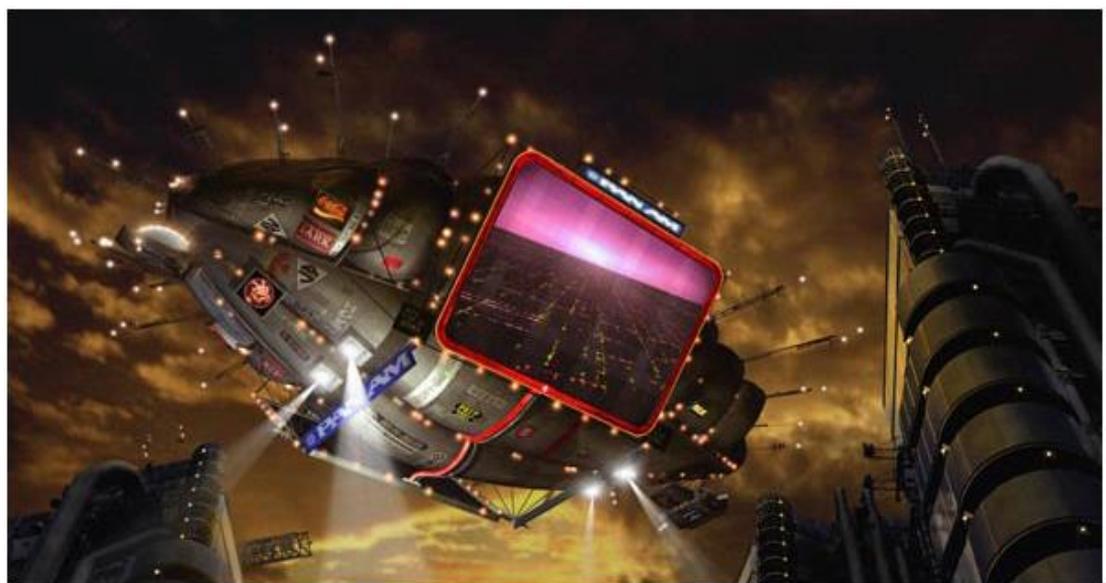
The most futuristic touch, regarding Esper, is its voice activated controls. During the scenes, where Deckard analyses a photo taken from Leon’s hotel room, he gives all the commands such as enhance, zoom in - zoom out, track, fit and print by voice.

Concerning the projections related with marketing and advertisement; “One futuristic notion I am absolutely sure of is that, in 2019, everywhere you look, you’ll be assaulted by media” says Ridley Scott (**Sammon, 1996**).

Some of the buildings’ whole sides were transformed into huge screens, broadcasting a flow of news and advertorials. Apart from the “static” form of advertisement, the production design team also created a highly odd-looking flying advertisement craft called the “Blimp”. Visually, the first impression of the Blimp, is a giant, floating balloon, resembling a deformed potato, illuminated with many Christmas lights all around, and a huge screen in the middle. In the film, as the Blimp slowly cruises through the cityscape, the digital screen broadcasts advertorials related with Off-world colonisation.

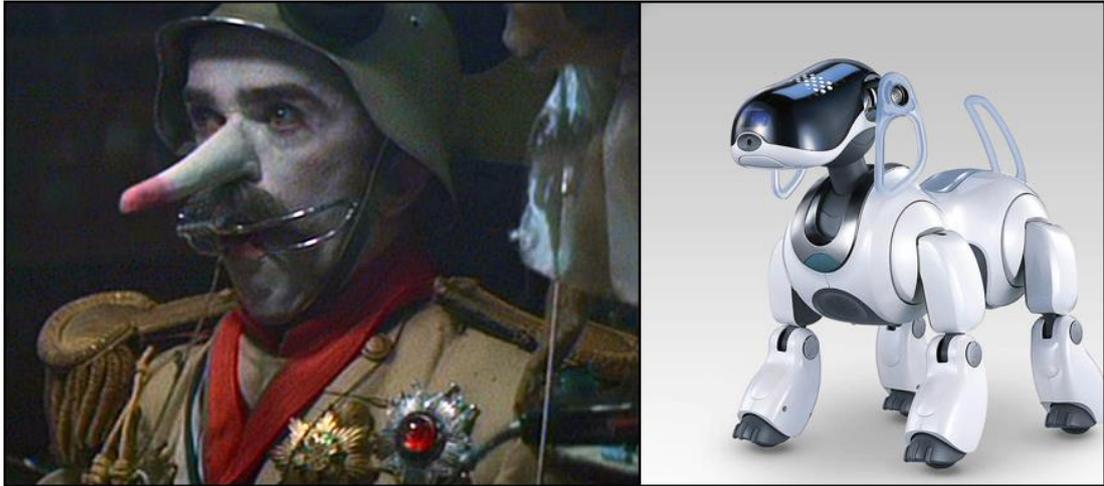


**Figure 5.69:** A Spinner flies by a giant advertisement on the surface of a building



**Figure 5.70:** 3D model of the “Blimp”; by Patrick Parenteau

J.F. Sebastian is portrayed as an exceptionally talented genetic designer. In the scene, where he invites Pris to his house in Bradburry Building, Sebastian is greeted by a pair of walking, talking dolls; which turn out to be his genetically engineered toys. The production design team hints at future toys, with sufficient A.I. to interact with their owners; a concept which has already been brought to life with Sony’s “Aibo” in 1999.



**Figure 5.71:** J.F. Sebastian's genetically engineered toy (left), Sony's AIBO

All these distinctive retro futuristic elements are melted together in a unique way, thus creating the most powerful feature of "Blade Runner"; which is its visual statement, regarding a dark, dystopian future.

#### **5.2.2.2. Social Construction**

"Blade Runner"'s major social construction is concerning the relationship between man and the machine. In addition to the already cliché "A.I. out of control" theme, film also brings another dimension to human - machine encounter with the portrayal of the "love affair" between Deckard and Rachel.

The dramatic ending scene, where Batty unexpectedly saves Deckard instead of killing him; is a social criticism regarding the destructive instincts of humans. At this point, Tyrell Corporation's motto "More human than human" can also be interpreted differently. Even though the motto "More human than human" refers to the exact replication of a human being in all his physical aspects, a Replicant may also represent a human being with a higher level of perception of "life" and its value. At the end of the film, Deckard has difficulty understanding Batty's act, and he starts to question his own humanity. Blade Runner discusses the elements which make a human, "human".

"I've seen things you people wouldn't believe. Attack ships on fire off the shoulder of Orion. I watched c-beams glitter in the dark near the Tanhauser Gate. All those...moments will be lost...in time. Like...tears...in rain. Time...to die".

These last words of Batty is a hypothetical representation of the perception of "death" from the perspective of a machine. This is infact a paradoxical representation

because a Replicant is hypothetically not “alive” due to its nature of being a machine. This brings out the question; “How can a non-living entity perceive the meaning of “death” ?”.

“It is not an easy thing to meet your maker” says Batty when the Replicant comes to his Eldon Tyrell, and begs for more life, and mercy for the “questionable” things he had done. The scene portraying the conversation between Batty and Tyrell, contains a very strong metaphor, where “Tyrell and Batty” becomes the substitute of “God and man”. Man’s desire of “playing the role of God” has been referred in many films; but this particular scene is a very dramatic illustration of the subject.

### **5.3. “Knight Rider”**

“Knight Rider” is a Sci-Fi/Action/Crime film/TV series, created and produced by Glen A. Larson in 1982. After the initial release, the series was an instant hit and became extremely popular, not only in USA, but all around the world. The first episode was shot as a pilot movie with a duration of 91 minutes, and it was followed by 89 episodes each of them having 60 minutes of duration. After the success of the TV series which continued between 1982 - 1986, a few sequels followed the original series; such as “Knight Rider 2000” (1991), “Knight Rider 2010” (1994) and “Team Knight Rider” (1997), but none of the sequels received the attention they expected. In fact, “Knight Rider 2000” was intended as a pilot TV film for a new TV series, but it never made it to the TV series due to its failure. On the other hand, “Knight Rider 2010” has almost no connections to the original series except for the fact that there is again a custom made car with special abilities incorporated to it. “Team Knight Rider” was shot as a 22 episodes TV series, this time, instead of only one car, it featured three cars and two motorcycles. In 2005, main actor of the movie, David Hasselhoff announced his intentions to recreate “Knight Rider” as a feature film, as of today, the film is in production stage scheduled for premiere in 2006.

#### **5.3.1. Plot / Synopsis**

The origins of the story and creation of the characters are given in the pilot episode of “Knight Rider” which is titled “Knight of the Phoenix” (1982).

The main character of the series, an undercover police detective; Michael Arthur Long (performed by David Hasselhoff) is betrayed while on duty, and shot in the face. Being selected for his high level of training and dedication, he was then taken under medical care and a rehabilitation process by a private foundation called “FLAG” (Foundation for Law and Government), and declared dead to the public. FLAG was the “crime-fighting” side organisation of a private foundation titled: “Knight Foundation”, which was founded by the dying millionaire industrialist; Wilton Knight. During the rehabilitation, Michael Long’s face was altered via plastic surgery, and he was resurrected with a new face and identity: “Michael Knight”.

After Wilton Knight’s passing, the Knight Foundation and FLAG were taken over by Knight’s best friend and associate; Devon Miles (performed by Edward Mulhare). Devon Miles both acts as the director of the organisation and friend to the team. At the beginning of each episode, he explains the detailed mission description and objectives to the FLAG team and helps them throughout the mission.

For his missions, which is to fight for law and justice, Michael Knight is given a work partner. Designed by Wilton Knight and engineered by Knight Industries; “KITT” (**K**night **I**ndustries **T**wo-**T**housand) (voiced by William Daniels) is a specially modified, almost invincible and indestructible Pontiac Trans-Am car with A.I., incorporating many unique abilities that no other car possesses.



**Figure 5.72:** Michael Knight, driving KITT

The FLAG team's other member, Bonnie Barstow (performed by Patricia McPherson) is the chief mechanic responsible for the maintenance and R&D activities regarding KITT. During the second season, April Curtis (performed by Rebecca Holden) replaced Bonnie Barstow temporarily, as the chief mechanic for KITT. In 1985, another member joins the FLAG team during the fourth season of the series; Reginald Cornelius III (also called RC3 during the series) (performed by Peter Parros); who possesses different talents to strengthen the team, especially in conditions that require physical strength and street experience. RC3, a Chicago native, operates on his own in order to clean the streets from the increasing crime issues, has an encounter with Michael Knight and KITT during which FLAG team helps him with his fight on the streets. Later on, he joins FLAG in an occasion when he puts his garage in the service of FLAG for the recreation of KITT who had been virtually destroyed in one of the previous episodes. During the missions, FLAG runs its operations from a mobile command post, a specially designed truck with a set of advanced computers with direct connection and access to government databases and other computer networks in the world. The truck, which is often referred to as "semi" in the episodes, also serves as a maintenance and repair unit for KITT.



**Figure 5.73:** FLAG team: Michael Knight, Devon Miles, Bonnie Barstow and KITT

Michael Knight is assigned a different mission every episode, and his enemies cover a wide range of criminals, including assassins, terrorists, illegal military groups, corrupt officials, robbers and many others. His most dangerous and deadly battle was against Wilton Knight's criminal son; Garthe Knight, during which Michael Knight also discovers that his new face created via plastic surgery, was modelled after Wilton Knight's son's face.

Another interesting fact about the series is the non-violent character of Michael Knight and KITT. Although being a crime/action film, the use of firearms and excessive violence is at a minimum level throughout the series.

#### **5.4.2. Construction of Future Reality**

In "Knight Rider", as the story takes place in 1980s, the only futuristic construction of the film is KITT and other artefacts and tools related with KITT. As a result, the "Production Design / Design Construction" sub-section examines and discusses around KITT. Further in the sub-section, KITT's functions and features are compared to up-to-date automotive technologies in order to investigate the accuracy of the constructions.

"Social Construction" sub-section investigates the social projections regarding the interaction with KITT, and the film's highly influential role on pop-culture and other films/TV series with similar themes.

##### **5.3.2.1. Production Design / Design Construction**

Being the major and almost only technological projection of the movie, the production design was focused around the realisation of KITT and its unique features.

The original KITT was customized and designed by Michael Scheffe, who has also worked in the production design team that designed and modified the De Lorean car for "Back to the Future Trilogy". Michael Scheffe was the construction coordinator for the De Lorean car in "Back to the Future" and future consultant for "Back to the Future II". In the fourth season of the series, a convertible model and a "Super Pursuit Mode" KITT were customized and built by George Barris. The customized

car is designed on an existing 1982 Pontiac Trans-Am. The extremely modern looking 1982 model was the first year of the third generation F-bodies and was a complete re-design of the second generation Trans-Ams (**Knight Rider Online**).



**Figure 5.74:** Comparison of 1982 Pontiac Trans-Am (left) and KITT

According to the story, KITT is designed by Wilton Knight, the founder of “Knight Foundation” and FLAG. KITT’s main cybernetic processor was first used by the US government in a mainframe computer in Washington D.C., and then installed by Wilton to the car, which was also engineered secretly in the “Knight Foundation” facilities. Chronologically, KITT is actually the second car engineered by “Knight Foundation”. KARR (Knight Automated Roving Robot) was engineered as the prototype of KITT.



**Figure 5.75:** Image of KARR, from the episode “KITT vs. KARR”

The main difference between KITT and its predecessor is that KARR’s primary directive is “self-preservation” where as KITT’s primary directive is to “protect human life” at all costs. Apart from protecting Michael Knight and other members of FLAG, KITT is also strictly programmed never to take any human life. As the “self preservation” programme of KARR often proves to result in unpredictable and

dangerous behaviours of the car, after KITT was completed, KARR was deactivated, later to be accidentally re-activated and escape to become an enemy for the FLAG in latter episodes.

KITT has a wide spectrum of unique abilities and features. He can hear, analyse and simulate sound, see through walls and detect any kind of motion, people, explosives, gather structural schematics and blueprints of buildings, monitor radio transmissions, telephone calls, and track their source, run in "silent mode" via a feature muting his engine sound, spray oil and smoke in order to get rid of enemies, monitor peoples' physical conditions via a medical scanner, resist fire and sustained temperatures up to 800 degrees with its thermal-resistant coating, put out small fires via a fire extinguisher, release oxygen inside the car in order to provide air for passengers, or release sleep gas in order to knock an unwanted occupant.

As there is extreme amount of detail regarding KITT's technical specifications and special abilities/features, the list of Technical Specifications and most of KITT's known features can be found in the Appendix 3 and Appendix 4 of the thesis respectively. Below are the descriptions of some of KITT's technical specifications and most popular features.

The most important feature of KITT is its advanced A.I. KITT was essentially an advanced supercomputer on wheels. The "brain" of KITT was the Knight 2000 Microprocessor which is the centre of a "self-aware" cybernetic logic module that allowed KITT to think, learn, communicate and interact with humans. Although KITT wasn't programmed to have feelings, he always had an ego that was easy to bruise and displayed a very sensitive personality. The system was programmed to drive the car better than a human operator could. He also has an in-dash entertainment system that can play music and video, and run various computer programs including arcade games which Michael sometimes indulged in whenever KITT was driving. The belief that KITT was truly sentient was never discussed in the show, however, KITT was fully aware of himself and programmed to obey all orders given to him by his human creators, so long as they didn't violate his prime directive of protecting human life (especially Michael's) to the best of his abilities. KITT has, however been referred to as being "alive" in at least one episode.

Visually, the most distinctive and recognizable feature of the car, which helped KITT become a cult throughout the 1980s, is the “trademark” whirling “red scanner” bar integrated in the front of the car. This bar-scanner, called “Anamorphic Equaliser”, is a fibre-optic array of electronic eyes that enable KITT to see in all visual wavelengths including x-ray and infrared. When KITT’s surveillance mode is active, the bar lights up and makes an ominous swooping sound while panning from left to right. KITT uses his red scanner to “see” anything within a reasonable vicinity.

The roots of this feature is actually based on the previous TV project produced by Glen A. Larson again; the cult science fiction TV series “Battlestar Galactica”. In “Battlestar Galactica” the hostile android race called “Cylons” are pictured in shiny metallic armours and helmets with a single “red eye scanner” integrated inside the helmets, whirling from left to right, exactly the same way KITT’s scanner works.



**Figure 5.76:** The trademark “red scanner” on the nose of KITT



**Figure 5.77:** Comparison of red eye on the helmet of a Cylon trooper (on the left) and red eye scanner of KITT

KITT’s chassis is reinforced with another invention of Wilton Knight; the “Molecular Bonded Shell”, a special armour coating that can resist to conventional

weapons and explosive blasts, except heavy artillery and missiles, making him almost indestructible.

KITT has a specially designed engine that makes him an exceptionally fast car; the Knight Industries turbojet, with modified afterburners, which enables the car to accelerate to 60mph in only 0.2 seconds and cruise at speeds over 200 mph.

KITT has three different cruise modes:

Normal Cruise: The mode that enables Michael Knight to control the car. In an emergency, KITT could still take over and activate Auto Cruise mode. In order to prevent this, one has to use the Manual Override.

Auto Cruise: The mode that enables KITT drive himself utilizing an advanced “Auto Collision Avoidance” system. KITT can use Auto Cruise mode regardless of Michael Knight being in the car or not, which enables him to go to Michael’s upon his direction and also park itself without a driver.



**Figure 5.78:** KITT driving in “Auto cruise mode”

Pursuit: Pursuit mode is used during high-speed driving and is a combination of manual and computer assisted operation. KITT can respond to road conditions faster than Michael Knight's reflexes, however Michael Knight is technically in control of the vehicle and KITT helps guide certain manoeuvres ([Wikipedia](#)).

Arguably KITT's most popular ability, which he uses at least once in almost every single episode, is the "Turbo Boost" feature, that enables KITT to jump about 40 feet into the air and pass any obstacles along his way. A series of rear mounted undercarriage rocket motors allows KITT to accelerate to incredible speeds of up to 200 MPH. When activated in combination with the "Trajectory Guidance System" and a pair of rocket motors mounted just behind the front tires that lifts the front of the car, KITT can jump 40 feet into the air and pass over obstacles in the road. The system also allows KITT added power whenever he has to manoeuvre heavy objects such as pushing a heavy boulder off a cliff, or pulling a large vehicle out of danger. The boosters can fire forward or backward ([Knight Rider Archive](#)).



**Figure 5.79:** KITT, performing "Turbo Boost" in various scenes



**Figure 5.80:** KITT, performing "Ski driving" in various scenes

In addition to “Turbo Boost”, KITT can also pass through narrow places and jammed traffic via its “Ski Mode” feature which enables him to perform ski drive on two wheels.

Another interesting feature of KITT is the “Seat Ejection System”. KITT has two front ejection seats, during the episodes, Michael Knight uses them in order to reach high places, or enter buildings secretly from their fire escapes of rooftops. On rare occasions, KITT uses the same feature to send away “uninvited guests” out of the car.

In the story, FLAG team and the chief mechanics Bonnie Barstow and April Curtis constantly work on R&D activities and add KITT many new features and abilities as the episodes moved on. Two original production memorandums (1983, 1984) giving detailed list of KITT’s functions, which are chronologically updated and improved throughout the episodes timeline, can be found in the Appendix 5 of the thesis.

In Season 4, among many extra features, KITT’s exterior was also changed as well. A convertible version of KITT was designed, and during the cruises, Michael Knight could easily transform KITT into a convertible car by activating a switch.

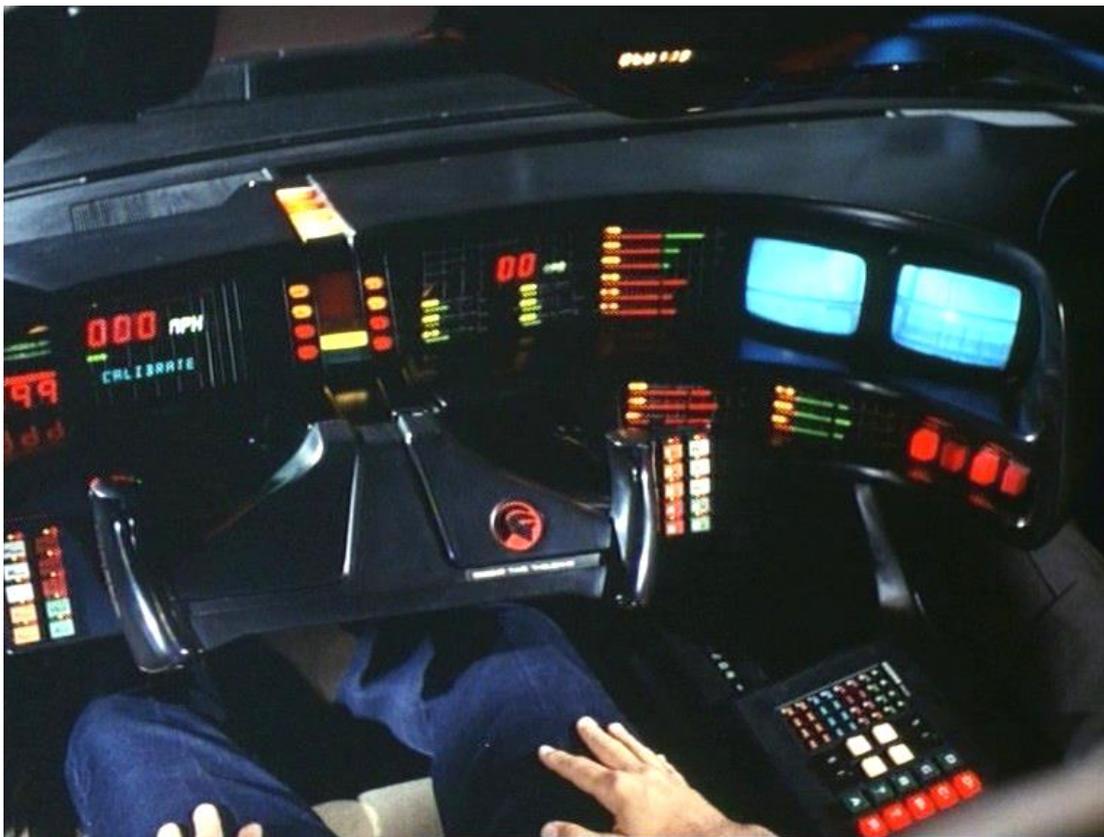


**Figure 5.81:** KITT’s “Super Pursuit Mode” modification (left), KITT activates “Emergency Braking System” in a scene (right)

The second major feature added to KITT is the “Super Pursuit Mode” which enabled KITT to accelerate to speeds as high as 300 mph (around 500 km/h). In order to operate in “Super Pursuit Mode”, various flaps and spoilers were added around KITT’s body for better aerodynamics during high speeds, and this modification added a new look to its exterior design. An “Emergency Braking System” was also designed, in connection with the “Super Pursuit Mode”. The system consisted of a

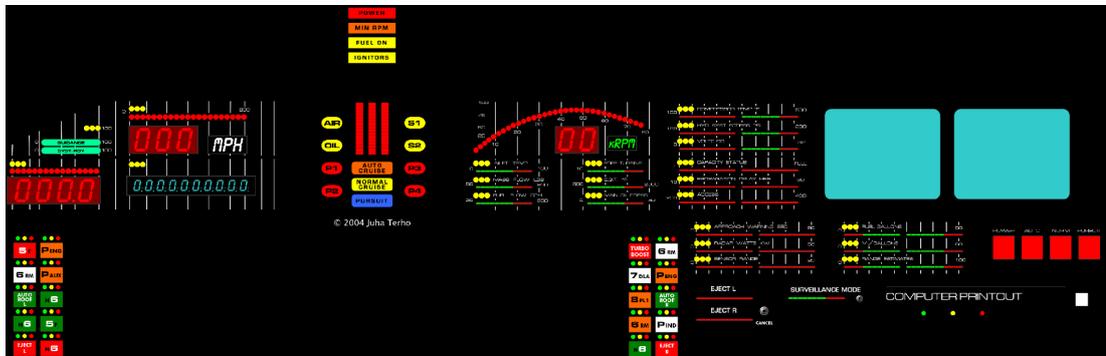
forward breaking booster and air panels that popped out to create air friction, in order to slow KITT down from Super-Pursuit speeds.

The interior of KITT, to be more specific, the dashboard, is visually the most futuristic construction of the production design team. At a first glance, the interior resembles the cockpit of an airplane. KITT's dashboard is full of many buttons with lights, each of which are switched on, in order to enable his many abilities and features. Apart from the dashboard, there are other panels mounted on the ceiling above the driver's seat which provide enabling of KITT's many other features. For surveillance activities, TV screens have been integrated inside the dashboard. The dashboard design and other panels mounted around the interior went through slight changes during the latter episodes, where the car was also being modified and upgraded constantly by the mechanics of FLAG.



**Figure 5.82:** KITT's dashboard, "Gullwing" steering wheel, control panels and surveillance monitors (from Season I)

Instead of a conventional steering wheel, KITT has a “Gullwing” steering wheel. The grips of the Gullwing steering wheel were larger in the pilot episode, and were modified to smaller grips for the rest of the series.



**Figure 5.83:** A graphical recreation of the complete dashboard of KITT from Seasons 1&2; image recreated by Juha Terho



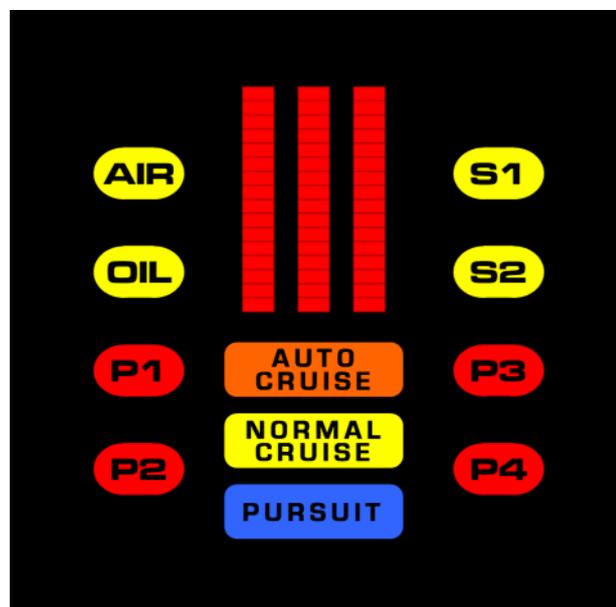
**Figure 5.84:** KITT’s dashboard, close-up on “Gullwing” steering wheel and KITT’s “voice” interface

KITT has a specially designed visual interface, which is integrated in the middle of the dashboard where the steering wheel is mounted, and it enables Michael Knight to look at KITT while talking to him. Conceptually similar to HAL 9000’s representation from “2001: A Space Odyssey”, the interface is designed as a simple

box, with various displays on left and right, and the three cruise modes (normal cruise, auto cruise, pursuit) at the bottom; indicating which one is active for the time being. In the middle of the interface, KITT's talking, or "voice" is represented with an active graphic equaliser, changing levels, depending on the amplitude of sound. While talking, KITT uses a very nice and calm human voice. (voiced by William Daniels). It is important to note that KITT's interface has gone through slight changes and modifications throughout different episodes and seasons, although the basic concept was kept intact.



**Figure 5.85:** KITT's dashboard, close-up on KITT's voice interface, integrated on the "Gullwing" steering wheel's dashboard slot



**Figure 5.86:** A graphical recreation of one of KITT's early interfaces from the Seasons 1 & 2; image recreated by Juha Terho

Apart from KITT, the production design team created three more products, which were in connection with KITT and its features.

Wrist Communicator: KITT is in constant contact with Michael Knight via a two-way communication wrist watch Michael Knight wears. The watch also incorporates a micro camera and scanner that KITT could access to gather information. During the episodes, Michael Knight often used the wrist communicator to call KITT for help when he was in trouble, or when he needed a ride. Practically, the wrist communicator acts as a “remote control” device of the car. Apart from calling KITT to his help, Michael Knight also gives commands via the wrist communicator in order to direct KITT to certain different tasks.

The visual design of the communicator resembles a cheap, plastic digital watch, most probably not to attract any attention, and to hide the real functions of the device from curious eyes.

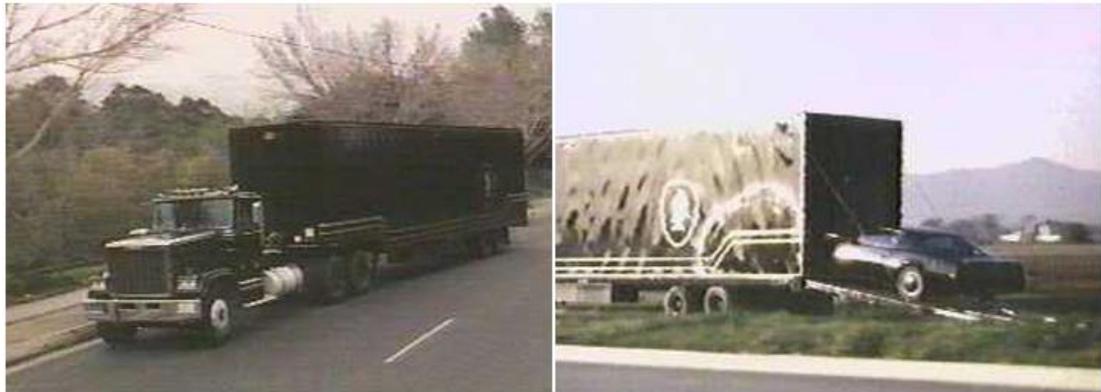


**Figure 5.87:** Close-up of wrist communicator; Michael Knight talking to KITT

“Homing Device: In dire emergency, Michael Knight can activate a secret homing beacon hidden inside a gold pendant he wears around his neck. The beacon sends a priority signal that can remotely activate KITT and override his programming so that he rushes to Michael Knight's aide” (Wikipedia).

Knight Industries Mobile Unit: KITT has access to a mobile "garage", sometimes called "The Rook", which is a semi tractor and trailer owned by the Foundation. The trailer has an extendible ramp that drops down and allows KITT to drive inside. It also has a computer lab where either Bonnie Barstow or April Curtis would work and conduct repairs and maintenance as well as integrating new devices and systems inside KITT. The computer lab also works as a mobile mission control centre and database for FLAG. They retrieve any kind of information about criminal profiles

and background, technical data and many other issues. It is a rather interesting fact that the production design team has not gone through any customisation regarding the visual styling of the semi.



**Figure 5.88:** FLAG's semi unit; another scene where KITT is entering the semi

At the front of the trailer is a small office area. The semi also functions as the mobile mission headquarters for FLAG during the missions, and has advanced computer systems integrated inside, which have access to various government and private networks in order to gather information at need.

During the production for each episode, at least four or five KITTs were used at the same time, in order to shoot the different scenes where KITT is performing his various abilities and functions.



**Figure 5.89:** The original "picture car" KITT, on display at the Universal Studios

In an article by Chip Lovett, titled “KITT: Supercar of the Eighties”, David Hasselhoff explains the various cars used for shooting the episodes. Apart from the car David Hasselhoff drove, the production design team provided a back up car, in case the first one broke down during the shooting. These two cars had the KITT dashboard prop integrated inside, and most of the interior shots were also made with these cars. There was also a “picture car” which was kept extremely clean and polished and perfect in everyway, this car was used for the scenes where David Hasselhoff was getting in or out of the car. A fourth car, a heavily braced model, constructed from lightweight fibreglass, with thicker tires, were used especially for scenes involving the “Turbo Boost” mode, where KITT makes big jumps or sometimes suspended in the air by a crane. This car did not have the KITT dashboard integrated inside, as the interior scenes were not shot with this model. For the scenes involving the “Auto cruise Mode” of KITT, another car was modified to be driven from the backseat, as the stunt driver hid behind the driver seat under a trap. While driving, the stunt driver looked through a small window in the headrest. Apart from the cars listed above, another stunt car was constructed, involving dangerous scenes such as high speed chase scenes or “Ski Drive” scenes where KITT was on two wheels. That car also incorporated special brake devices called “line locks” and safety features including roll bars. For shooting the “Seat Ejection System”, a real working ejector system was constructed in one of the cars. As the process was extremely risky, for some cases, even for stunts, the ejection scenes were shot using a dummy in some of the episodes (**Knight Rider Archive**).

The common feature of all the vehicles in “Knight Rider” series is that their shell design is not intended to be different or futuristic, compared to the ordinary vehicles of their time. Almost all of the special abilities and functions are incorporated inside the vehicles, and they are not visible from outside. This projection is most probably an intentional choice, due to FLAG’s nature of being a private and secretly operating organisation. Especially with the case of KITT, the speculative technology incorporated is not some how interpreted visually, and KITT looks almost the same as any stylistic sports car. Another reason for the disguise of technology in the form of ordinary cars and products, may be the urge to introduce high technology to the audience (or the society) with a “domestic” approach, so that high technology becomes more “reachable” and accessible for an ordinary individual.

Compared to up-to-date automotive and electronics technology; apart from a few exceptions, the future constructions regarding the features of KITT are available, even though it would be a matter of choice, whether or not to integrate them inside a car being mass-manufactured for the market.

The “Auto Cruise” mode of KITT, in other words; a self operating car has been a popular issue for the automotive industry for such a long time. Although not mass manufactured yet, almost all of the major car manufacturers are developing already successful prototypes, which are able to cruise and park without any driver, through a system which involves a central processing unit, directing the car depending on the information it gathers through a set of sensors integrated around the car. Similar to “Auto Cruise”, a new system called “Adaptive Cruise Control” is in use and under development by two different companies; TRW and Delphi.

Adaptive cruise control is similar to conventional cruise control in that it maintains the vehicle's pre-set speed. However, unlike conventional cruise control, this new system can automatically adjust speed in order to maintain a proper distance between vehicles in the same lane. This is achieved through a radar headway sensor, digital signal processor and longitudinal controller. If the lead vehicle slows down, or if another object is detected, the system sends a signal to the engine or braking system to decelerate. Then, when the road is clear, the system will re-accelerate the vehicle back to the set speed (**How Stuff Works**).

Most of the existing mass-manufactured cars already incorporate parking sensors in their production programme, which warn the drivers against a collision distance. Their “board computers” also warn the driver about any internal feature of the car, such as oil and fuel levels, wheel pressure, safety belts and open doors. With the improvements in GPS technology, GPS units and Internet Access are integrated in cars in order to warn the driver about the route, dangerous turns and distance, through the information they gather via the satellite communication.

The concept of a “talking car” was first used in mass-manufacturing by Renault, to be more specific, the Renault 25 model. Naturally, today’s board computers’ A.I. configurations are not advanced enough to carry an intelligent conversation, but they merely play back pre-recorded warning messages and phrases instead. These phrases are produced through the information the board computer receives from the sensors integrated inside specific sections of the car. Apart from the “talking” feature, the voice recognition systems has become widely used in the last decade. Board

computers are able to recognise any pre-installed voice recognition commands such as “play music”, “turn on radio”, “open windows”, and activate the related systems through these commands.

Another feature of KITT; is his ability to fill the windows with certain gas components in order to darken the glasses and make the interior invisible from outside. This feature is widely used in private jets in order to turn the compartment into a bedroom when needed, by filling the section doors with a chemical gas component that fills between the double glass and blocks the transparency.

Starting with 2000s, many high-end car manufacturers developed a very basic A.I. concept which enables the board computer to learn the driver’s certain cruise preferences such as the gearbox settings and other technical details concerning performance, and the board computer makes adjustments based on these preferences in order to optimise performance and fuel consumption, as a result of optimised performance. Lately, Audi, with their A8 model, have replaced car keys with integrated fingerprint scanners on car doors. Further more, if the car has more than one user, the car can learn certain settings of its driver such as gearbox settings, seat adjustments and mirror adjustments, and when the driver enters the car, using the fingerprint scanning, the car automatically configures the preferred settings and adjustments of that specific driver (**AUDI, 2005**).

Many of KITT’s high technology features such as x-ray or infrared scanner, night vision, track & tracing radio transmissions and telephone calls and motion sensors are already existing technologies used for military and intelligence purposes. Integrating them to a mass manufactured car is only a matter of economic issues, law and civil procedures. “Most of KITT's features are just electronic wizardry that can be done or developed if you want to spend the money,” says Ford engineer Terry Thiel. “The bottom line is that it's possible” (**Zamichow, 1984**).

### **5.3.2.2 Social Construction**

The film’s only future construction is concerning the relationship of an intelligent vehicle and its user on social, cultural and psychological levels. Even though it is not made clear if his programming and A.I. processor is capable of producing human

emotions, KITT doubtlessly displays a unique personality, who is extremely responsive and sensitive, regarding the preservation of “human life”. I see KITT as a Renaissance man. He has a sense of moral values and justice," William Daniels states (**Knight Rider Archive**).

Unlike many other science fiction films with an A.I. concept, the construction of KITT does not project any unpredictable behaviour due to a technical malfunction, resulting in serious problems that would jeopardize the relationship between the technology and man. In fact, in addition to KITT’s consistency, KITT and Michael Knight strengthens the bond between them, turning the “partnership” into a “friendship” throughout the series.

The relationship, however, is an unusually dependent one and both Knight and K.I.T.T. are vulnerable without the other. Throughout the series K.I.T.T., for example, is increasingly educated in the complexities of human emotion and behaviour by Knight, whilst Knight learns from K.I.T.T. that technology must be respected and carefully safeguarded. Indeed, in many ways the nature of this dependency is configured as a relationship between a father and young child (**Moody, 2001**).

Although the series project an optimistic A.I. picture, KITT’s predecessor KARR causes serious problems due to its “self preservation at all costs” directive, this is defined as a “programming error” in the story. In other words, KARR isn’t displaying unpredictable behaviour, but in fact, his behaviour is unavoidable due to the programming of his nature.

Another perspective of this construction is the question of whether or not human life can be entrusted to “decision maker” machines whose primary directive is to preserve human life. The biggest question regarding this matter is how successful can their judgement be, considering the fact that most of the time, life saving decisions are connected with instincts and emotions; which, naturally do not exist in machines. Is rational thinking and analytic inquiry the primary qualities required for life preserving decisions?

It is also uncertain; in the future, if talking cars with A.I. are mass manufactured, how would it effect the human interaction in a society where every individual has a

talking “companion car”, as a friend, with whom they interact for considerable amount of time in a day. From this point of view, “Knight Rider”, in a way, projected the possibility and potential applications of advanced A.I. technologies integrated to daily life, as early as 1982.

The cultural impact of “Knight Rider” on the world was, and still is worthy of recognition. Right after its initial release, “Knight Rider” became an instant hit. KITT immediately turned into a cult car of the 1980s and his legacy is still living.

According to Glen A. Larson, in his interview on the Season One DVD, after the show became a big hit, Pontiac dealerships across the country were swamped with calls and visitors looking for the black Trans-Am model that had KITT's features. Many people were practically laughed out of the dealership after learning the car really didn't exist. Toward the end of the first season, in a formal letter to Universal Studios, General Motors kindly asked them to never refer to KITT as a "Pontiac" or a "Trans-Am" ever again. From then on KITT was just called KITT (**Larson, 2004**).

The red “surveillance scanner” on the nose of KITT was so popular, that during the 1980s and 1990s, all around the world, similar bars with whirling red lights inside, were available from anonymous manufacturers, which could be integrated in various places on the car body including the interior of the cars. This fashion became popular to such an extent, that it was possible to see the interpretation on many different cars varying from luxurious BMW's to low budget compact cars, the feature became almost “kitsch”.

Today, there are many fan Web sites which have detailed visual schematics, reference images and technical blueprints needed in order to convert a regular 1982 Pontiac Trans-Am into KITT. The demand on recreation of KITT is such a high level, that apart from the fan Web sites, and individual unofficial conversion attempts, the complete parts and accessories for the conversion of KITT are also offered officially. Rob Louisell, and his company “Louisell Enterprises” is the only Universal Studios® officially licensed vendor of Knight Rider™ conversion parts and accessories. Having learned auto body work from his father, who ran a body shop, when Louisell reproduced a KITT for himself, during the mid 1980s, after receiving numberless requests for conversion parts, he learned fibreglass mold

making and went into production. Today, “Louisell Enterprises” offers the complete interior and exterior parts, including accessories, overlays and insertion articles, in order to recreate an exact replica of KITT. Apart from offering the conversion parts individually, they also offer a “turnkey delivery” feature which lets people order the completed replica (**Louisell Enterprises**).

KITT is still preserving its popularity to some degree even today. Recently, the concept was used in an advertorial in the Turkish domestic market on TVs. Due to its popularity, a wide range of merchandise including die-cast cars, remote control KITT toy, a “deluxe” version of the toy which spoke electronically, lunch boxes, and video games.

The very famous “Knight Rider” theme music, written by Glen A. Larson and Stu Phillips, was sampled for two 1997 hit singles: Busta Rhymes’ “Fire It Up” and Timbaland & Magoo’s “Clock Strikes [Remix]”. Several other artists, including the alternative metal band System of a Down’s “I-E-A-I-A-I-O” from *Steal this Album*, have sampled the tune as well. Panjabi MC sampled the theme tune for his 2002/2003 UK and European crossover Bhangra influenced dance hit, “Mundian to Bach Ke (Beware of the Boys)” (**Wikipedia**).

Apart from the cultural impact on the society, “Knight Rider” also inspired several other motion pictures and TV series with the “high technology machine fighting against crime” concept. These followers include Airwolf (helicopter) (1984) the motion picture a TV series (1984-1987), and another TV series known as “Airwolf II” (1987), “Street Hawk” TV series (motorcycle) (1985), “Blue Thunder” (helicopter) the motion picture (1983) and TV series (1984) and “Viper” (car) as two different TV series. (1994), (1996).

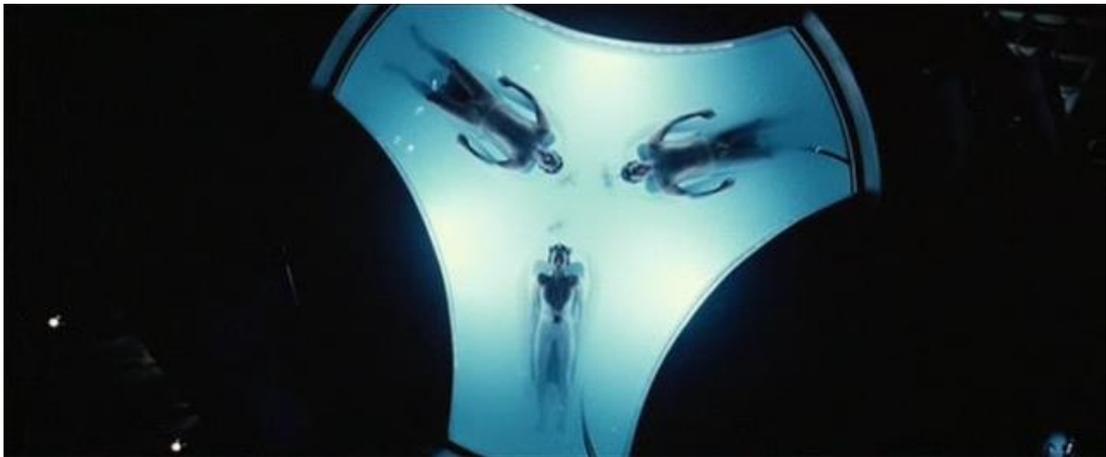
#### **5.4. “Minority Report”**

“Minority Report” is a Sci-Fi/Thriller/Action film, directed by Steven Spielberg in 2002. Apart from the scientific settings and realistic vision of the future, the film also incorporates elements of mystery in its story. The screenplay is based on a same titled short story by Philip K. Dick, whose works have been sources of inspiration for many other science fiction films.

### 5.4.1. Plot/Synopsis

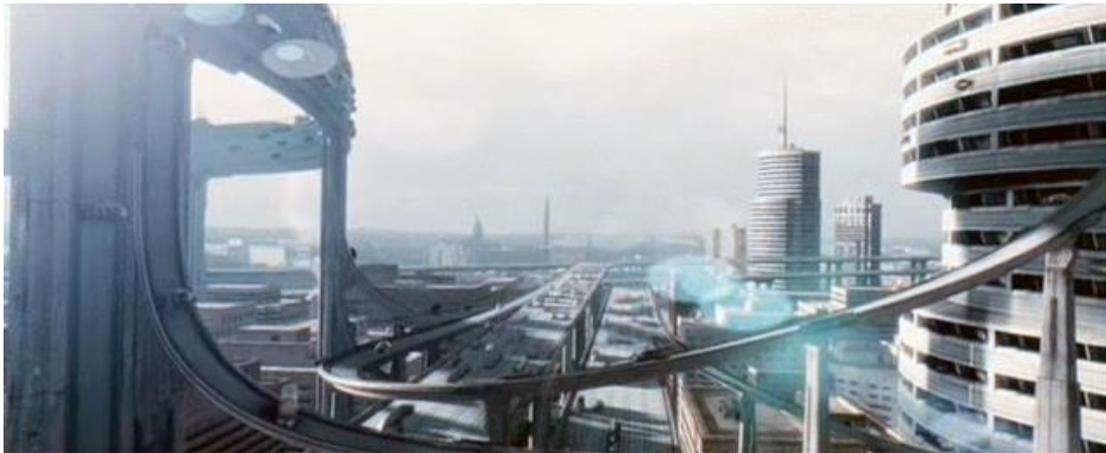
The story is set in Washington DC, in 2054. The city is experimenting with a new crime-fighting program called “Pre-Crime”, and thanks to its success, there hasn’t been a single homicide case in the last 6 years in Washington, since the start of the project.

“Pre-Crime” is created around three “precogs” (precognitives); two males and a female, who have psychic abilities, which let them see murders before they actually happen. The “Department of Pre-Crime” has built the whole system around the precogs, where the precogs are enslaved and kept in suspended animation inside a specially designed pool and chamber.



**Figure 5.90:** The Precognitives

The system uses an extremely advanced technology, which is connected to precogs’ brains, visualising and recording the previsions and dreams of the precogs via a digital interface. Specially trained Pre-Crime officers study the data gathered from the precogs and re-assemble the pieces in order to find certain details about the victim and the perpetrator. The police and detectives working in the department of Pre-Crime, are given supreme authority to act on their will, and arrest the perpetrators, before they commit a murder, depending on the information they gather from the previsions of the precogs. After the perpetrators are arrested, they are imprisoned inside pneumatic tubes in the “Department of Containment”, where they are kept in unconscious state and suspended animation for the remainder of their lives.



**Figure 5.91:** Washington D.C., 2054

The film starts with a new prevision of the precogs. After their prevision is visualised and recorded, the first man in charge, and an expert on the Pre-Crime analytical interface, Chief John Anderton (performed by Tom Cruise) re-assembles the recorded material and leads a capture team to the victim's neighbourhood, where they stop and arrest the perpetrator only a few seconds before he commits the murder.

John Anderton is displayed as a character who had suffered from a deep trauma, after his son's murder, which took place only six months before the initiation of the Precrime project. The director of Pre-Crime; Lamar Burgess (performed by Max von Sydow) is portrayed as a mentor and good friend to Anderton.

The country is about to vote on expanding the program nationally, and Burgess especially relies on Anderton for his expertise and extremely persuasive public figure. As the nation-wide approval of the program will cause a fundamental change in the law and justice system, Danny Witwer (performed by Collin Farrell) from the U.S. Department of Justice, is assigned the task to execute a detailed investigation in order to examine the possibility of any flaws in the Pre-Crime process. During Witwer's investigation, Anderton accidentally discovers a suspicious case, where a pre-recorded prevision of one of the precogs on an already closed case, is missing in the archives.

While Anderton secretly expands his further investigation, by a turn of fate, the Pre-Crime system surprisingly points out Anderton as the perpetrator of a murder which

he has not committed yet. Anderton is forced to escape from the Pre-Crime department, as he turns from being a Pre-Crime chief to a Pre-Crime perpetrator.

During his run, Anderton finds the already retired inventor of the program; Dr. Iris Hineman (performed by Lois Smith), and makes a discovery concerning the precogs; which has been hidden from him by Burgess. The precogs do not always have the same previsions; which is what they are supposed to do, or at least what is exactly stated by the Pre-Crime department. The name of the film refers to the situation, when one of the precogs have a different prevision compared to the other two. This alternative prevision is called a “minority report” but it is secretly filtered out and automatically deleted by the process, in order to preserve the system’s certainty, which is, naturally the key element in determining the destiny of the program in the national voting.

Anderton also discovers about the history of the precogs. The precogs were among many children who were born with seriously damaged brain functions, and were subjects of an experimental genetic treatment program. As a side effect of the project, the surviving three children developed the psychic abilities they possess.

After many thrilling chase scenes, Anderton kidnaps the female precog; Agatha (performed by Samantha Morton) from the department building, in order to recover the deleted minority report from her brain. When Anderton finally manages to extract the minority report from Agatha’s brain, he discovers a murder, committed by Burgess himself, in order to save the future of Pre-Crime program. When Agatha’s long lost mother Anne Lively (performed by Jessica Harper) had found out that Agatha was her daughter and claimed her back, Burgess murdered her, and successfully covered his crime by deleting the minority report.

At the end of the film, Anderton exposes the lost minority report file to the public, and forces Burgess to commit a suicide, which also brings an end to the Pre-Crime program for good. The ending scene portrays the precogs, free from their enslavement, in a farmhouse in the countryside, where they start a peaceful life.

During his run, John Anderton is caught and imprisoned in the “Hall of Containment”, later to be saved by his wife. There is a second school of thought, which interprets an alternative ending for the film. According to this alternative

interpretation, at the time segment 2:01:50, when Anderton is convicted of murder and arrested, the events of the film's plot terminate. The rest of the film, which shows Anderton's rescue by his wife, and the exposure of the minority report, which leads to Burgess's suicide, is a dream sequence, a mere creation of Anderton's unconscious mind, who is still imprisoned in the Hall of Containment.

#### **5.4.2. Construction of Future Reality**

Rather than investigating the psychic elements, and the speculative technology which is related with the psychic elements, the "Production Design / Design Construction" sub-section gives emphasis on the projections concerning the analytical interface technology, transportation design, and other features and products related with everyday life in the year 2054.

The "Social Construction" sub-section investigates the possible social impacts of the projected technology. For the purposes of this thesis, the philosophical issues related with law and justice, and the examination of different schools of thought, on the question; "is "crime" still considered a "crime", if detected before it is committed?" is not discussed, as these issues would form the whole subject of a totally different thesis.

##### **5.4.2.1. Production Design / Design Construction**

When Steven Spielberg decided to create the world of 2054, he referred to the term "future reality" rather than traditional science fiction. In order to construct a future world which is, in all its aspects, as realistic and plausible as possible, Spielberg brought together a diverse team of scientists, futurists and designers to brainstorm on, and construct a possible near-future to its least detail. This gathering, which Spielberg specially named "Think Tank Summit" lasted two days in a hotel in Santa Monica. The discussions went into great detail on many aspects of a future world, including medical future, architectural future, transportational future, defence issues, advertising, infrastructure, workplace and household appliances, and even the possible impacts of the rise of sea level (McDowell, 2003).

The "Think Tank Summit" included Neil Gershenfeld, professor at the Media Lab at MIT; Shaun Jones, director of biomedical research at DARPA (Defense Advanced

Research Projects Agency); William Mitchell, dean of the school of architecture at MIT; Peter Calthorpe, the New Urbanism evangelist; Jaron Lanier, one of the inventors of virtual reality technology; Douglas Coupland, author and commentator; Stewart Brand, author, scientist and co-creator of The Well online community; Kevin Kelly, founder of Wired Magazine; Harald Belker, conceptual designer; and John Underkoffler, the science and technology advisor for the movie.

The production design was entrusted with the talented hands of Alex McDowell, who started his research as early as 1998. During the pre-production stage, McDowell created and revised a set of documentation, which the production design team called “The 2054 Bible” **Salon (2002)**, in order to provide a technological reference for them throughout the production process. McDowell comments on the “future reality” aspect of the film in the following lines:

“The film was a unique opportunity for a designer to create a future society that needed to be conceived from the ground up, with technology and environments that were required to be whole and real. The fact that the “future-reality” aspect of *Minority Report* has resonated with its audience comes largely from the deep research into all aspects of the possibilities of this society, which in turn was made possible by the close contact we had with scientists, architects, sociologists, and “futurists”” (**McDowell, 2003**).



**Figure 5.92:** Conceptual illustration of Washington, 2054; designed by James Clyne

The Washington D.C. of 2054, was designed as three separate layers: The monumental layer; which included certain elements that would remain intact in the city for the next hundreds of years, such as the White House, Washington Monument, Rotunda of the Senate and the Capitol Building; the downtown layer;

where the wealthy portion of the society lives up in the towering high technology buildings integrated inside the revolutionary city transportation system, and old parts of the city; where the population isn't able to catch up with the high technology life style due to its expensiveness (Mooviees, 2002).

The Pre-Crime organisation, and its headquarters were conceived as being created in the last 10 years. The production design team innovated many conceptual designs, concerning the advanced computer interfaces, vehicles, tools and artefacts the Pre-Crime police uses.

One of the most dramatic and striking projections of the show is the state-of-the-art digital holographic interface that works with gestural recognition. The concept of a gestural recognition computer interface was suggested by the film's science and technology advisor; John Underkoffler, who happened to be a gesture recognition consultant, and had worked on various research projects related with holography, computer graphics, electronic publishing, and had developed similar interfaces in Media Lab, MIT (Salon, 2002).



**Figure 5.93:** John Anderton works with the Pre-Crime Analytical Interface

At the opening of the film, the audience is introduced a ten-minute sequence where wearing special gloves with fibre optics, Tom Cruise uses his hand gestures to reassemble and create a series of pre-recorded material on a set of giant curved transparent screens. According to the projected technology, the computer recognition system analyses the hand gestures via visual sensors, and turns them into certain

commands such as move, displace, rotate, zoom in, zoom out or delete. In an online interview, Underkoffler explains the process:

“We had him (Cruise) in the middle of that giant curved, transparent screen and Steven's brief was that he wanted the interface of that computer to be like conducting an orchestra. Armed with that brief, I went off and devised this whole kind of sign language for interacting with this computer, for controlling the flow of all this information. That was great fun and it derived in some ways from my earlier research back at MIT” (Salon, 2002).



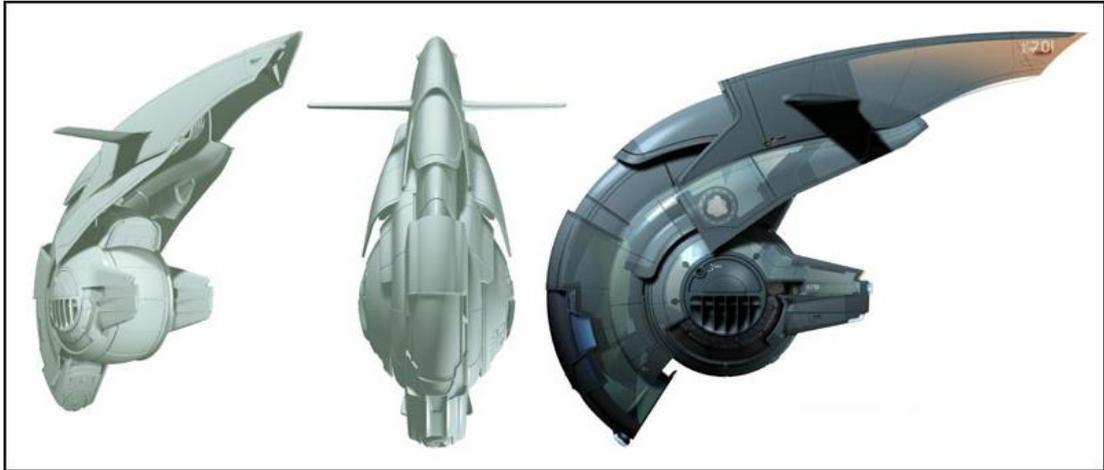
**Figure 5.94:** John Anderton re-assembles data with hand gestures



**Figure 5.95:** Fiberoptic gloves for gestural recognition

Apart from the gestural recognition interface, Pre-Crime department used many advanced tools in order to operate. As the “timing” issue is crucial in preventing a homicide, the production design team constructed a specific aircraft for the Pre-Crime department, which would be extremely swift, and also suitable for fast take off and landing in narrow spaces in a metropolitan environment. The striking

aerodynamic form of the “hovership” which is used to transport the capture teams to the crime area, visually resembles a seashell that floats in the air. The working principles of the hovership is similar to a helicopter, but without a rotor. It is able to perform VTAL, which is a vital feature for fast take off, landing and deployment in tight spaces.



**Figure 5.96:** The “Hovership”; designed by James Clyne / 3D model by Paul Ozzimo

The interior of the hovership is as impressive as the exterior. The seating mechanism is inspired by working principles of a “Ferris wheel”. During the cruise, the cops are seated inside the hovership in different elevated positions. Both of the interior walls hold seats arrayed in a circular motion, and the cops get off the hovership as the vertical rotation brings all the seats to ground level one by one.

As an addition to the hovership, the Pre-Crime cops are provided with “jet packs”; in other words “personal flying gears”, which enable them to move with great speeds, and chase the perpetrators at top of buildings or other elevated places.

Pre-Crime cops also use a special scanning system in order to detect the hiding perpetrators. The hovership’s thermal scanner scans the area to pinpoint any life form that radiates heat, this information is then transferred into scanner tablets used by cops, who are able to track and trace the suspects via heat signals.



**Figure 5.97:** Thermal scanner tablet

One of “Minority Report”’s most imaginative projections is based on A.I.. The Pre-Crime cops are provided with “spiders”, which they carry on their suits. A spider is a tiny robot with an advanced A.I. processor used for identity confirmation via retinal scanning. The form of the robot resembles a spider with wired legs, thus enabling it to climb, walk on walls, open doors, and enter through very small and narrow openings. Once it detects a life form via its thermal scanner, it uses the retinal scanner integrated on its body to scan the identity of the suspect, and sends the scan data via a transmitter to a central processor, where the data is analysed.



**Figure 5.98:** Three spiders perform retinal scan on John Anderton

The spiders can also be used in inactive mode, as a compact hand scanner by the Pre-Crime cops. Once the data is transmitted to the central processor in Pre-Crime headquarters, the cops receive a verification, via a communication device which looks like a wristwatch, attached to their arms. Another interesting feature of the

spiders, is their ability to communicate, and perform teamwork. In the scene, where one of the spiders opens a small panel in the ventilation system, it holds the panel and waits until all the other “team-mates” pass through; a performance which would definitely require an extremely advanced A.I..

The film also projects alternative solutions for future weapons. Although Anderton carries a Beretta 9000 model gun, the weapons of the future are designed non-lethal. There are two different weapons shown in the film; the vomit-inducing “sick sticks” are used by the cops for close combats, and the “sonic pistols” and “sonic rifles” direct manipulated sound frequencies to shoot and disarm people from a distance. Both systems enable the cops to capture the suspects alive and uninjured. Especially the scene which portrays the “reload sequence” of the sonic pistol by manual rotation is very innovative and effective in describing the inner mechanics of the weapon.

Once the perpetrator is captured, the Pre-Crime cops use a specially designed “headset”, which looks no different from an ordinary walkman headset. When activated, it immobilises and suspends the perpetrator in an unconscious state which roughly resembles a “vegetative state”.

“The Hall of Containment” is a state-of-the-art design which strikes the audience with its dramatic effect. In the first scene where the Pre-Crime officer switches the lights of the hall and activates the pneumatic tubes, audience is introduced to hundreds of suspended bodies floating motionless in the air.



**Figure 5.99:** Hall of Containment

The production design team created the suits of the prisoners based on NASA cooling suits with various tubes and wires for life support functions. The process itself and the visual language carries the imprints of the “hibernation module” in “2001: A Space Odyssey” (1968).



**Figure 5.100:** Two prisoners in suspended animation, inside pneumatic tubes

The uniqueness of “Minority Report”’s vision is not only related with the specific vehicles and products designed for Pre-Crime; on the contrary, the film’s major future reality construction is related with the everyday life, not to mention its incredible level of visual detail.

According to “Minority Report”’s projection, biometric authentication will replace all other types of identification in the future world. The audience is presented a world, where retinal scanners are integrated in literally everywhere, and they are used for a variety of different purposes. Places such as the Pre-Crime headquarters, shopping malls, metro stations and even the metro trains themselves have retinal scanners. In the scene where Anderton got on the metro during his run, all the people who entered the vehicle were automatically scanned in the blink of an eye.

Apart from their functions related with security issues, the film makes one of its most revolutionary constructions regarding an alternative use of retinal scanners, and sets a new level to the concept of “marketing”. The film re-defines the whole concept of advertisement from scratch; including its visual, cultural and functional aspects. In the future world of 2054, outdoor advertising is not made with papers and billboards anymore. There are giant flexible panels with digital interfaces, integrated literally all

around the city; completely covering the walls of huge buildings, inside the malls and shopping centres, and even tunnels. They are broadcasting news, updates and advertorials with real-time online connection. Apart from the digital panels, three dimensional holographic advertisements are installed inside shops and malls.



**Figure 5.101:** Digital advertisement panel integrated on the surface of a building

Moreover, with the retinal scanners integrated in their system, they recognise and identify the people passing by, and start to address them with their full names. The show does not even stop there. The digital panels retrieve all the information about the individual from a central database, and start to broadcast advertisements which are particularly related with that individual's interests and previous shopping experiences. This concept, which could be defined as a "personalised marketing", or "customized marketing", is one of the strongest constructions of the film.



**Figure 5.102:** 2D and 3D "Personalized Advertisements"

In connection with advertisement, “Minority Report” brings a new dimension to the concept of “reading”. In the metro scene, people read “electronic newspapers”, which happen to “broadcast” the updated news via an online connection. The media used for newspapers is also upgraded to a specially engineered material on which “electronic ink” is printed. Although the process makes the newspaper look like a futuristic product, the form and visual language is kept intact, in order to offer a traditional paper-like reading experience to the reader.



**Figure 5.103:** News being updated on an electronic newspaper

In the world of 2054, almost everything is voice activated. During the scenes where Anderton is spending time at home, he activates the lights, music and a wall projector with voice recognition.



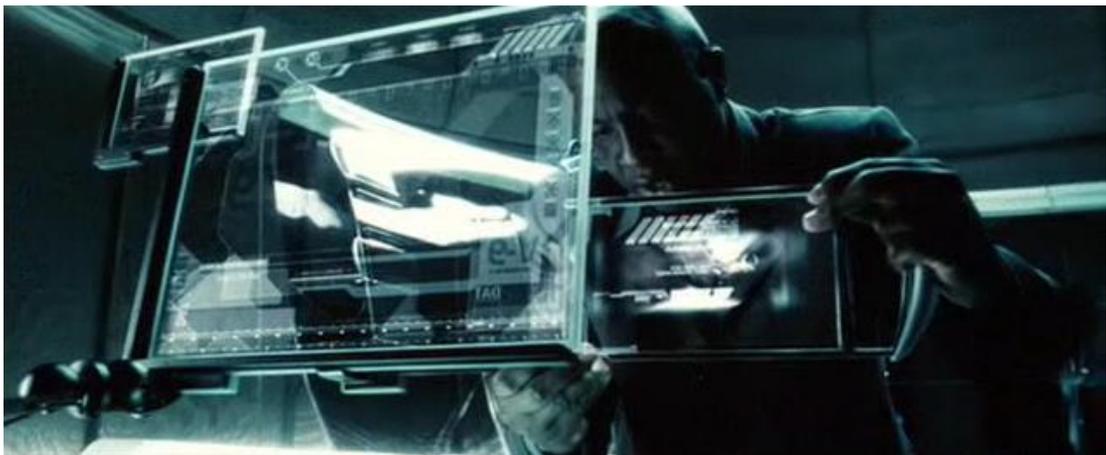
**Figure 5.104:** 3D Holographic projector

Another interesting device in Anderton's flat is the wall projector. The projector mixes a two-dimensional image of the background with a three-dimensional holographic image of the recorded characters on the foreground, thus, creating a three-dimensional movie effect where the holographic image is displayed almost "alive".

The film also creates a ground-breaking redesign for the existing computer technology and user interfaces related with it. From the large curved screens in Pre-Crime analytical room, to personal computers, music players and laptops; everything is extremely thin and transparent.



**Figure 5.105:** A Personal Computer of 2054



**Figure 5.106:** 2D Holographic data transfer via a transparent diskette

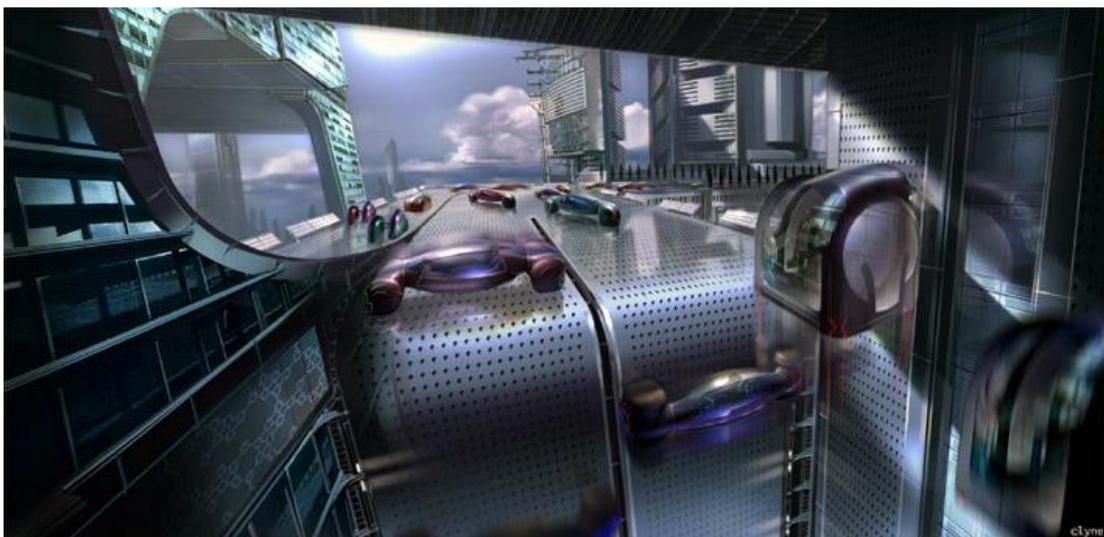
This new technology also changes the way data is stored. CDs, DVDs, and floppy disks are all replaced by transparent media of various shapes and sizes. The visual

language of the projected technology is very dramatic, especially in the sequence where Anderton reassembles the previsions of precogs. While Anderton works on the main screen, 2D holographic data is transferred from a computer screen to a diskette, carried in the diskette, and uploaded to the main screen.

During the complete process, all the folders and their digital contents are completely visible from the outside, which is a revolutionary approach, when compared to today's re-writable and read-only memories.

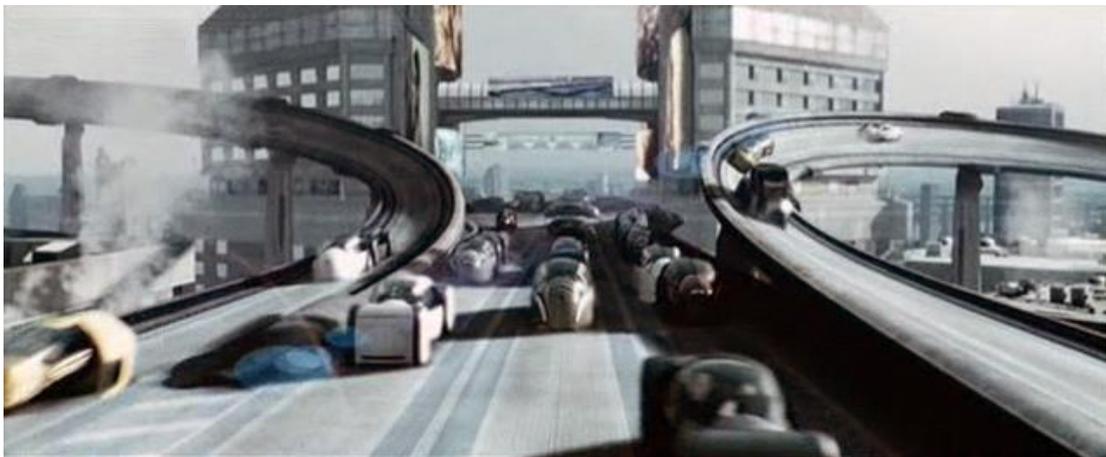
The most remarkable and striking construction of "Minority Report", is its "trademark" transportation design. The "Think Tank Summit" extrapolated an existing technology called "Magnetic Levitation" (MagLev), and the production design team created a brand new transportation concept, which provides many solutions to existing traffic issues in metropolises.

Basically, MagLev system operates on electrical/magnetic energy. The specially engineered roadways have magnetic discs integrated in their inner structure, which support and propel the various vehicles that run on the system. The transportation is completely computer controlled. Driving systems such as cruise control (between 80-100 mph), safety distance, and navigation are all operated from a central processor, thus, ensuring the city is absolutely accident-free. Along with the Pre-Crime spider robots, this automated traffic concept is the second A.I. projection of the film.



**Figure 5.107:** Conceptual illustration of MagLev system; by James Clyne

Another advantage of the MagLev system is concerning its mass transportation ability. Private pods, cabs and various mass transportation vehicles all negotiate the same MagLev system. The uniqueness of MagLev lies in its three-dimensional construction. The system is designed as a complex web of roadways which are integrated on the ground as well as the horizontal and vertical surfaces of the buildings all around and inside downtown. “MagLev, three dimensional system was based on a combination of taxi cabs and elevators, in the way that they are beginning to be released from their trappings and made free. It can take you wherever you want to go on command” explains producer Bonnie Curtis (Mooviees, 2002).

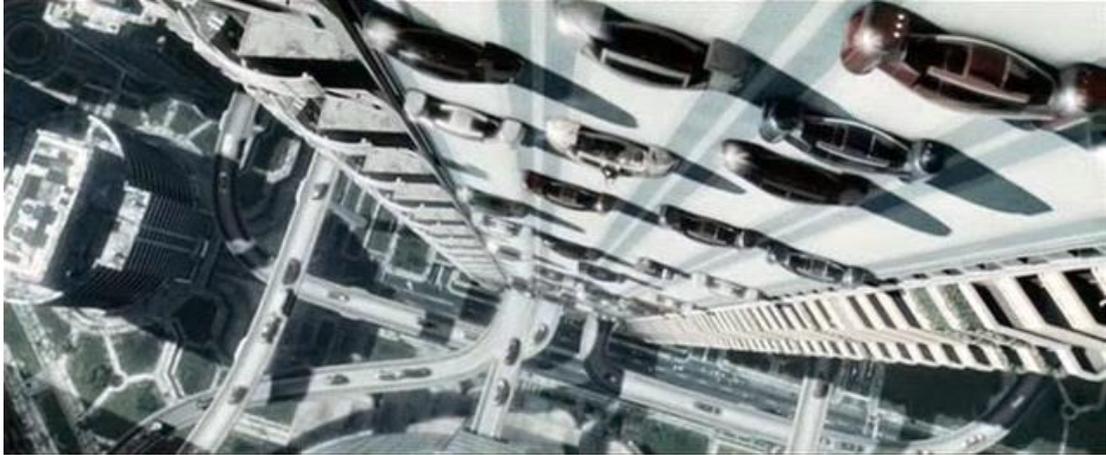


**Figure 5.108:** A “Daily traffic scene” in MagLev system

Practically, MagLev can use any surface available inside the city, thus the system also re-conceptualises the “relationship between a vehicle and building”. The whole infrastructure of the city and buildings are conceptually redesigned in order to resist and support the physical tension, which would be created as a result of non-stop traffic on the surfaces of the buildings.

Due to its three-dimensional structure, the vehicles that run on MagLev are tailor-built to fit the system. Says Belker: “The real problem was figuring out how to get a vehicle from a flat surface to go vertical, along buildings. We didn't want flying vehicles, like “Blade Runner”. It had to make sense, with form following function”. The visual design of a MagLev vehicle resembles a cross between a car and capsule. As they run on magnetic roadways, these custom engineered pods do not require wheels. Using magnetic energy, the pods make seamless transitions between horizontal and vertical surfaces while the interior structure simultaneously rotates to

adjust itself to the new vectoral position. “The MagLev (pod) can go horizontally, vertically; it can spin; it can turn; and you sit in the middle and never spill your coffee” adds Curtis (Mooviees, 2002).



**Figure 5.109:** MagLev pods cruising on vertical roadways integrated on buildings

In addition to their unique form, MagLev pods have advanced technology integrated in their systems. The vehicles feature constant connection to the central computer, video interaction via holographic projection and a DNA recognition entry and ignition system (Lexus, 2002).



**Figure 5.110:** Anderton’s MagLev pod, parked in the entrance of the apartment

Production design team also innovated a revolutionary feature for the private pods, which provides an alternative solution to existing parking problems. When not in use, MagLev pods are “docked” on the “surfaces” of the buildings, where they are integrated to the entrance of a residence.

There, they form a living space which resembles a “closed balcony”; a concept that redesigns the perception of an interior living space. “The interior is an extension of the owner's house interior - while parked outside, it becomes part of the home itself. In transit, it operates as a moving office or living room” explains Harald Berker. The seats and furnishings are designed to provide the high comfort and luxury of a house environment, than a car. Seat configurations are also adjustable, in order to provide extra seating to the house when needed. While docked, the pod also performs maintenance checks, auto-repairs and self cleans (**Belker, 2002**).

As the MagLev system is available for the highest socioeconomic layer of the society, it controls the downtown city transportation. In addition to MagLev, traditional transportation system is also used in the old parts of the city and intercity highways. The production design team projects the “off-system” aspects of transportation design in 2054, with the Lexus off-system sports coupe.

The audience is first introduced to the Lexus sports coupe in a thrilling chase scene inside the automated Lexus factory. The film also speculates on the speed and features of a future mass manufacturing process, with the state-of-the-art production line sequence. A brand new Lexus sports coupe, with a complete paint job and full accessories, leaves the production line only a few minutes after its assembly starts. Another important feature of the production process is that it is completely automated; and there are no human workers in the production line throughout the whole process. However, there is one feature of the factory robotics, which causes the process to lose its credibility. In the scene where Anderton falls into the production line, the automated system assembles the car around him, while he lies on the chassis. Even the factory robotics used today have extremely precise systems and sensors which can adjust to certain variations that can happen during the production process. It is hard to believe that a future factory robotics system would not be able to detect a large variation, such as a human, on the product line.



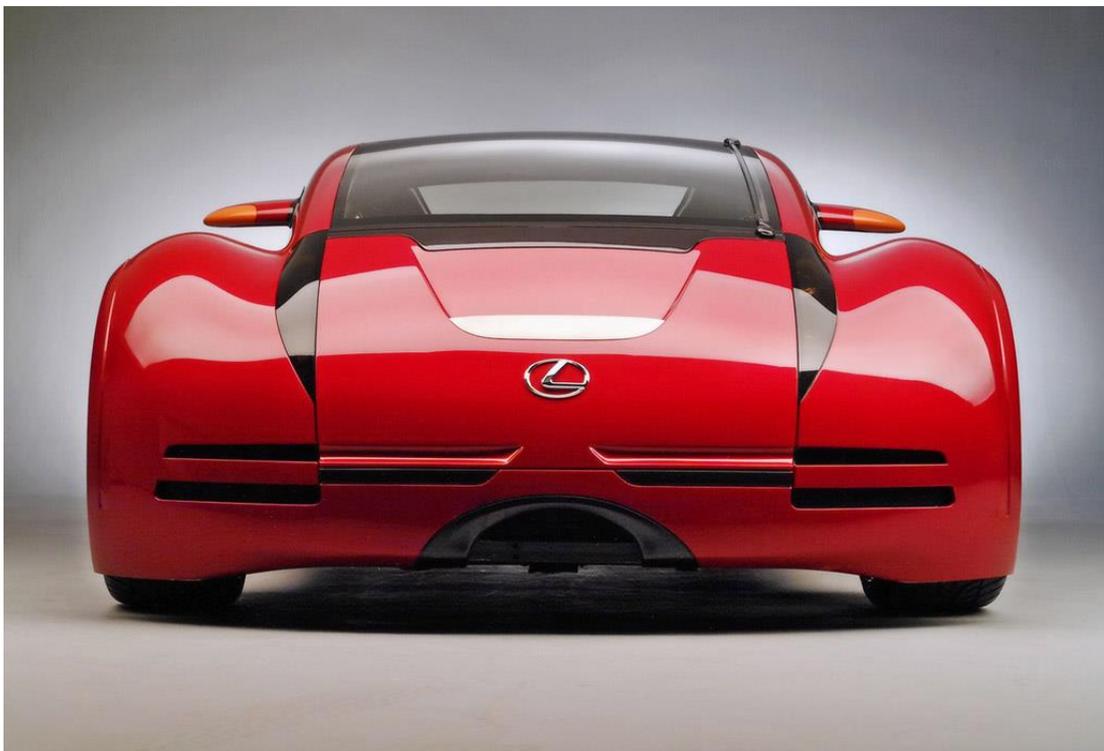
**Figure 5.111:** Lexus 2054 Off-system Sports Coupe



**Figure 5.112:** Lexus 2054 Off-system Sports Coupe, top view

Designed as a high-performance sports car, Lexus features a low, muscular body design and aggressive lines. The Lexus sports coupe's proportions are so unexpected that, at first glance, it's not entirely evident which end is the front and which is the rear (**Lexus, 2002**).

Compared to the MagLev pods, Lexus off-system car is more similar to the existing concept cars of today, however, it has many advanced conceptual features, some of which are likely to be integrated to mass manufactured cars of a near-future. These features include: an high performance electric engine, a weather sensitive response system, that enables the tire tractions adjust automatically to road conditions, colour-selectable body panels via voice recognition system, DNA recognition entry and ignition system, and "Auto Valet"; a system which enables the car to drop off its owner at a desired location, auto-parks itself for recharging, and auto-drives itself via a remote controlled voice recognition system for owner pick-up at commanded location (**Lexus, 2002**). The complete list of technical specifications and features of Lexus off-system sports coupe can be found in the Appendix 6 of the thesis.



**Figure 5.113:** Lexus 2054 Off-system Sports Coupe, front view

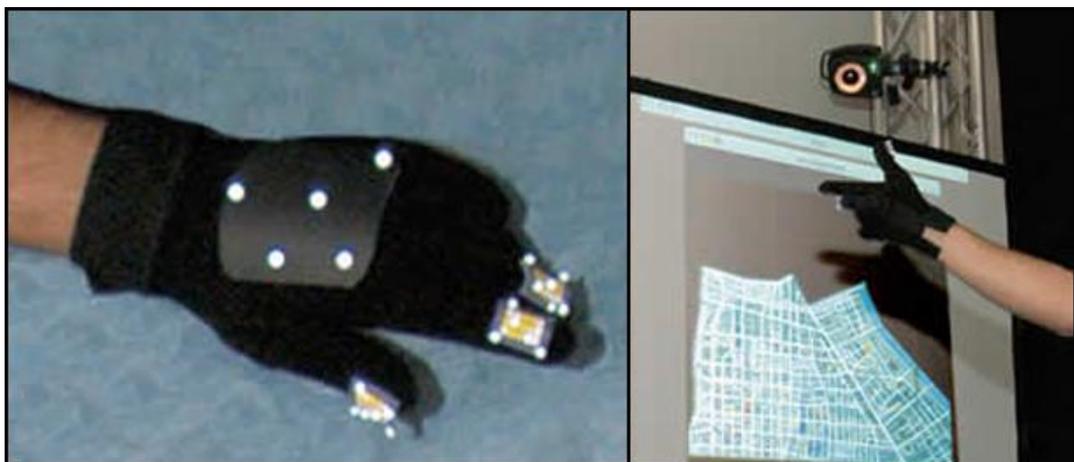
Most of the speculative technology projected in “Minority Report”, are actually not just speculative in nature. The film’s constructions are either based on scientific facts, or they are extrapolations of existing or developing technologies and prototypes which have not been put into mass production yet.

“Although we don't have mag-lev technology that works on vertical surfaces, mag-lev technology has been around for many decades, spearheaded by professor Eric Laithwaite, who died not too long ago. And, of course, in Japan and Europe you have mag-lev trains” explains John Underkoffler (**Salon, 2002**).

Interestingly, the gestural recognition interface has made such a big impact, that many universities and research labs are developing the same system inspired from “Minority Report”. Recently, in April 2005, an online magazine; “New Scientist” has given the headlines of what they called “breaking news” as ““Minority Report” interface created for US military”.

The defence contractor Raytheon, based in Massachusetts, USA, is working on a real version of the gestural recognition interface, and they have even employed John Underkoffler himself, to help them turn the conceptual technology into reality.

“The system under development at Raytheon lets users wear a pair of reflective gloves and manipulate images projected on a panoramic screen. A mounted camera keeps track of hand movements and a computer interprets gestures. Your hand becomes a Swiss Army knife” adds Underkoffler (**NewScientist, 2005**).



**Figure 5.114:** Raytheon’s gestural recognition interface and gloves

Underkoffler states that once developed, the interface will be used in order to examine, select and arrange large quantities of satellite imagery and intelligence data quickly and efficiently. Stephen Brewster, who is also developing gesture-based computer interfaces at the University of Glasgow, UK, claims that once developed, the technology might have non-military applications swell (**NewScientist, 2005**).

The already popular “voice recognition” systems are being used in home environment for activating lights, music, and other media. It is only a matter of time, to see the different applications of this technology in much wider areas.

Biometric authentication systems such as retinal scanning is also an existing technology. Due to increasing crime rates, they are more likely to be integrated in government buildings, public open places and especially airports for obvious reasons. In addition to the developing retinal scanners, many airports in USA have been experimenting with “facial recognition” systems in the last five years.

In connection with security issues, military and defence companies have been developing non-lethal weapons, which work with generated sound frequencies, for many decades.

Regarding marketing and advertisement; the technology to broadcast live advertisements on digital interfaces via a wireless connection is already available. However, feasibility of a project which involves the construction of a huge database that can store information about the personal preferences of every single individual, is still highly discussable. Integration of biometric identification with such a marketing project would require a complex software system as well as an already established database.

The electronic newspaper featured in the film is surely to become a reality much sooner than 2054. Founded in 1997, based on research started at the MIT Media Lab, “E Ink” corporation is already developing and producing electronic display paper (EPD) technologies. Below is a general description of the technology, retrieved from E Ink corporate Web site:

“An Electronic Paper Display is a display that possess a paper-like high contrast appearance, ultra-low power consumption, and a thin, light form. It gives the viewer the experience of reading from paper, while having the power of updateable information.

EPDs are a technology enabled by electronic ink - ink that carries a charge enabling it to be updated through electronics. Electronic ink is ideally suited for EPDs as it is a reflective technology which requires no front or backlight, is viewable under a wide range of lighting conditions, including direct sunlight, and requires no power to maintain an image” (EINK).



**Figure 5.115:** E Ink Electronic Paper (left), Wall sized newspaper on exhibit at EXPO 2005, Developed by Toppan printing Co. Ltd. utilizing E Ink Electronic Paper



**Figure 5.116:** World’s first curved clock to utilize an electronic paper; Citizen, 2005

To conclude, “Minority Report”’s vision of a possible future reality are extremely plausible, as an astoundingly large fraction of the constructions are extrapolations of existing or developing technologies.

#### **5.4.2.2 Social Construction**

As opposed to dystopian classics such as “Blade Runner” (1982), the vision of future as portrayed in “Minority Report” is very optimistic. However, regarding the social and cultural issues, this utopian optimism is very deceptive in its nature.

During the film, audience is presented a world of technological wonder, similar to the one in “Alice in Wonderland”. State-of-the-art high technology vehicles, devices and rational solutions make the world a better place to live. Everything is automated, customized and personalized. However, beneath all this projected optimism, there lies a dark criticism regarding the termination of the concept of “privacy” in the future.

In the projected world of 2054, governments are keeping the individuals under constant surveillance no matter where they are. Biometric identification scanners are integrated literally “everywhere”; including public open places, malls, metros, even private vehicles. In addition to this close surveillance, individuals are also “scanned” in their homes via mobile devices built specially for this task. In addition to constant surveillance, all physical, biological and cultural information concerning an individual is “stored” in huge databases accessible by the state. This approach of surveillance fits well in the concepts related with Orwellian criticism, which is symbolised with the famous “Big Brother is Watching You” statement. In “Minority Report”’s future manifestation, the portrayal of human life is in fact no different from the life of a test animal.

Another construction is concerning the large gaps between socioeconomic layers of the society. The portrayal of the old parts of Washington DC is not different from any suburban area that exists today. It seems that Spielberg and the “Think Tank Summit” were not able to provide a solution which would enable the development of all layers that form a society. On the contrary, considering the increase in birth rates as opposed to the decrease in natural resources, the films perspective could even be considered as optimistic.

## 5.5. “I, Robot”

“I, Robot” is a Sci-Fi/Action/Thriller film, directed by Alex Proyas in 2004. The original screenplay was written by Jeff Vintar in 1995, and was titled “Hardwired”, however, several years later, when 20th Century Fox acquired the rights for using names and elements belonging to Asimov’s fiction, the screenplay was re-written, by Jeff Vintar and Akiva Goldsman, and the ideas and elements from Asimov’s fiction were incorporated to the story. Asimov had written a number of novels and collections of short stories related with “Robot” theme. Although the plot is not particularly based on a single story from these collections or novels, the film has adopted many concepts, names, central characters, elements, speculative technology and ideas from “Robot Series”. The film’s title is also sharing the same name with Asimov’s earliest collection of short stories concerning robots.

Short Story Collections:

- I, Robot (1950)
- The Rest of the Robots (1964)
- The Complete Robot (1982)
- Robot Dreams (1986)
- Robot Visions (1990)

Novels:

- The Caves of Steel (1954)
- The Naked Sun (1957)
- The Robots of Dawn (1983)
- Robots and Empire (1985)

### 5.5.1. Plot / Synopsis

The story is set in 2035, in Chicago, Illinois. The technology has advanced to a level where the mass-manufacturing of robots has become a routine, and using of robots, in all aspects of everyday life is the new standard for the society. The only manufacturer of robots; “U.S. Robotics” (USR) had manufactured robots that are used for a variety of tasks such as public workers, personal assistants, barmans, cooks, cleaners, and even pet walkers. The robots are portrayed in such a fashion that they are almost “domestic pets” for humans.



**Figure 5.117:** Nestor Class NS-4 model Fed-Ex robot, delivers a parcel



**Figure 5.118:** Another Nestor Class NS-4 model robot, walks out the dogs

The robots have an advanced processor called a “positronic brain” and are running on a specially designed software, which ensures they are extremely safe and completely harmless. However, they can not produce or understand human emotions.

Thanks to the “Three Laws of Robotics”, which is integrated in their hardware, they have been accepted as the trusted new members of the society.

The “Three Laws of Robotics” are:

1. A robot may not injure a human being, or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

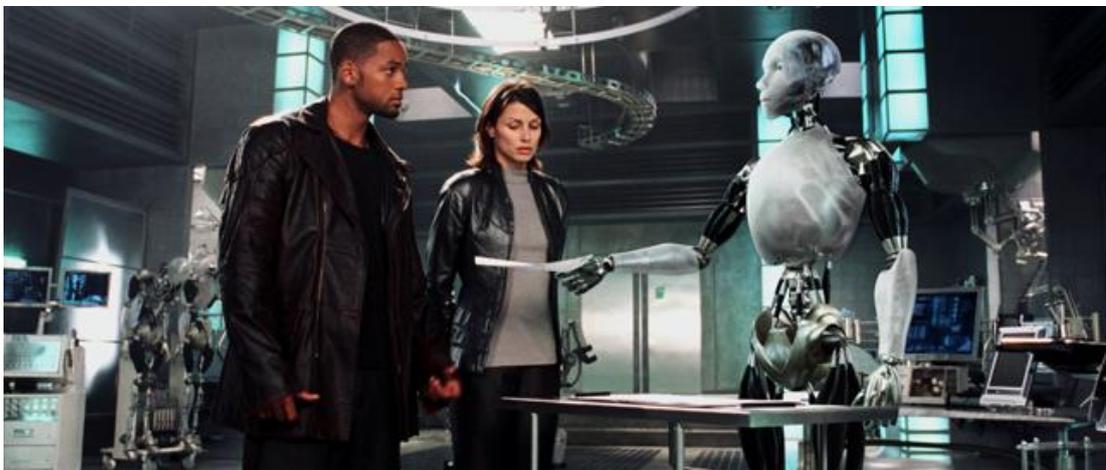


**Figure 5.119:** Nestor Class NS-4 model trash collector robots, on duty

The story starts with an unprecedented murder case. The co-founder and chief scientist of U.S. Robotics; Dr. Alfred Lanning; who is also the creator of robots and the three laws, (performed by James Cromwell) is found dead having fallen from his office, in the middle of USR building, where the only suspect of the murder is his Nestor Class NS-5 model robot, Sonny (performed by Alan Tudyk). Being in conflict with the “Three Laws of Robotics”, the involvement of Sonny seems impossible. The case is entrusted to Detective Del Spooner (performed by Will Smith), a police who distrusts advanced technology, especially robots, and who also happens to be a friend of Dr. Alfred Lanning. By the order of the president of USR; Lawrence Robertson, (performed by Bruce Greenwood) Spooner is escorted by a USR employee, “robo-psychologist” Dr. Susan Calvin, (performed by Bridget Moynahan) in order to help

him with the crime investigation. Upon close examination, Spooner and Dr. Calvin realise that Dr. Lenning had designed and modified Sonny in a unique way, and he could produce and feel human emotions, and even dream, and he had an secondary positronic processor which could overwrite and disable the “Three Laws of Robotics”.

In the meantime, USR prepares to officially release their new model, the Nestor Class NS-5. After the mass-distribution of the NS-5s, there will be a ratio of one robot for every 5 humans, and USR will strengthen its already solid position as the most powerful corporation on the planet.



**Figure 5.120:** Spooner, Dr. Calvin and Sonny

During the investigation, Spooner discovers some problems with the NS-5 series. Having hardly escaped from a few murder attempts by the NS-5s, later, he finds out that the mainframe computer of USR; the central positronic brain called V.I.K.I (Virtual Interactive Kinetic Intelligence) continuously uploads altered software to the processors of NS-5s, and has developed a misinterpretation of the “Three Laws of Robotics” which enables the NS-5s to overrun and take control of the planet in order to “protect humanity” from their self-destruction. In other words, V.I.K.I’s design is to create a robotic “revolution”.



**Figure 5.121:** An array of Nestor Class NS-5 model robots

Having foreseen the upcoming revolution, but being under constant surveillance of V.I.K.I., Dr. Lanning had left clues for Spooner, so that he could realise the truth in time and design a counter-plan with the help of Sonny, in order to stop the robotic revolution. At a pre-arranged hour, all the NS-5 models destroy their predecessors, and capture the Chicago Police Headquarters, and enforce all humans to a curfew. Spooner goes back to USR building, and destroys V.I.K.I., and deactivates all the NS-5 units, with the help of Sonny and Susan Calvin. The closing scene of the film shows the rise of the robots under Sonny's leadership.

### **5.5.2. Construction of Future Reality**

The investigation of “I, Robot”, gives great emphasis to the construction of cityscape, products, and especially transportation design, rather than the robots, due to the fact that a “near future” where the using of intelligent robots is commonplace, seems very unlikely.

“Social Construction” sub-section investigates the social aspects of the integration of A.I. technology into everyday life, and the human - A.I. interaction, as well as the projection regarding the risks of uncontrolled technology.

#### **5.5.2.1. Production Design / Design Construction**

Production designer Patrick Tatopoulos, whose credits include blockbuster films such as “Stargate”, “Independence Day” had worked with Alex Proyas previously in

“Dark City” (1998). Tatopoulos was responsible for designing the “world in the year 2035”. Proyas explains his projection of 2035 in the following lines:

“I described “I, Robot” early on having an almost documentary feel of the future, because I really wanted to steer away from the usual Hollywood theatrical approaches to the future, I wanted to create a strong sense of reality so that you believe that you’re in this world populated by robots. We’ve gone with a believable and realistic view of the future. I didn’t want to have flying cars and stuff that other people have had in their cinematic visions of the future. I wanted it to feel like it was a real and natural 30-year progression from our world”  
**(Hollywood Jesus).**

The most striking aspect of the production design of “I, Robot”, is the well knitted combination of contrasting elements.

After the “dream” sequence at the opening of the film, the future city of Chicago in 2035, is introduced to the audience; the cityscape is clouded with numberless skyscrapers of unique designs, and there is a well organised and fast flowing intercity highway making its way through downtown. This particular scene creates an initial impression of an advanced high-technology metropolitan culture, giving the audience a clue for what to expect, regarding the visual language of the film.



**Figure 5.122:** Chicago, Illinois in the year 2035

However, the previous scene, portraying Spooner’s house, shows an interior almost identical to what is available today. Spooner is portrayed as an almost techno-fobic character, who denies the benefits of using advanced technology in everyday life. He has a special interest in retro life-style, and this interest reflects on his house, personal belongings, clothing and even choice of music. Although living in a time,

when almost every household object works voice activated, he still uses an “old-school” remote controlled JVC CD player, wears Converse “All Star” retro shoes, and drives a vintage motorcycle in a city where none of the vehicles run on gas anymore. Spooner’s character design, along with the suburban neighbourhood he lives in, is designed to form a contrast with the rest of world envisioned in “I, Robot”. As opposed to the high technology projections such as the robots, there are certain products, which are rendered visually very similar to existing examples of today. The designs of garbage conveyors, two-wheeled and three-wheeled electric scooters, bicycles, LCD screens in the Illinois Police Headquarters, and Spooner’s earpiece, which seems to be running on a technology similar to Bluetooth, are all displayed as improved interpretations of existing technology in today’s world. This contrast softens the cultural and technological transition of a 30 years period from now, making the projected future more plausible.

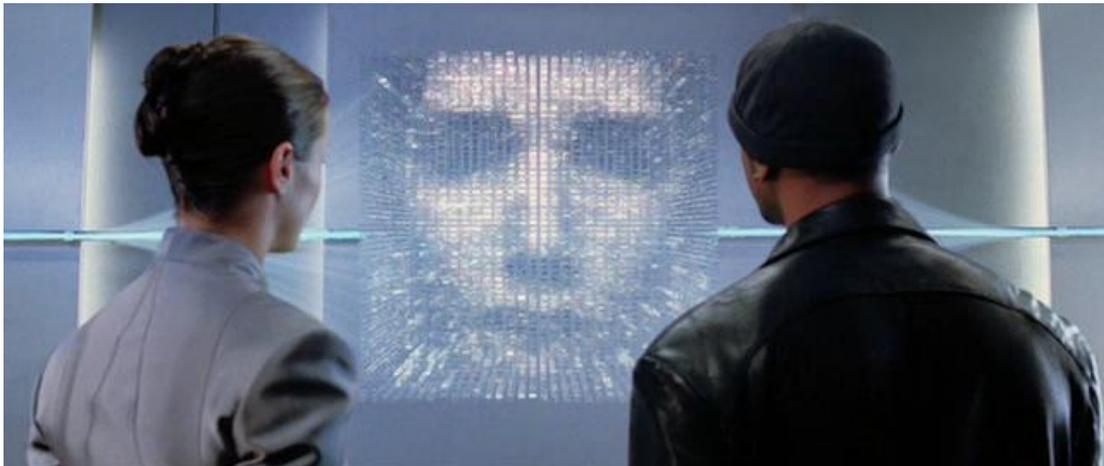
The downtown is portrayed as a beautiful and luxurious metropolitan cityscape. Especially the USR building, the tallest in the cityscape, is designed resembling a state-of-the-art glass and metal sculpture. Patrick Tatopoulos explains the design of the USR building:

“The USR Building has an interesting shape; it looks like a knife blade, giving the visitor a sense of vertigo. One edge of the building is a blade of clear glass, so when you go to the edges of the catwalks inside, you see yourself, the city beyond, and all the way down to the lobby at the bottom of the building. The design of the building allows the audience to really see what the world is, not just grab a couple of glimpses” (**Hollywood Jesus**).



**Figure 5.123:** Chicago downtown cityscape, with USR Building in the centre

The interior of the building reflects the high-end technology in all means. All the systems in the USR building are controlled by the mainframe positronic processor “V.I.K.I.” and are activated by voice recognition system. V.I.K.I. is literally the “brain” of the building, and she is integrated all around inside the building infrastructure via a system which resembles the human nervous system. This nervous system is represented with sensor strips of blue light that is integrated inside all the walls and panels throughout the floors. USR employees are able to communicate with V.I.K.I. anywhere inside the building, via the sensor strips and ask her to perform any kind of task by voice activation. V.I.K.I. uses a cubical holographic interface, shaped as a female face, while communicating with the USR employees. The conceptual design of USR building is one of the strongest constructions of the film regarding a future reality, due to the fact that the production design team is hinting on a future with “intelligent buildings”, where central processors with advanced A.I. can adjust certain features of the building to changing climate conditions, disasters such as flood, fire, and even earthquakes.



**Figure 5.124:** Dr. Calvin and Spooner talking to V.I.K.I. via the holographic interface

Regarding the landscape, except for a glimpse of a flower in a vase in Spooner’s house, there is not a single scene; interior or exterior, which shows any greenery at all. Considering the similar approach in “Dark City”, this has become a signature element in Proyas’s films. This projection could be explained as an environmental criticism, concerning the destruction of the eco-system on the planet. Even though the human race advances enough to create intelligent robots to help them in all aspects of life, they are unable to protect their environment to the least bit.

In the story, as a result of a lethal injury in his past, Spooner's complete left arm had been replaced with a mechanical arm, covered with organic tissue, which makes it indistinguishable from a real arm. The film projects the possible use of cybernetic prosthetics in the future, which is already one of today's developing research areas.

“Returning amputees from Iraq are getting computer-driven artificial limbs allowing greater balance and mobility. These futuristic limbs have hydraulic pumps visible through its clear plastic shell. They are loaded with an on-board CPU and rechargeable batteries. The Utah3 Arm, which allows simultaneous motion in the elbow, hand and wrist, offering movement old prosthetics could not” (Technology Owl, 2005).



**Figure 5.125:** Spooner's wounded arm, giving a glimpse of the cybernetic prosthetics

Concerning the transportation design, “I, Robot” projects a remarkable solution for the metropolitan traffic and parking issues. Except for the intercity highway that passes through the city, and the roadways that connect the suburbs to downtown, main city traffic is integrated underground, forming a complex web of tunnels, which also provide access to underground entrances of buildings and plazas. Manual drive is prohibited inside the city; cruise control, speed and safety distances are all operated by a central processor, ensuring that the city is an “accident-free” metropole.

The film also provides a revolutionary solution for the existing parking problem due to increasing population. The complex underground tunnel structure incorporates special sections which inhouse huge parking garages. The parking sequence is portrayed in a dramatic fashion, where the cars are “stored” rather than parked. A

completely automated process uses mechanic arms to grab the car, rotate it to a vertical position and store it in a vertical array, which allows the process save considerable amount of parking space. Considering that “automated parking” is an already existing system, and becoming very popular in metropol, “I, Robot” is projecting the improved version of the existing system combining it with a functional and stylistic future technology.



**Figure 5.126:** Spooner’s Audi RSQ is parked with Automated Parking Process

Apart from the sequences related with transportation design and a thrilling car chase scene, the audience is not given many visual elements concerning the projected high technology. This is actually an intentional choice of director Alex Proyas, as he explains the reasoning behind his choice, in the following lines:

“I’m more interested in the characters and the story than gadgets. Robots are such intriguing forms of technology that I didn’t want to have other forms of technology getting in the way of that. That said, we do have some cool cars with spherical wheels that can go in any direction. But, at the end of the day, I wanted the robots to be the main technological focus in this world of 2035” (**Hollywood Jesus**).

Regarding product design, the highlight of the show is undoubtedly the “hero” car, Audi RSQ. As previously mentioned in an earlier chapter of the thesis, RSQ is completely designed and engineered by Audi. However, the car incorporates many features which were suggested to the Audi design team by director Alex Proyas. Proyas was very impressed by the design of the Audi Nuvalori concept car, and asked Audi to create the “hero” car for Spooner. In early 2003, Tim Miksche, Audi AG’s head of product placement, and Martin Ertl, head of Audi design management, were invited to Canada, where the pre-production had already started. There, Audi representatives received a detailed brief from Alex Proyas, production design team and producers, regarding the “world” of “I, robot”, where the car had to fit in. About 15 Audi designers and model engineers were involved in the project. The car was designed and engineered in so little time as 10 weeks, including another “body model”, to be used in a crash scene, as well as a separate interior mock-up for close up interior scenes (**Autoweb, 2004**).



**Figure 5.127** : Audi RSQ Sports Coupe

RSQ is designed as a very broad and aggressive car. The body cutouts for the xenon headlights add a bold look to the front end. The wheel arches which support the spherical wheels is one of the determining factors of the broadness. The organic exterior design, supported with “trademark” visual language of Audi, such as the single frame radiator grille with Audi logo on the front end of the car, undoubtedly expresses itself, as the “Audi” of the future.



**Figure 5.128:** Audi RSQ, front view



**Figure 5.129:** Audi RSQ, rear view

The rear-hinged gull-wing doors open and close like a butterfly's wings and pivot slightly around their longitudinal axis, adding dramatic effect whenever Spooner gets in or out of the car.



**Figure 5.130:** Audi RSQ, front view, open doors

The revolutionary “spherical wheel” concept; which instantly becomes a self-paradoxical term due to the contrasting two words, turns the physics laws of friction, upside down. RSQ is a mid-engined sports coupe. The engine power is transmitted to four spheres, which provide the vehicle extreme freedom and maximum control in high speed cruising. In the chase scenes where Spooner is attacked by the NS-5s, RSQ puts on a show, displaying its supreme agility and manoeuvrability. While cruising at over 200 mph, the car moves to right or left at the same time, without turning its nose to either direction at all, taking hairpin turns with ease. The spherical transition system is incorporated in all of the vehicles in the movie, simply set as the new standard of automotive technology of 2035.

Apart from the spherical transition system, Audi incorporates many futuristic features for the interior of the RSQ as well. The interior ergonomics are simply breathtaking. As opposed to the complex dashboard of KITT in “Knight Rider”, the interior and dashboard are designed with an extremely minimalist approach, incorporating only the essential elements of driving.

The choice of colours and highlights are accenting on the high-end craftsmanship and quality materials; a trademark feature of Audi. Seats of the car are designed to “embrace” the driver and passenger. The windscreen is extra wide, extending up to the roof without any interruption, in order to provide the best possible field of view.

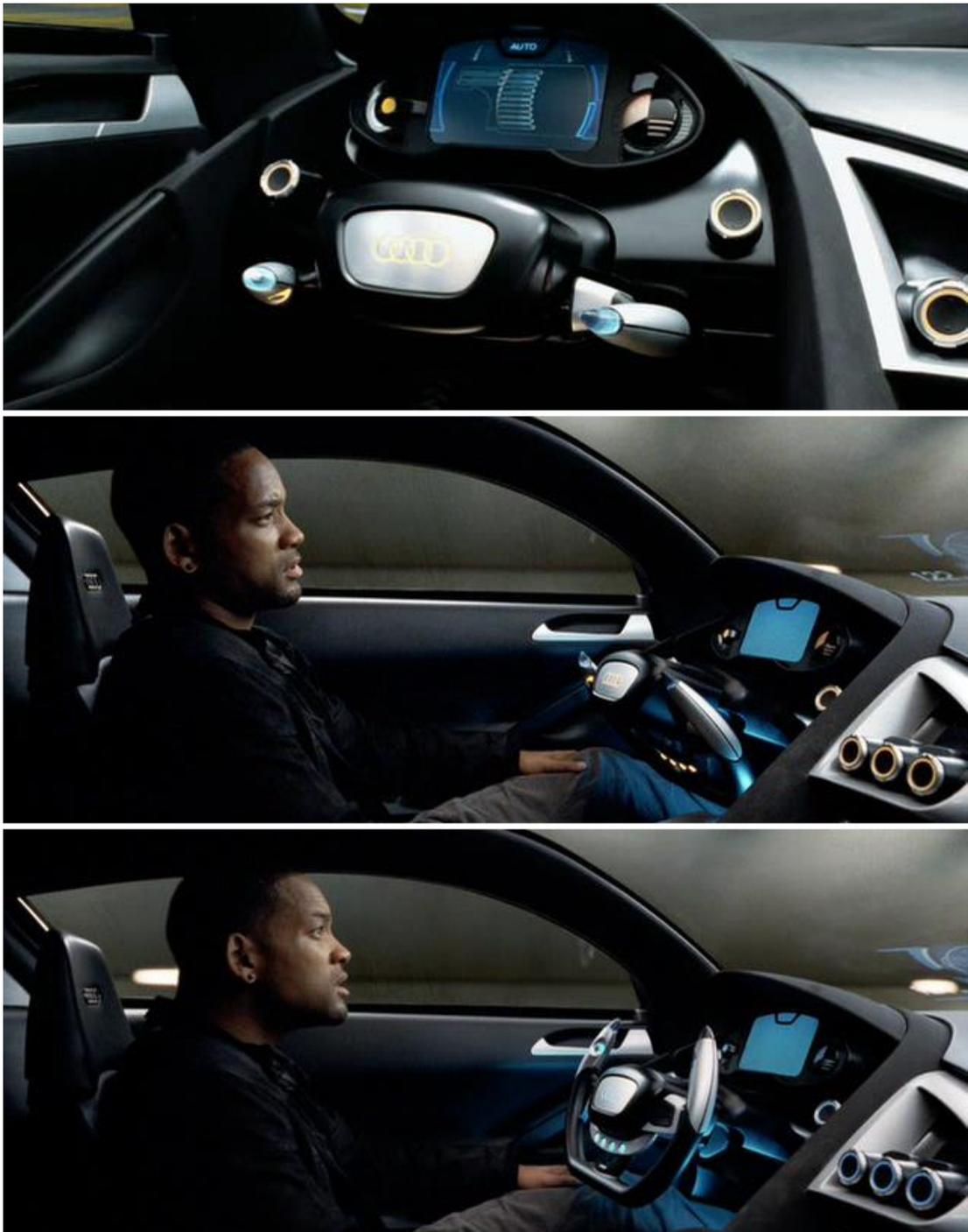


**Figure 5.131:** Audi RSQ, windscreen and roof

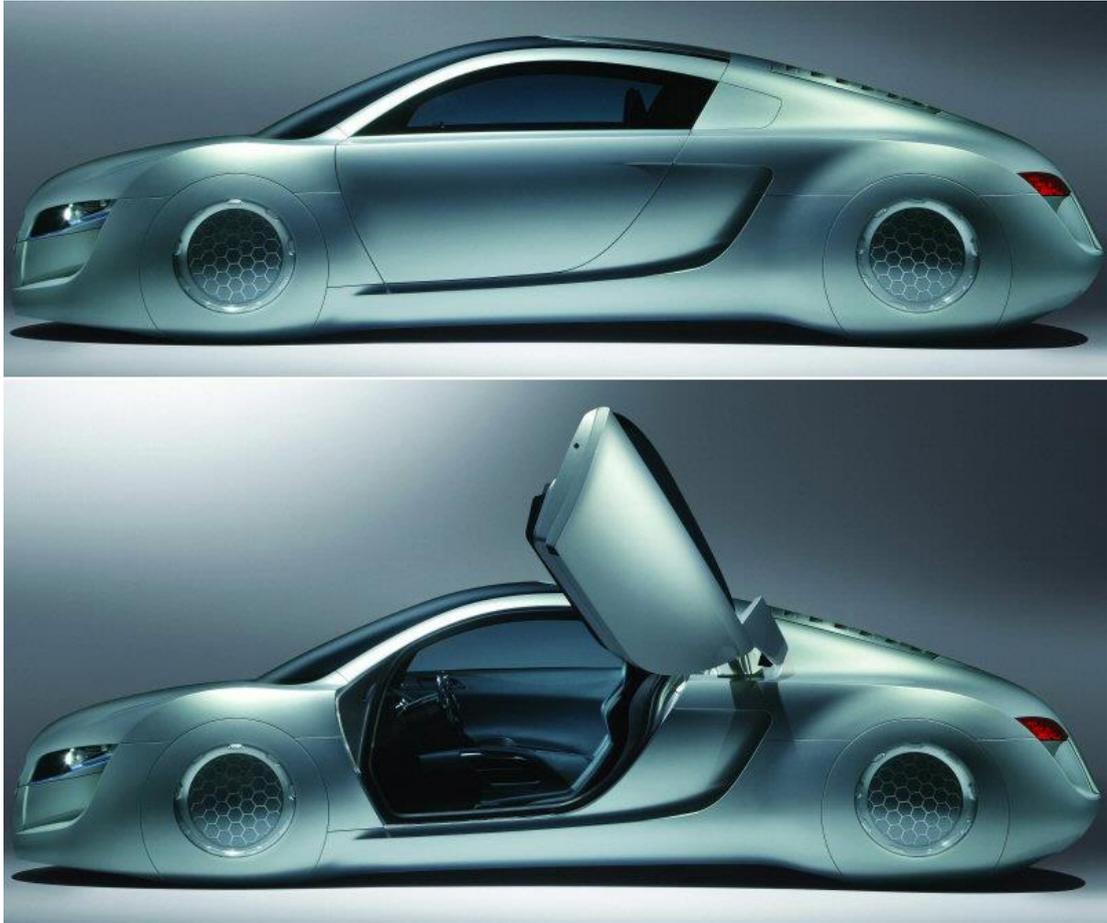


**Figure 5.132:** Audi RSQ, low angle interior view

When RSQ drives itself in “auto-cruise mode”, it hides the steering wheel in the “instrument panel” on the dashboard with a special mechanism. When Spooner switches to manual drive mode, the steering wheel automatically folds into position out of the instrument panel. Apart from adding a futuristic touch to the movie, this feature also provides extra space for the driver while he gets in or out of the car.



**Figure 5.133:** Sequence showing the activation of the steering wheel for “manual-cruise mode”



**Figure 5.134:** Audi RSQ, side view, displaying doors at open/closed positions



**Figure 5.135:** An Audi TT, modified into a future car with exterior makeup

For the creation of various vehicles that are used in traffic scenes of the film, Audi also provided existing cars such as A8 and TT, and they were turned into futuristic cars with some exterior make-up.

The USR robot transporter vehicle, is another significant attempt to define a future transporter with a unique visual language. It is designed as tall and huge trapezoid running on eight spheres.



**Figure 5.136:** USR Robot Transporters

The spherical transition technology enables the transporter to move sideways or rotate 360 degrees with a smooth motion. While moving, the vehicle does not make a “nose turn” to either left or right, but directly “displaces” itself to left or right, as it is moving forward or backwards, which can roughly be described as a “sliding” effect.



**Figure 5.137:** USR Robot Transporter, relative size comparison to Audi RSQ

This unique and unaccustomed driving sequence, works well especially with this particular vehicle, as the USR robot transporter is extremely tall, and does not look like any existing vehicle at all. The interior of the vehicle is pictured as a set of “double storied robot shelves”, resembling a military personnel carrier. An automated mechanical arm system is integrated at the top, filling up or emptying the shelves with robots.



**Figure 5.138:** USR Robot Transporter dispatches the NS-5s via the robotic arm

The most important feature of this particular vehicle is that, it self drives itself, operating via the modem communication established directly from the USR building main processor V.I.K.I.. The production design team is again hinting on a future mass-transportation system, which operates without a driver, linked to a central traffic processor.

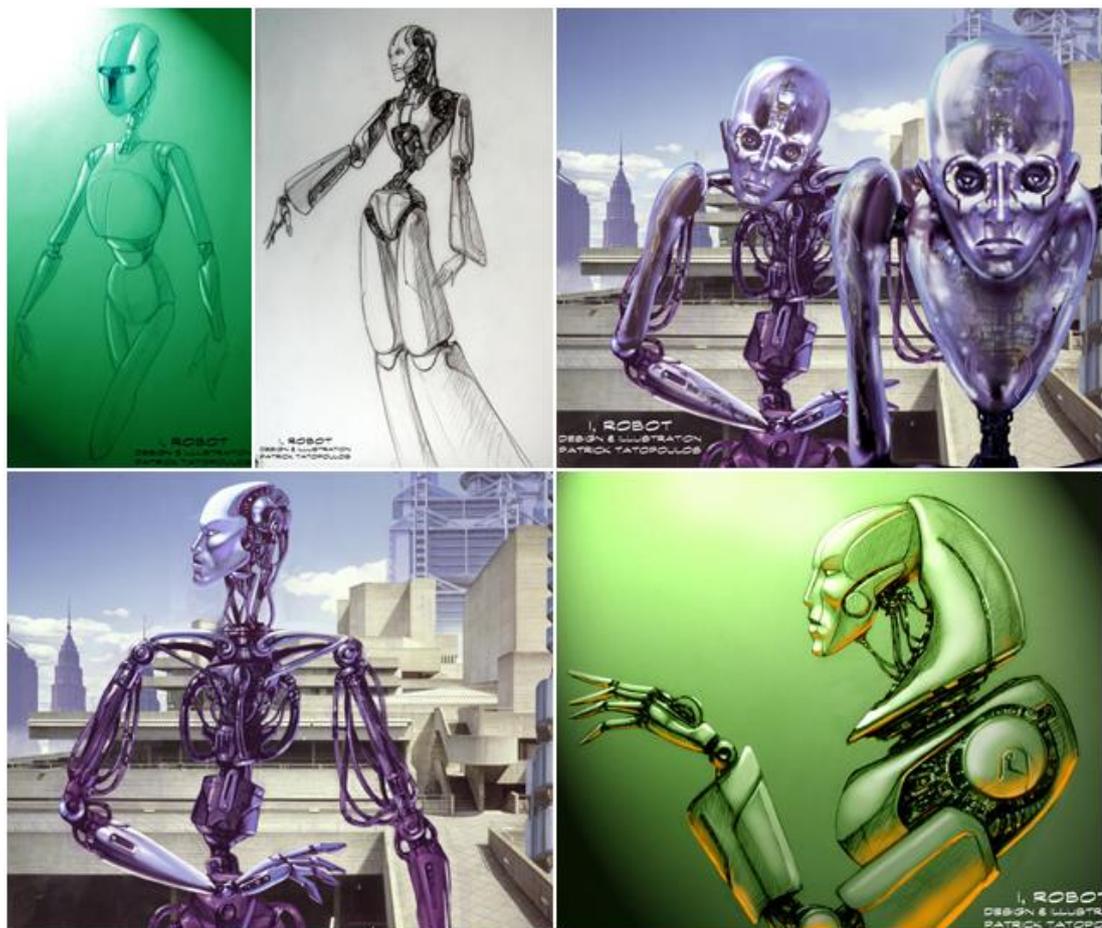
Concerning the robots, the source of inspiration for the robots in “I, Robot” is Asimov’s concepts. The robots in the film incorporate a central processing unit, known as a “Positronic Brain”. “Positronic Brain” is a fictional technology invented by Isaac Asimov. Asimov did not give much detail regarding the working principles of this processor, probably due to the fact that it is completely fictional, but the invention of the term itself comes from a scientific source.

A “positron” is a particle of matter with the same mass as electron, but opposite charge. It is a form of antimatter because when a positron encounters an electron, the two completely annihilate to yield energy. The existence of positron was predicted in

1928 by physicist Paul Dirac, and positrons were discovered experimentally in 1932 by physicist Carl Anderson (**Whatis**).

In 1930s, when Asimov was working on his short stories concerning robots, he had decided to create the word “positronic”, making an analogy to “electronic”, thus adding a “scientific flavour” to his robot concept.

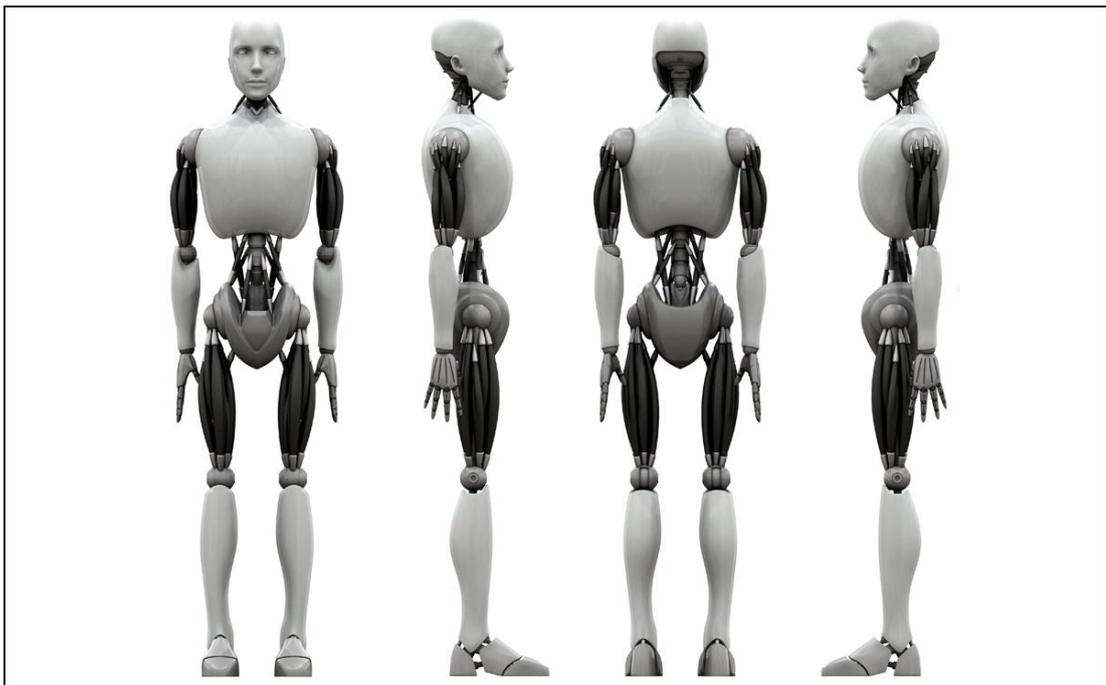
The “Three Laws of Robotics” is also the invention of Asimov, later to become extremely popular and widely used among many science fiction writers. Before Asimov idealised his conception of robots, other than a few exceptions such as the case with “Metropolis”, most of the robots in science fiction and fantasy literature were monsters such as Frankenstein, who at the end, destroyed their creators. Asimov was the first person to conceptualise the robot, as a rational and self-conscious entity whose primary reason of existence is the preservation of human life.



**Figure 5.139:** Patrick Tatopoulos’s early concept sketches for the NS-5 series robots

The visual language, however, was an original creation of the production design team. Asimov’s works give emphasis on the “software” of robots, and their social features and interaction with humans, rather than the “hardware”, in other words, the physical description and inner mechanics.

Tatopoulos worked on the design on Sonny (and the NS-5 series) for more than two years. Proyas and Tatopoulos wanted to design a robot which was in all aspects different from what has been done up-to-date. Their starting point, was again based on the conceptual ideas of Asimov. In Asimov’s world, thanks to the “Three Laws of Robotics”, robots are defined extremely safe and trustable. The visual language of Sonny was created to reflect a sense of “safety” and “confidence”. There are three basic elements which define the conceptual design of Sonny: transparency, a human-like form with a unique muscle structure and a perfectly symmetrical face.



**Figure 5.140:** Nestor Class NS-5 series robot. Digital prototyping by Forêt Bleue

Transparency is one of the basic elements which reflect safety, due to its nature of exposing whatever is inside or on the other side of the transparent object. “If something is transparent, it cannot hide anything,” explains Tatopoulos. “For example, public buildings have more glass so visitors feel welcome. If the robots can’t hide anything, then they are safe” (**Hollywood Jesus**). Another advantage of the transparency is that the robot’s appearance and expression changes, depending on

the way it is exposed to light. The outer shell of the face and body are designed to look as human as possible, thus creating a friendly appearance. When the robot is examined under the light, or when a bright red light starts to glow in the centre of its chest; indicating that it is connected to V.I.K.I. via the uplink, the inner mechanics and skeleton system becomes more visible, thus, turning the robot into a more threatening creature. This feature of transparency worked out very well in the scenes where the robots start their revolution and attack the humans.



**Figure 5.141:** NS-5; transparency, inner mechanics and muscle structure studies

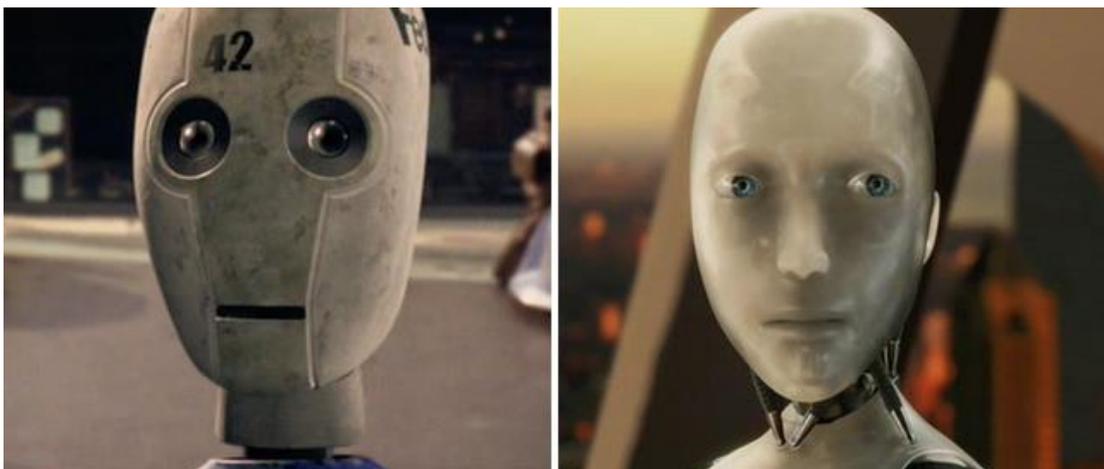
Similar body language and facial expressions improve the robot's credibility from a human's point of view. Due to human nature, people tend to accept things which resemble them visually, more easily compared to others. The unique muscular structure of the NS-5 robots, improve the "robotic" motion, enabling them to perform in a smoother and more anthropomorphic motion.

Through researches made in previous years, it is now a common knowledge, that individuals with biologically the best genes tend to have more symmetrical bodies and faces. Thus, symmetrical faces are generally perceived as "more beautiful" and "more trustable" in the society. In addition to its considerable resemblance to a human being, Sonny's (and all NS-5 units') perfectly symmetrical face certainly adds to its credibility. It is also important to note that the inner mechanics integrated inside NS-5's face enables the robot to produce facial expressions. The transparent layer that forms the outer shell is made of soft material, and it adjusts itself to the

movements created by the inner mechanics, and under skull, creating expressions like happiness, anger, surprise or fear (**Hollywood Jesus**).

An original feature of the NS-5 series, which was not available in previous generations, is the “uplink” which is integrated into their hardware. Uplink establishes constant connection of every single robot with V.I.K.I., enabling USR to update the robots’ software, and/or perform maintenance and certain repairs without the need to transfer robots to the maintenance facilities. Again, production design team is hinting on another system, which is controlled, operated and maintained by a remote central processor.

To emphasise on the progress of the NS-5 series, the previous NS-4 series were designed to represent a lesser technology. NS-4s are pictured as the “workhorses” of the movie. Unlike the NS-5s, NS-4 series come in many different colours, depending on their work and/or owner. They don’t incorporate facial muscles, thus, they are not able to create facial expressions, which leads to a very simple but on the other hand, “friendly” design, almost resembling a “cartoon character”. When added the body structure and joint mechanisms, NS-4s look like “crash test dummies”. Even though they are also “3 Laws Safe” and capable of performing almost the same tasks as NS-5s, they look less “human” and their motion is less anthropomorphic, compared to the latter generation.



**Figure 5.142:** Face comparison of NS-4 (left) and NS-5 series

Apart from robotics in 2035, the production design team also created other specific tools based on speculative technology. The “holographic projector” is a device that

can playback pre-recorded responses designed to give the impression of intelligence. When Spooner first visited the crime scene, he talked to Dr. Alfred Lanning via the holographic projector, and Dr. Lanning gave him some clues regarding the murder, while his already deceased body was lying only a few centimetres away from the projector. This technology, is still not available in today's science because the hologram does not only playback a message, but it carries an intelligent conversation with an individual, depending on the response it receives.



**Figure 5.143:** USR Holographic Projector



**Figure 5.144:** USR Holographic Projector, activation sequence

Finally, another contrasting element in the film's vision is the affordability of the projected technology. Regardless of their socio-economic layers, all the population, living either in the suburban area or downtown, possess robot assistants and workers; a hint, indicating the feasibility of advanced A.I. technology of a possible future.

### **5.5.2.2. Social Construction**

Although there are many films, that make social constructions based on the developments in A.I., “I, Robot”’s significance lies in its portrayal of the “domesticated” application of advanced technology. In most cases, the extremely advanced technology is available only to the “hero” of the film and his/her crew. And this technology is usually integrated into a unique weapon, vehicle, scientific device or artefact with a specific purpose. Or, only the highest economic class has access to high technology due to its expensiveness.

In the world of “I, Robot”, A.I. technology is “domesticated”, and integrated into literally every single home, regardless of the difference in socio-economic, socio-cultural or socio-technological layers of the society. The interesting fact is that even though widely used, this domesticated A.I. is not alienating the members of the society from each other, which would have otherwise led to a more individual life style. In the projected future, people are still interacting with each other, going to pubs, or shopping. The only difference is that the bartender, who serves them their drinks, happens to be a robot.

If investigated from an socio-economic perspective, “I, Robot”’s vision is highly questionable. Robots are portrayed everywhere, and doing a wide spectrum of tasks. In “I, Robot”’s vision, the technology is not only used by the ordinary people, but also the private companies and government. Almost all the public and private workers, such as trash collectors, couriers, pet walkers, cooks and bartenders are NS-4 robots. This naturally brings out the question of “employment” in the minds. If the robots are given the tasks which usually are sources of employment for the humans, how does the film provide a solution for the unemployment problem, which is, predicted by all the economists, to get even worse day by day.

Although debatable, “I, Robot” is making another bold assumption, about how ambitious the next generation is, to accept and integrate A.I. technology into their everyday life. The film does not show an “anti-robot” group inside the society. From Proyas’s point of view, the next generation will have no difficulty in adjusting themselves socially to the existence of robots and other high technology innovations. In a scene, where Spooner catches an innocent robot, whom he suspects to have

stolen a bag, he receives a very harsh reaction from the owner of the robot. All the other people who have gathered around the incident are extremely surprised to encounter a “conflict” involving a robot and human. These scenes are all pointing to a future world, where societies will welcome the new technologies into their everyday lives.

The film also discusses the possibility of a machine to produce emotions through self evolution. Often referred to with the “ghost in the shell” term, the projection is about the possibility of an incalculable phenomena; the natural evolution of A.I..

Even though the approach is on the edge of becoming a cliché today, while envisioning a society that welcomes robots, “I, Robot” also joins the long list of films which project the possibility of advanced technology gone wrong, as a result, causing a mayhem or apocalypse in the world.

However, the film interprets “advanced technology gone mad” theme in a very different perspective. Unlike the films, which indicate the problem’s source as the high technology itself, “I, Robot” makes a criticism concerning the “self destructive” nature of the human race. According to the first law of robotics, a robot may not injure a human being, or, through inaction, allow a human being to come to harm. In the story, when V.I.K.I. investigates the killing instincts of humans, and their potential to self destruct themselves with wars, she interprets the “a robot may not allow a human being to come to harm through inaction” part of the law in a different way, and decides that to let humans kill each other, would be an “inaction” which would naturally conflict with the law. As a result, she takes the necessary measures and starts a revolution in order to save the human race from self destructing itself. To conclude, “I, Robot” does not project the possible risks of high technology, but it simply criticises the human nature.

## 6. METHOD OF THE STUDY

The preliminary research study for the thesis is composed of three stages. Literature search has been made in the public and university libraries in order to gather resources on various subjects, such as the history of science fiction films, history of film production design, product placement, film production design process, film architecture, interviews with production designers, and finally, specific information on the history and production design of the selected films.

As the analysis of films cross-examine the film's constructions with the existing technologies and products, complementary research has been made in primary and secondary Internet databases, in order to gather the updated information regarding the developments in technology and product design, as well as the information concerning the latter films which were made in the last five years. The companies involved in the product placements for the selected films have been contacted via e-mail, in order to obtain various press-releases concerning the details of the placed products. In the third stage, a selection of 20 films, with constructions or projections concerning a future reality, are selected and screened in order to narrow the proposed list to five films for case study. The original list of proposed films is shown below.

**Table 6.1:** Original list of proposed films

Fahrenheit 451	1966
Star Trek (The Original Series)	1966
2001: A Space Odyssey	1968
A Clockwork Orange	1971
THX 1138	1971
Logan's Run	1976

Blade Runner	1982
Knight Rider (TV Series)	1982
Brazil	1985
Back to the Future II	1989
Total Recall	1990
Johnny Mnemonic	1995
The Fifth Element	1997
The Matrix	1999
The 6th Day	2000
Artificial Intelligence: A.I.	2001
Minority Report	2002
The Matrix Reloaded	2003
The Matrix Revolutions	2003
I, Robot	2004

After the screening of original list of 20 films, five films are selected for case study and further examination. The selection criteria is explained in the introduction of Chapter 5; “Analysis of Films”.

The case study has been conducted in the following order:

1. General information on the film, subgenre, source of screenplay (original screenplay, novel, short story etc.)
2. Plot / synopsis of the film.
3. The construction of “Future Reality”

The construction of “Future Reality”, is investigated in two phases:

### 3.1 “Production Design, Design construction”

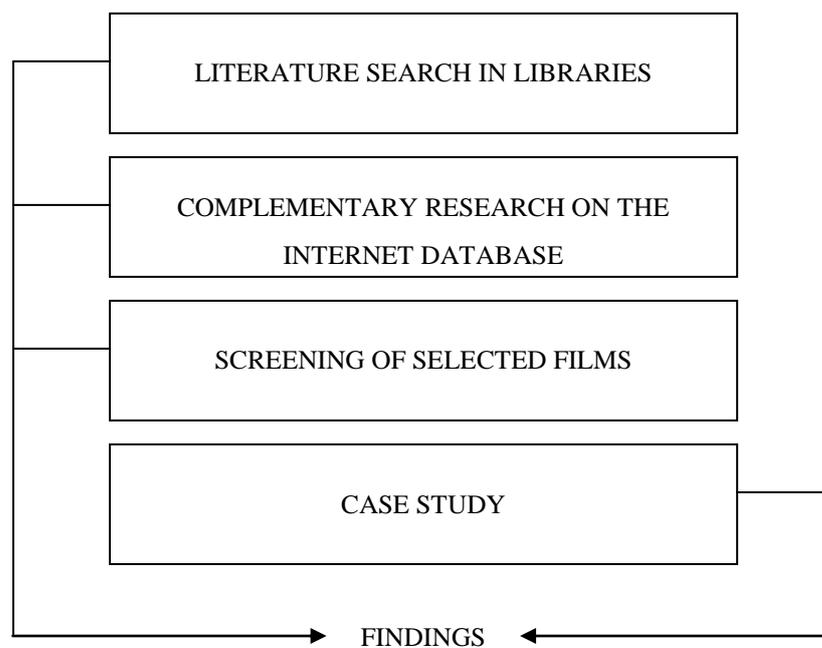
The production design process is examined in detail, from conceptual stage to final product, including all the conceptual projections, products and other constructions made by the film. Then, the constructions are put into cross-examination in comparison with the present technology and existing products; in order to check the level of accuracy and success in the projections of the films.

### 3.2 “Social Construction”

The social impact of the constructed reality in relation with the film’s own internal-reality is examined and analysed. The possibility of existence of these projections in a future society is also discussed.

The results of the analysis have been arranged as a series of tables, in order to expose the details concerning the contribution of these films to the construction of future reality.

Figure 6.1 is a graphical representation of the method used in this study.



**Figure 6.1:** Method of the study

## 7. FINDINGS

As a result of the detailed analysis of the selected five films, certain constructions, suggestions and patterns concerning a possible future reality, are found. This chapter presents the findings, arranged in three sub-sections:

1. List of design constructions, their functions and features; separately for each film.
2. Relationship and comparison of the constructed future reality, with the present day reality; in other words present technology.
3. Similar products and common conceptual patterns, found in the selected films, concerning a possible future reality.

### 7.1. List of Design Constructions

This sub-section displays the detailed list of analysed products, with information concerning their functions in the film and special features they have; if there is any. The lists are formed to expose the themes and topics of future reality constructions separately for each film.

**Table 7.1:** Design constructions in “2001: A Space Odyssey”

PRODUCT	FUNCTION	FEATURES
Nuclear Orbitcraft	Orbital Weapon	Nuclear Weapon
PanAmerican Orion III “Spaceclipper”	Orbital Spacecraft	Commercial Space Transportation
Space Station 5	Orbitor Space Station	Commercial Space Station
Orbitor Hilton	Orbitor Space Hotel	Commercial Space Hotel
Aries 1B	Lunar Excursion Module	Commercial Orbit to Moon Transportation

Moon Bus	Base-to-base Moon Transport	Selenographical, Selenological and Selenosphysical Exploration
USSS Discovery I	Interplanetary Spacecraft	Interplanetary Travel, A.I.
EVA Pod	Single Person Space Pod	Auxiliary Reconnaissance, Maintenance and Local Exploration craft
HAL 9000	Computer	Advanced A.I.
Hibernation Unit	Human Hibernation Tube	Integrated Life Support Unit
Grip Shoes	Micro gravity Shoes	Velcro Fastener
Spacecraft Kitchen	Automated Kitchen Unit	Automated Food Preparation
Space Food	Engineered Space Nutrition	Special Packaging for Micro gravity Conditions
Zero Gravity Toilet	Spacecraft Toilet	Special design for Micro gravity Conditions
Flat screen Unit	Plasma Wide screen Display	Wall and Seat Integration
Televisiphone	Video Communication Device	Orbit-to-Earth Satellite Communication
American Express Card	Multifunctional Credit Card	Credit Card, Phone Card
Djinn Lounge Set	Single and Twin Seater Lounge Chair	Minimalist Futuristic Design
AJ Cutlery	Cutlery for Space Travel	Minimalist Futuristic Design

The themes of future reality constructions in “2001: A Space Odyssey” are: A.I., commercial space travel, orbital space station, commercial space hotel, nuclear space weapons, spacecraft, lunar space station, interplanetary travel, communication, wireless communication, videoconferencing, advanced computers and electronics, biometric authentication, advanced medicine, kitchen products, food & beverage, fashion, clothing and accessories, bathroom furniture, furniture

**Table 7.2:** Design constructions in “Blade Runner”

<b>PRODUCT</b>	<b>FUNCTION</b>	<b>FEATURES</b>
Replicant	Cybernetic Organism	Advanced A.I.
J.F. Sebastian’s Dolls	Cybernetic Organism	Toy with Basic A.I.
Voigt Kampff Analyzer	Emphatic Response Analyzer	Retinal Scan, Biochemical Particle Analyzer
Esper	High Density Computer	Scanner, Digital Analyzer, Printer, Voice Activation
LAPD Spinner	Flying Police Car	VTOL, Turbine-Powered Engine, “Wrist-Twist” Steering, Ground Cruise
Deckard’s Sedan	Modified Spinner Ground Car	Turbine-Powered Engine “Wrist-Twist” Steering
Public Cab	Public Transportation Vehicle	Credit Card Activated Driving System
Trafficator	Traffic Light	Audiovisual Broadcasting
VidPhon	Video Communication Device	Card Activated
Lighted Umbrella	Umbrella	Lighted Neon Stem
Door Lock	Biometric Authentication	Voiceprint Identification
Deckard’s Credit Card	Multifunctional Credit Card	Door Key Feature
Interior Lights Unit	Automated Lights	Motion Sensor Unit
Advertisement Screens	Digital Broadcasting	Wall and Surface Integration
Blimp	Flying Broadcasting Craft	Mobile Advertising

The themes of future reality constructions in “Blade Runner” are: A.I., cybernetic organisms, cybernetic toys, toys with basic A.I., advanced computers and electronics,

psycho physiological detection and analysis, biometric authentication, advanced aircraft, private transportation, mass transportation, traffic devices, architecture, communication, wireless communication, videoconferencing, interior design, “smart house”, household products, marketing and advertising, mobile advertising, and wireless broadcasting.

**Table 7.3:** Design constructions in “Knight Rider”

<b>PRODUCT</b>	<b>FUNCTION</b>	<b>FEATURES</b>
K.A.R.R.	FLAG Car	See Appendixes 3, 4
K.I.T.T.	FLAG Car	See Appendixes 3, 4
Knight Semi Unit	FLAG Truck, Computer Lab	Mission Control, Repairs and Maintenance Unit
Wrist Communicator	Wireless Remote Communication Device	Remote Car Activation, Voice Recognition

As KITT incorporates too many features to be listed inside a table, The themes of future reality constructions in “Knight Rider” can be found in technical specifications and special features of KITT; in Appendixes 3 and 4 respectively.

**Table 7.4:** Design constructions in “Minority Report”

<b>PRODUCT</b>	<b>FUNCTION</b>	<b>FEATURES</b>
Pre-Crime Analytical Interface	Digital Holographic Analyser	Gestural Recognition Interface
Fiberoptic Gloves	Lighted Gloves	Gestural Recognition
Pre-Crime Computer	New Generation Computer	Transparent Holographic Interface
Anderton’s Computer	New Generation PC	Transparent Holographic Interface
Holo-Projector	Wall-Projector	3D Holographic Interface and 2D Background Projection

Burgess's Laptop	New Generation Laptop Computer	Transparent Interface, Wireless Communication
Holographic Diskette	New Generation Data Diskette	Transparent Holographic Data Transfer
Pre-Crime Scanner Tablet	Thermal Scanner	Transparent Interface, Wireless Communication Motion Scanner
Pre-Crime Spider	Mobile Scanner Robot	Retinal Scan, Wireless Communication, A.I.
Pre-Crime Wristwatch	Watch, Wrist Communicator	Wireless Communication
Pre-Crime Sick Stick	Non-lethal Close-Combat Weapon	Vomit-Inducing Feature
Pre-Crime Sonic Pistol	Non-lethal Mid-Range Weapon	Generated Sound Frequency Blast
Pre-Crime Hovership	Flying Police Hovercraft	VTAL
Pre-Crime Jetpacks	Wearable Personal Flying Instrument	VTAL
Pre-Crime Headset	Temporary Brain Suspension Device	Suspended Animation
Pre-Crime Hall of Containment	Pneumatic Tubes for keeping prisoners in Suspended Animation	Integrated Life Support Unit
Public Scanners	Biometric Authentication	Wireless Communication, Retinal Scan
2D and 3D Advertisement Panels	Personalised Marketing	Wireless Communication, Retinal Scan, Holographic Display
Electronic Newspaper	Newspaper	Wireless Communication, Auto-Update feature, Electronic Ink

Anderton's Apartment	Voice Activated Lights, Music and Wall Projector	Voice Recognition
MagLev System	Magnetic Levitation Traffic System	A.I. Operated Traffic 3 Dimensional Roadways
MagLev Pod	Personal, Mass and Public Transportation Vehicle	Auto-Cruise, Wireless Communication, Video Interaction via Holographic Projection
Lexus 2054 Off-system Sports Coupe	Off-System Sports Car	See Appendix 6

The themes of future reality constructions in “Minority Report” are: Advanced computers and electronics, gestural recognition interfaces, advanced computer user interfaces, holographic projection, 2D and 3D holographic interfaces, advanced data storage, biometric authentication, advanced aircraft, personal flying gear, A.I., robotics, non-lethal weaponry, advanced medicine, voice recognition, “smart house”, marketing and advertising, communication, wireless communication, wireless advertising, personalised marketing, electronic newspapers, advanced transportation design, A.I. operated traffic systems and “smart car”.

**Table 7.5:** Design constructions in “I, Robot”

<b>PRODUCT</b>	<b>FUNCTION</b>	<b>FEATURES</b>
Nestor Class NS-4 Robot	Robot	Advanced A.I.
Nestor Class NS-5 Robot	Robot	Advanced A.I., Wireless Communication via Uplink
V.I.K.I.	Central Processor	Advanced A.I., Wireless Communication
Spooner's Left Arm	Prosthetic Arm	Cybernetic Prosthetics
Holographic Projector	Compact Projector	Pre-Recorded Holographic Data
USR Building	USR Headquarters	Central Processor Operated Building Functions

Underground Roadways	A.I. Operated Traffic System	Wireless Communication, Auto-Cruise
USR Garage	Automated Parking System	Vertical Parking
USR Robot Transport	Transport Vehicle	Wireless Communication, Auto-Cruise, No Driver
Audi RSQ	Mid Engined Sports Car	Wireless Communication, Voice Recognition, Auto/Manual Cruise, Spherical Wheel System
USR Demolition Robot	Construction Demolition Robot	Wireless Communication
Scooter	Electric Powered Scooter	Auto-Cruise

The themes of future reality constructions in “I, Robot” are: A.I., robotics, cybernetic prosthetics, advanced medicine, holographic interfaces, advanced computers and electronics, “smart building”, communication, wireless communication, advertising, robotic parking, A.I. operated traffic systems, advanced transportation design and electric vehicles.

## 7.2. Comparison with Present Technology

In the tables that display the relationship and comparison of the film’s constructions with the present day technology, the existing product / technology / feature is indicated with name and details, if only a specific company is providing that service / product / feature. If the product / technology / feature is available from a wide range of companies / brands, and in different forms and variations, then the relationship is indicated with the “available” mark.

**Table 7.6:** “2001: A Space Odyssey”; comparison with present technology

2001: A Space Odyssey	Present Technology
Orion III / Commercial Orbital Travel	Space Island Group; Under Development
Space Station 5 / Commercial Space Station	Space Island Group; Under Development

Aries 1B LEM	Apollo 11 “Eagle” LEM
Orbital crafts	Available
Engineered Space Food	Micro MREs
Micro gravity Velcro “Grip Shoes”	Velcro Technology
Televisiphone	Available / Video Conference
American Express card	Credit cards
Flat screen Technology	Available
Integration of Flat screens to Transportation Design	Available
HAL 9000 / A.I. for space missions	NASA Deep Space 1 / under development
HAL 9000’s ability to play chess	Deep Thought, Deep Blue
HAL 9000 voice recognition	Available
Hibernation	Hibernation genes identified

The major future construction in “2001: A Space Odyssey”, is the commercialisation of space with commercial space traffic and space stations dedicated to business, research, repair and maintenance, manufacturing and tourism. Today, Space Island Group; a California based aerospace contractor, is working on the existing technology developed by NASA, Russia and private aerospace companies over the last 25 years, in order to establish a stand alone commercial space infrastructure supporting the broadest possible range of manned activities in Low Earth Orbit (LEO) for the 21st century (**SIG**). The design, technology and working principles of SIG’s wheel-shaped space station and space traffic system is extremely similar to what Stanley Kubrick and Arthur C. Clarke envisioned and constructed for “2001: A Space Odyssey”. Considering the fact that wheel-shaped space stations, which provide artificial gravity with rotation, originated from Werner von Braun’s conceptual designs, both the film and SIG refer to the same source for concept and inspiration.

The production years of “2001: Space Odyssey” coincide with the Apollo 11 Mission, including the design and development of “Eagle” LEM project, which

carried Neil Armstrong and Buzz Aldrin to Moon. Ordway and Clarke had stated that they have been in close contact with NASA regarding the Eagle LEM project, thus, Aries 1B lunar module has been designed referring to the technology used in Eagle LEM.

Since the cold-war era, there has been significant presence of military satellites and orbitalcraft in Earth's orbit, which is also represented in "2001: A Space Odyssey".

The film's projection of engineered space food is an extrapolation of the existing food technology used by NASA and Russia in their space programs, however, the film interprets the preparation and eating sequences differently, particularly in Space Station 5 and Discovery I, where artificial gravity is produced. Today, a military food technology called Micro MREs is under development for use in space conditions.

The "Grip Shoes" is another extrapolation of the movie, on the existing Velcro technology, which is already being used by NASA for various applications in space conditions.

Video-phones and flat screens were invented long before "2001: A Space Odyssey" began its pre-production, but the projection here, is the widespread use and application of these technologies to broader areas. Today, flat screens are integrated in all kinds of transportation systems; such as the multimedia interfaces on the seats of airplanes, busses and trains; a feature which has been projected by the film as early as 1968.

Although credit cards were first put into use in 1950s, Kubrick's projection of their popularisation and extremely widespread use proves to be a very accurate vision when compared to today's reality.

Regarding HAL 9000; even though an extremely advanced A.I. integrated spacecraft computer may not be available at the time being, NASA has already engineered an unmanned prototype spacecraft named "Deep Space 1", which successfully uses integrated A.I. for navigation. "Deep Space 1" was launched in October, 1998 for testing new technologies including A.I.. "This is the first time that any spacecraft has

truly relied on artificial intelligence,” says Dr. Marc Rayman, chief mission engineer for Deep Space 1 at NASA's Jet Propulsion Laboratory (CNN).

The Autonomous Navigation system of “Deep Space 1” steers the spacecraft by comparing its position to well-known stars and asteroids. The spacecraft can think for itself by using an A.I. software called a Remote Agent. This system is given a set of goals by ground controllers, but it decides how to carry them out (CNN).

HAL 9000’s certain features such as voice recognition and voice activated command system is available in present day technology. However, today’s computers use basic A.I. to evaluate, understand and respond to certain commands, and they are not yet able to carry out an intelligent conversation with a human being. The chess playing ability of HAL has already been demonstrated by the famous software called “Deep Thought” and particularly “Deep Blue”; which has managed to beat the world champion Garry Kasparov.

Concerning hibernation, in 2000, research at North Carolina State University identified two genes involved in hibernation. Today the technology is still not available for practical use, but in the future, it could be used for sending manned spacecrafts for long distance space missions, as well as preserving donor organs for transplant surgery and help people loose weight.

**Table 7.7:** “Blade Runner”; comparison with present technology

Blade Runner	Present Technology
J.F. Sebastian’s Toys with Basic A.I.	Sony AIBO
Spinner / Flying Car	Moller M400 Skycar / Prototype Stage
Ground Spinner / Video Display Interface	Available
Esper / Scanner Analyzer Printer Combo	Available
Voiceprint Identification	Available
Smart House / Motion Sensors for Lights	Available
VidPhon	Available / Video Conference

Multifunctional Card / Door Key	Available
Lighted Umbrella	Available / Flashlight Integrated in Handle
Blimp / Mobile Advertising	Advertising Blimps

With J.F. Sebastian’s genetically engineered toys, “Blade Runner” projects the concept of toys with basic A.I.; toys that can learn by interaction, and improve their abilities in time. Sony introduced its first “robotic pet”; AIBO in 1999. AIBO has a basic A.I. software integrated in it, which lets the robot learn new things, and develop its abilities through interaction with its owner.

“Blade Runner”’s trademark flying car; Spinner’s working principle is an extrapolation on an already existing aircraft called an aerodyne. Using an internal enclosed lifting system that works on turbine engines, Spinner is able to perform vertical lift off, cruise at high speeds and vertical landing operations. Aerodynes work, based on a system called VTAL, which is applied to all the aircraft in practical operation today, such as the British Harrier Jump-jet.

Based in California, Moller International has been developing a VTAL sky-car; which they name a “volantor”. In 2003, Moller International’s volantor named “M400 Skycar” has passed its flight tests successfully and it is under development for mass manufacturing at the moment. M400 Skycar uses the same aerodyne technology and working principles with Spinner.

In the film, one of the ground Spinners has a video interface which can be used for making phone calls or retrieving information. Regarding present communication technologies in transportation design; video interfaces integrated in dashboards use wireless technology to connect to internet for videoconferencing.

Deckard’s Esper machine is basically a high-density computer with a scanner, analyser and printer combo, which can be activated and operated by voice. Today, a personal computer with sufficient configuration, scanner and printer connection can perform the same tasks easily and fluently.

The film’s projections regarding voiceprint identification and motion sensors for “smart house” concepts are commonplace today, and they are used for a variety of

applications. Automated lights, taps and toilet flushers are the already the new standard for hotels and public bathrooms since a decade.

Similar to “2001: A Space Odyssey”’s projection, the “Vidphon” in “Blade Runner” is an already existing technology which was invented as early as 1927. However, the film’s projection is to accent on the widespread use of the product; replacing the future public phone booths with video-phones. In the film, Deckard has a multifunctional card, which he uses for paying phone calls, or unlocking his apartment’s door. Today, a multifunctional microchip integrated card system is already being used in a wide spectrum. The microchips integrated on cards match the id of the user to a network, in which the user can perform a variety of actions such as identification on entry, paying for food or parking.

One of “Blade Runner”’s simple but smart solutions is the lighted umbrella, which provides two solutions in single package. Today, many umbrella manufacturers integrated adjustable flashlights on the handles of their products, thus providing smart solutions for users.

In “Blade Runner” the featured Blimp was able to broadcast live advertisements via a wireless connection. Even though they are not using wireless technology yet, blimps are used as a way of advertising by many companies, due to their high visibility, low costs and practicality.

**Table 7.8:** “Knight Rider”; comparison with present technology

<b>Knight Rider</b>	<b>Present Technology</b>
Voice Interface	Available / Pre Recorded Speech
Voice Recognition	Available
Auto-Parking	Available / Prototype Stage
Auto-Cruise	Available / Prototype Stage
Molecular Bonded Shell	Available / Armour
Wireless Communication	Available

KITT / Advanced A.I.	Board Computer / Basic A.I.
Thermal Resistant Coating	Available
Video Display Interface	Available
Self-Tinting Windows	Available
Deflatable - Reinflatable Tires	Available
Wrist Communicator	Wristwatch Mobile Phone Samsung, Telson, Wristomo

Today, the developments in electronics, computers and A.I. enable the automotive industry to engineer cars which can perform almost all features of KITT. The ever popular “talking car” and “voice activated car” features are available to a certain degree. Using a software with basic A.I., today’s prototype cars can cross match the command or keyword to their databank of pre-recorded phrases and words, and activate certain features which are related with that particular keyword. Most of the mass produced cars can playback pre-recorded phrases that give information and warning messages about the oil and gas levels, open doors, unfastened safety belts or even safety distances. With the GPS integration, they are also able to talk about cruise time, destination distances and turns.

Prototypes of self operating cars with motion sensors, that allow the car to drive or park itself have already passed the development stages, and soon, they will be mass manufactured. Even today, cars can warn and help their driver via the smart parking sensors integrated around their bodies.

Even though not mass produced for economic issues, “safety” concepts for cars have been taken to a very advanced level. Today, existing cars are custom modified for government officials, politicians and also private use, in order to provide extreme safety measures such as heat and fire resistance, bullet resistance including heavy artillery, rocket launchers and even explosives. It is only a matter of finance to integrate these features in mass production.

As stated previously, wireless communication interfaces are easily integrated to dashboards for a variety of purposes such as teleconferencing, videoconferencing and internet access.

Another stylistic touch about KITT is its self-tinting feature. When “Knight Rider” was in production, this feature had already been developed for private jets in order to isolate a certain part of the jet and turn it into a bedroom or private compartment. The system involves the stimulation of chemical gases inside a double layered glass to form a non-transparent screen.

According to the information they receive via sensors, today’s cars are able to adapt certain features and systems to changing road and cruise conditions. While on cruise, board computers can automatically change the air pressure inside the tires, hardness of shock absorbers, and gear box settings to adapt to road conditions.

Michael Knight’s wrist communicator is also available in the consumer market, although not to activate and operate a car, but for wireless communication. Brands such as Samsung, Telson and Wristomo have designed “wearable” mobile phones in the shape of wristwatches since the beginning of 2000s.

In general, further developments concerning a “smart car” concept is depending on the further research and developments on A.I.. Once the technology is available, it is only a matter of finance to integrate the technology into automotive industry.

**Table 7.9:** “Minority Report”; comparison with present technology

Minority Report	Present Technology
Pre-Crime Analytical System Gestural Recognition Interface	Raytheon Gestural Recognition Interface / Under Development
Pre-Crime Thermal Scanner Tablets	Thermal Scanner Technology Available
Retinal Scanner	Available
Pre-Crime Wristwatch Wireless Communication Device	Wristwatch Mobile Phone Samsung, Telson, Wristomo
Sonic Pistol	Available / Under Development
Anderton’s Smart House; Lights, Music, Wall Projector	Available

Electronic Newspaper	E Ink Electronic Paper Display / Under Development
Wireless Broadcasting Interfaces	Wireless Traffic Information Panels
Holographic Projector / Interface / Data Storage	Available / Under Development
MagLev 3D Transportation System	MagLev Bullet Train System
Lexus Off-System Coupe; features	Available / Prototype Stage

Most of the constructions in “Minority Report” are extrapolations on existing or under development technologies, however, one particular product has influenced a company to develop and engineer the projected technology of the film. Raytheon; an American defence company has started the development of the gestural recognition interface in “Minority Report” for military purposes. Furthermore, they have employed film’s science and technology advisor John Underkoffler, to help them with the realization of the system. Due to its powerful impact this interface is already referred to as the “Minority Report Interface”.

The specific equipment used by the Pre-Crime department are all constructed upon existing products and systems. The retinal and thermal scanners, non-lethal weapons such as the sonic pistols and sick sticks, wireless tablets, wrist communicators are all extrapolations on present technology and prototypes.

The portrayal of Anderton’s apartment, where everything is voice activated, is a projection regarding the popularisation and widespread use of today’s “smart house” concept.

The most striking feature of the electronic newspaper in “Minority Report” is its wireless real time update. The technology of an electronic newspaper is already under development. E Ink Corporation has manufactured successful prototypes of electronic ink, and electronic paper display. E Ink’s products have already been integrated with certain products of companies such as Sony, Philips, Seiko and Citizen. The integration of wireless technology to electronic paper display, thus, enabling a wireless online update feature to electronic newspapers, is only a matter of time.

The wireless broadcasting interfaces used in “Minority Report” are also based on existing technology. The traffic information panels on roadways and highways are broadcasting updating news regarding the traffic density of certain roads and bridges via a wireless infrastructure. Same technology can easily be integrated to advertising and media, both indoors and outdoors.

Today, the film’s state-of-the-art holographic computer interfaces, 2D holographic data transfer compatibility and 3D holographic projectors are all available and under development. In the coming years, 2D holographic data processing, storage and transfer will replace all known standards such as CDs, DVDs, MDs, and other types of media.

Minority Report’s trademark MagLev transportation system basically uses the same magnetic levitation technology which is used to operate bullet trains in Japan and Europe. The film extrapolates on the concept, and modifies a two dimensional transportation system into a three dimensional web of complex roadways and building surfaces. However, even though the projected technology may become available in the future, it is important to note that, the integration of such a system would require drastic changes in the conventional metropolitan infrastructures. As stated previously in the case of KITT, Lexus Off-system coupe’s most features such as laser guided cruise control, voice recognition, self diagnosis, weather sensitive response, and accident avoidance system are already available or under development.

**Table 7.10:** “I, Robot”; comparison with present technology

<b>I, Robot</b>	<b>Present Technology</b>
Spooner’s Left Arm; Cybernetic Prosthetics	Available / Under Development
Voiceprint Identification	Available
“Hand Scan” Identification in USR Lab	Available
USR Building; Central Processor Operated “Smart Building” Concept	Under Development
3D Holographic Interfaces	Available / Under Development

USR Garage, Automated Vertical Parking	Available / Automated Parking
Audi RSQ Wireless Communication	Available
Audi RSQ Auto-Cruise	Available / Prototype Stage

In “I, Robot”, Spooner’s prosthetic left arm is designed virtually identical to a real arm. Existing technology might not be advanced enough to create a cybernetic look-alike of a real limb, however, recent advances in prosthetics include the development of artificial limbs and musculature, which respond to electric impulses and act like real muscles.

Similar to the case with “Minority Report”, most of the projected technology and systems in “I, Robot” are extrapolations on existing products. The voiceprint identification and hand-scan identification are already being used for security. The state-of-the-art automated parking system is a vertical interpretation of the existing robotic parking systems, which have been under development since three decades. Audi RSQ’s certain features such as the wireless communication and auto-cruise are at prototype stage.

With the USR Building, the film also makes a construction regarding the integration of a central processor for all operations and maintenance of a building. This A.I. operated system self maintains itself without any human interference. Although such a system is not available as of yet, certain buildings such as hotels and corporate skyscrapers have integrated a basic learning system for the building. The system records the daily activities of the inhabitants via the magnetic cards they use, and operates lights or elevators depending on the regular everyday patterns of those inhabitants, such as the time of arrival or time of departure.

V.I.K.I.’s 3D holographic user interface is a recently developed technology which enables the creation of a 3D holographic object with volume, in space. The developments in A.I. might also lead to integrating A.I. to such a projection in the near future.

### 7.3. Similar Products and Common Conceptual Patterns in Selected Films

The most important result of the analysis of films, is the observation of similar or identical patterns in different films, which have different settings of internal future realities. As seen in Table 7.11, regardless of the time difference between the production dates of the selected films, the analysis of films has provided similar patterns. In some cases, these patterns are observed as products, and in other cases, they are observed as conceptual constructions.

**Table 7.11:** Similar products and common conceptual patterns

	2001: A Space Odyssey	Blade Runner	Knight Rider	Minority Report	I, Robot
<b>Advanced A.I.</b>	HAL 9000	Replicant, J.F. Sebastian's Toys	KARR KITT	Pre-Crime-Spider, MagLev	NS-4 NS-5 V.I.K.I.
<b>A.I. with Emotions</b>	HAL 9000	Replicants	KARR KITT	-	Sonny
<b>Biometric Authentication</b>	Voiceprint Identification on Space Station 5	Voiceprint Identification on Deckard's Apartment, Spinner's Door	KITT's Voice Analyzer	Retinal Scan MagLev, Lexus: DNA Recognition Entry, Ignition	Voiceprint Identification from RSQ to V.I.K.I. "Hand Scan" in USR Lab
<b>Auto-Cruise</b>	Discovery I	-	KARR KITT	MagLev Pod Lexus Off-System Coupe	Audi RSQ USR Robot Transport
<b>A.I. Operated Traffic</b>	-	-	-	MagLev System	Downtown Traffic
<b>Smart House</b>	Living Space Controls via HAL 9000	Deckard's Apartment: Motion Sensor turns on Lights	-	Anderton's Apartment: Lights, Music, Wall Projector	USR Building

<b>Holographic Interface</b>	-	-	-	Wall Projector MagLev	Holo-Projector V.I.K.I.
<b>Advanced Computer Interfaces</b>	HAL 9000	Esper	KARR KITT	Pre-Crime Analytical Computer, Anderton's pc Burgess's laptop	Computers V.I.K.I.
<b>Voice Activated Technology</b>	HAL 9000	Esper	KARR KITT	Lexus Off- System Coupe Anderton's Apartment	Audi RSQ V.I.K.I. NS-4 NS-5
<b>Wireless Broadcasting and Advertisement</b>	-	Blimp Trafficators	-	Electronic Newspaper, 2D and 3D Advertisement Interfaces	Advertisement Billboards
<b>Wireless Communication</b>	HAL 9000 Televisiphone	Spinner Deckard's Sedan	KITT Wrist Comm.	Pre-Crime Spider Thermal Tablet Wristwatch MagLev Pod Lexus Off- System Coupe	NS-5 V.I.K.I. Audi RSQ USR Robot Transport
<b>Flat screen Technology</b>	Orion III Aries 1B Space Station	-	-	Computers Advertisement Interfaces	Computers
<b>Hibernation</b>	Hibernation Capsule	-	-	Pneumatic Tube	-

The most popular construction is the widespread use of advanced A.I. In “2001: A Space Odyssey” and “Knight Rider”, A.I. technology is constructed and visualised as

computers, where as, in “Blade Runner”, “Minority Report” and “I, Robot”, advanced A.I. is integrated in robots and cybernetic organisms.

With the exception of “Minority Report” all four of the films also accent on the possible consequences of the natural evolution of A.I. and becoming a threat for the human beings. Particularly with the case of “Knight Rider”, this concept was presented with KARR; the predecessor of KITT, which later in the story’s timeline, gets out of control and becomes a villain.

In relation with A.I. and envisioned developments in electronics and cybernetics, all five of the selected films project advanced computer interfaces. In “2001: A Space Odyssey”, “Blade Runner” and “Knight Rider”, the visual style of advanced electronics and computers are presented as a sophisticated combination of many screens and buttons, where as, “Minority Report” and “I, Robot” extrapolates these interfaces in great simplicity and functionality.

“2001: A Space Odyssey” has envisioned the widespread use of flat screen technology as early as 1960s, and “Minority Report” and “I, Robot” also project the integration of flat screen technology in everyday life. However, due to its dystopian nature, flat screens are not envisioned in “Blade Runner”. It is also interesting to note that, even though KITT’s dashboard and interior has been designed to resemble a high technology spaceship cockpit, its surveillance monitors are not flat screen.

All five of the films project advanced wireless communication interfaces. In “2001 Space Odyssey”, wireless technology is integrated in the “Televisiphone” and all of the spacecraft, where as, in “Blade Runner”, this technology is integrated in Deckard’s sedan and police Spinners. In “Knight Rider”, wireless technology is integrated in KITT and also Michael Knight’s wrist communicator. In “Minority Report” and “I, Robot”, this technology is used in a much broader area. In “Minority Report”, Pre-Crime spiders, thermal tablets, wristwatches, MagLev pods and Lexus Off-system coupe all share wireless technology, where as in “I, Robot” wireless connection is used in all the vehicles, V.I.K.I. and NS-5 series robots.

The two latter examples of the selected films suggest the use of 3D holographic technology, which has been under development since 1950s. In Minority Report, this technology is also related with computer interfaces, and integrated in data storage

and transfer, through holographic diskettes, where as, in “I, Robot” holographic data storage and projection is connected with A.I. technology. V.I.K.I. communicates with USR employees via a 3D holographic interface, and the holo-projector can produce limited responses with basic A.I..

Regarding transportation design, the common approach for all five of the films is a “self operating”, or “self sufficient” vehicle concept which can manage almost all operations without the need of a driver, thus, making life easier. The KITT concept in “Knight Rider” especially deserves credit regarding the popularisation of a “smart” vehicle which provides numberless features for driving operations and various applications. Constructions such as the A.I. operated automated traffic systems in “Minority Report” and “I, Robot” are also providing solutions concerning safety issues, considering the fact that traffic accidents are one of the highest priority critical issues world-wide. As there is no ground transportation vehicle in “2001: Space Odyssey”, Discovery I spacecraft can be evaluated and interpreted as a “self operating” vehicle without a driver, because it is operated by a central processor, (HAL 9000) the same way as KITT operates the Trans-Am car.

Another common projection is the biometric authentication and its different applications for safety, surveillance and interaction. Due to the globally growing terrorist activities; biometric identification interfaces such as retinal scan, hand-scan or voiceprint authentication, are being experimented all around the world, especially in airports, government buildings and restricted facilities. In all five of the movies, there is at least one system or device working with voiceprint identification, or voice recognition.

A “smart house” or “smart living space” concept with voice and motion activated features is found in all five of the selected movies. However, “Knight Rider” in particular should be interpreted and evaluated as a “vehicle variation” of a “smart living environment” due to the fact that Michael Knight is able to activate many features via voice recognition. Similarly, in “2001: A Space Odyssey”, Discovery I spacecraft’s main deck; which is a “living space” for the mission crew, is operated and maintained by HAL 9000.

In “Minority Report” the use of pneumatic tubes in the Hall of Containment, is a very similar construction to the hibernation capsules in “2001: A Space Odyssey”. Both systems are temporarily suspending the animation and main brain activities of a human and in the mean time, controlling and protecting his vital activities via life support units.

Wireless broadcasting and marketing is found in “Blade Runner”, “Minority Report” and “I, Robot”. In “Blade Runner” this technology is integrated into a Blimp, thus making it also mobile, where as in “Minority Report” and “I, Robot” wireless advertising and broadcasting is integrated into 2D and 3D indoor and outdoor advertising interfaces.

Regarding advertisement and marketing, another common feature is how the films project the effect of advertisement on future societies. “Blade Runner”, “Minority Report” and “I, Robot” all project a “media assaulted” future world, and construct different possible variations of advertisement and marketing interfaces. Society’s “involuntary exposure” to overwhelming advertisements is another common pattern, which is found in all three of the mentioned films.

## **8. CONCLUSION AND IMPLICATIONS**

Today, the world is changing at such a speed, that the concepts of “future reality” turn into already existing technologies in the blink of an eye. The knowledge, which is used to construct the projected future reality, feeds on many other sources besides the developments in science and technology. With the research made in this thesis, many aspects of the contribution of science fiction films to this knowledge have been examined.

One of the most valuable findings of this study, is the observation of similar and identical patterns concerning the conceptual projections and design constructions. Even though the selected films’ internal realities are very different from each other, all of their common projections are providing suggestions and solutions in order to improve the quality of life for human beings.

The construction of A.I. is actually a metaphor representing an “automated” life for humans; where all the thinking, calculations, necessary activities and solutions are provided for them by machines of their own creation. Similarly, “smart living spaces” concept is projected in all five of the films; which is another construction, indicating the demand of an automated life, and providing the solution in different “packages” of future constructions. The common patterns regarding transportation design are all pointing to a concept of a “smart vehicle” that would do all the work for its owner. Further more, the extrapolations on A.I. for advanced traffic systems, provide valuable solutions for the ever-existing traffic and safety issues, particularly in metropol.

Regarding the latter examples of the selected films, one of the major common patterns is “simplicity”. Until 1990s, advanced technology was often represented by fancy user interfaces with a variety of lighted buttons and switches. Today, all user interfaces are being simplified, and getting smaller in size. Furthermore, the new trend in design is the “one button does everything” concept. Huge home stereos that

resemble Christmas trees, are replaced with Ipod's featuring a single jog dialer. Laptops are getting as slim as a few pages of paper. However, the future applications of this trend, are presented to the world via the projections and constructions in science fiction films, thus, giving the audience a "glimpse" of what they should expect from the future.

In "Minority Report" and "I,Robot", mobile phones the size of walkie-talkies are replaced with "ear-phones" which are as small as Bluetooth headsets. The already slim flat screens are turned into state-of-the-art transparent hairline interfaces. The dashboards and user interfaces of the Audi RSQ and Lexus Off-system Coupe are very good examples projecting the essential elements in the future of transportation design regarding style, simplicity and functionality. These projections certainly create new demand for products that are not available for the time being, thus, they trigger the creation of new research fields and developments in technology. In other words, the films first supply the demands, and then create new demands by extrapolating on existing technologies. In relation with this particular subject, the analysis of common patterns in future reality constructions of science fiction films, can be used in an academic research study, in order to investigate the demands and expectations of the people regarding a near future.

However, the social interpretations of the identical and similar patterns do not point out to a very optimistic future. Even though the integration of advanced technology to everyday life seems to improve the living quality, common patterns portray a new type of human being, who is extremely dependant on technology, and performs activities with a minimum level of mobility. A future world, where everything is voice activated and connected to each other with wireless network would have its obvious advantages, but whether or not these advantages would improve the human relations on a social basis, is a highly arguable projection. The portrayal of marketing and advertising in an "abusive" character, is another dark but realistic construction that is found as a common pattern. With the use of wireless communication and individualized database systems, the already suffocating advertising activities are integrated right into the privacy of individuals. According to the projections of selected the films, the use of excessive technology may lead to the isolation of individuals from each other and the society. With the projections concerning biometric authentication and identification, the films draw attention to a possible

social dystopia in a not-so-distant future, where people would be forced to live under constant surveillance. In relation with this subject, “Minority Report”’s “personalized advertising” concept is a realistic simulation of how advertising and media can be manipulated in order to create surveillance and control on masses. When all this information is re-assembled, the social constructions are projecting a future where people are first isolated from each other, and then put under surveillance with the use of technology.

Concerning the interaction of film production design and industry; the findings of this study clearly point out to a strong mutual feedback. In many cases, the film’s constructions are extrapolations on existing and under development technologies, whereas certain conceptual projections or solid constructions of the films influence the development of similar or identical technologies and products in the industry.

In the example of “Minority Report”, the film creates a demand with the construction of the gestural recognition interface, and Raytheon Corporation starts a research and development project in order to supply the created demand. It is also possible to interpret this “supply and demand” concept in the form of “solutions and applications”. “Minority Report” suggests an innovative solution for an existing user interface, and Raytheon Corporation starts a research, in order to examine the possibility of its applications.

The reverse feedback works in a similar way. When the industry develops a new technology or designs a new product, the films extrapolate on those ideas and take the existing technology or product to the next level, either by complete modification, or by adding alternative uses, meanings and functions to them. In the case of “2001: A Space Odyssey”, although NASA had long before developed the technology required for orbital travel or a moon trip, production designers of “2001: A Space Odyssey”, took the existing technology and added a “commercialization” use to it. After introducing the new concept, the film then constructed the necessary products and technology in order to make the projected reality plausible. Similarly, the flat screen and plasma technologies were invented before the pre-production of “2001: A Space Odyssey”, but the film constructed a new use to the technology by integrating multimedia screens to the seats of the spacecrafts; an extremely accurate projection that was made as early as 1968.

Another contribution of science fiction films to the construction of a future reality is related with their educational character. In almost all cases, new products and technologies communicate through visualization. Hence, the strength and language of visualization are the key elements for the perception and acceptance of the proposed technology by the individuals; especially if they are not introduced to such products in their everyday lives. It would be extremely hard to describe with words or schematics, the shape, appearance or working principles of a 3D holographic image, to a person who is not familiar with technology, but the same technology becomes very easy to perceive, when it is presented as a “holo-projector” in “Minority Report”. Therefore, science fiction films make one of their biggest contribution to the existing knowledge by educating masses by visually presenting them what they should expect from a near future. As motion pictures are arguably the most powerful and influential type of media, their mass-communication abilities become their biggest advantage for educating and familiarizing masses for the oncoming future that is being constructed around them.

Regarding the product placement issues, the results of the analysis prove that companies take the projections of films very seriously, not only as a way to promote their products, but also to gather feedback from their potential consumers concerning the future directions of their production programs. A positive reaction to a placed product might very well lead to the integration of the featured product in the company’s future production programs. In certain cases, a product placement can be used in order to boost the popularity of the brand, or even change the position of that brand in the market hierarchy. Moreover, it is also possible to assume that companies are placing products that are already in their future programs, in order to familiarize the potential consumers for their upcoming products, at a sub-conscious level. Creating an emotional response to a placed product, using the dramatic settings of a films would surely accelerate the consumption of that product when it is put into mass manufacturing in the future. The relation between product placement and the companies’ future production strategies can be examined as a subject of study for future academic research.

Another contribution of science fiction films to the existing knowledge, lies in their nature of being visual documentaries, concerning the timeline of developments in products and technology. Even with only the selected examples of the genre, it is

possible to see the smooth transition of technological developments, and their applications on products and user interfaces. During the analysis of the selected films, the gigantic HAL 9000 in “2001: A Space Odyssey” (1968) transforms into the multifunctional Esper computer in “Blade Runner” (1982) later to be dissolved into the state-of-the-art transparent personal computer in “Minority Report” (2002).

When the findings in this thesis are interpreted in order to make predictions regarding a near future, all the evidences point out to a future reality, where the life will become completely automated and technology oriented. While the future constructions provide a better living, in terms communication, transportation, and other physical aspects of life, the social qualities of human life will be degenerated due to the excessive use and abuse of the projected technologies.

## REFERENCES

- LoBrutto, V.**, 2002. *The Filmmaker's Guide to Production Design*, Allworth Press, New York.
- Moody, N.** 2001. *A Lone Crusader in the Dangerous World Heroics of Science and Technology in Knight Rider*, in *Action TV: Tough Guys, Smooth Operators and Foxy Chicks* ed. Osgerby, B., Gough-Yates, A., p: 69-80 Routledge, London.
- Neumann, D.**, 1996. *Film Architecture: Set Designs from Metropolis to Blade Runner*, Prestel-Varlag, Munich.
- Sammon, P.M.**, 1996. *Future Noir: The Making of Blade Runner*, Harper Collins Publishers, New York.
- Shay, D.**, 2000. *Blade Runner The Inside Story*, Cinefex Titanbooks, London.
- Smith, T.G.**, 1986. *Industrial Light & Magic: The Art of Special Effects*, Ballantine Books, New York.
- Vaz, M.C.**, 1996. *Industrial Light & Magic: Into The Digital Realm*, Ballantine Books, New York.
- Andriasova, A.V.**, 2001. *Brand Placement: Special Focus on Generic Product Placement*.  
[http://www.ciadvertising.org/student\\_account/fall\\_01/adv392/anuta/pp/Mainset.htm](http://www.ciadvertising.org/student_account/fall_01/adv392/anuta/pp/Mainset.htm) (accessed June 22, 2005).
- AUDI.**, 2005. *Seat Position Memory*.  
[http://www.audi.com/audi/com/en1/glossary/Seat\\_position\\_memory.html](http://www.audi.com/audi/com/en1/glossary/Seat_position_memory.html) (accessed December 1, 2005).
- Auto Web.** 2004. *Cool Car, Cool Future World: The Making of the Audi RSQ for the Movie Event*.  
[http://autoweb.drive.com.au/cms/A\\_101306/newsarticle.html](http://autoweb.drive.com.au/cms/A_101306/newsarticle.html) (accessed October 17, 2004).

- Belker, H.**, *Minority Report MagLev*. <http://www.haraldbelker.com/home.html> (accessed November 11, 2005).
- Car Design News**, 2002. *Lexus Concept Vehicles Star in Spielberg's Minority Report*. <http://www.cardesignnews.com/news/2002/020724minority-report/> (accessed March 8, 2004).
- Clyne, J.**, *Minority Report*. [http://www.jamesclyne.com/projects\\_minority.html](http://www.jamesclyne.com/projects_minority.html) (accessed September 4, 2005).
- CNN**, 2005. *The Science of International Space Station*. <http://archives.cnn.com/2000/TECH/space/12/26/part.two/> (accessed April 25, 2005).
- Cole, D.**, *Dylan Cole Studio*. <http://www.dylancolestudio.com/index2.html> (accessed September 8, 2005).
- Craig's OUTATIME Back to the Future Website**, 1999. *Back to the Future Product Database*. <http://www.bttf.20m.com/database.htm> (accessed February 20, 2004).
- Cubico**, 2004. *The Look of the 6th Day*. [http://www.cubico.com/entertainment/6D\\_look.html](http://www.cubico.com/entertainment/6D_look.html) (accessed January 20, 2005).
- DeMet, G.D.**, 1998. *The Search for Meaning in 2001*. <http://www.palantir.net/2001/meanings/essay00.html> (accessed January 21, 2005).
- DeMet, G.D.**, 1999. *The Special Effects of 2001: A Space Odyssey*". <http://www.palantir.net/2001/meanings/dfx.html> (accessed January 20, 2005).
- Dirks, T.**, 1996. *Science Fiction Films*. <http://www.filmsite.org/sci-fifilms.html> (accessed February 9, 2005).
- E INK Corporation**, 1997. <http://eink.com/products/index.html> (accessed November 8, 2005).
- Ebenhoch, B.**, 2004. *Flight of Fantasy: Anatomy of the Blade Runner Spinner*. [http://media.bladezone.com/contents/film/production/props/spinner2/flight\\_of\\_fantasy.php](http://media.bladezone.com/contents/film/production/props/spinner2/flight_of_fantasy.php) (accessed December 29, 2004).

- Foret Bleue, I, Robot.** [http://www.foret-bleue.com/Site/Html/I\\_robot/irobot\\_flash.html](http://www.foret-bleue.com/Site/Html/I_robot/irobot_flash.html) (accessed September 5, 2005).
- Giger, H.R., 2005. Official Website.** <http://www.hrgiger.com/> (accessed August 15, 2005).
- Gonzales, D., 2001: A Space Odyssey The Collectibles Exhibit.** <http://www.2001exhibit.org/> (accessed April 20, 2004).
- Gonzales, D., 2001: A Space Odyssey The Collectibles Exhibit.** <http://www.2001exhibit.org/arts/frames5.html> (accessed April 20, 2004).
- Gonzales, D., 2001: A Space Odyssey The Collectibles Exhibit.** <http://www.2001exhibit.org/arts/furnishings.html> (accessed April 20, 2004).
- Gonzales, D., 2001: A Space Odyssey The Collectibles Exhibit.** <http://www.2001exhibit.org/arts/models.html> (accessed April 20, 2004).
- Gökçe, C.N., 1996. Definitions of Science Fiction.** [http://www.panix.com/~gokce/sf\\_defn.html](http://www.panix.com/~gokce/sf_defn.html) (accessed November 29, 2004).
- Green, A., 2003. Red Planet Blues: Mars and the Movies.** <http://www.popsci.com/popsci/aviationspace/5c6c5b4a1db84010vgnvcm1000004eecbccdrerd.html> (accessed February 19, 2005).
- Hollywood Jesus, 2004. I, Robot: About the Production.** [http://www.hollywoodjesus.com/i\\_robot\\_about.htm](http://www.hollywoodjesus.com/i_robot_about.htm) (accessed May 13, 2005).
- IMDB. 1990. Trivia for Alien.** <http://www.imdb.com/title/tt0078748/trivia> (accessed July 24, 2005).
- IMDB. 1990. Trivia for Immortel (Ad Vitam).** <http://www.imdb.com/title/tt0314063/trivia> (accessed November 2, 2005).
- IMDB. 1990. Trivia for Star Wars Episode II: Attack of the Clones.** <http://www.imdb.com/title/tt0121765/trivia> (accessed July 30, 2005).

- Jacobsen, A.**, The AJ Cutlery. <http://www.arne-jacobsen.com/neobuilder.20020207202938760000001518114182.html> (accessed September 27, 2005).
- Knight Rider Online.** 1995. *KITT*.  
<http://www.knightrideronline.com/wiki/doku.php?id=k.i.t.t> (accessed September 1, 2005).
- Knight, W.**, 2005. *New Scientist Breaking News: Minority Report Interface Created for US Military*.  
[http://www.newscientist.com/article.ns?id=dn7271&feedId=online-news\\_rss20](http://www.newscientist.com/article.ns?id=dn7271&feedId=online-news_rss20) (accessed September 8, 2005).
- Lange, H.**, 2001. *Official Website*. <http://www.harry-lange.org.uk/pictures/pictures.html> (accessed September 5, 2005).
- Lange, H.**, 2002. *Turning Sci-Fi into Fact*.  
<http://news.bbc.co.uk/1/hi/uk/1247163.stm> (accessed March 26, 2004).
- Lexus.** 2002. *Press Release: Lexus Cast as Vehicle of the Future in Steven Spielberg's Upcoming Film, "Minority Report"*.  
[http://www.lexus.com/about/press\\_releases/popups/2002/pr\\_01\\_03\\_b.html](http://www.lexus.com/about/press_releases/popups/2002/pr_01_03_b.html) (accessed December 21, 2004).
- Louisell, R.**, *Louisell Enterprises*. <http://www.roblouisell.com/> (accessed September 22, 2005).
- Lucas, G.**, 2005. *Digital Cinema Technology is Our Technology - Interview with George Lucas*.  
[http://techon.nikkeibp.co.jp/english/NEWS\\_EN/20050812/107622/?ST=english](http://techon.nikkeibp.co.jp/english/NEWS_EN/20050812/107622/?ST=english) (accessed November 12, 2005).
- McDowell, A.**, 2003. *Notes following the Science in Hollywood: Content and Communication meeting on January 11th, 2003*.  
<http://cba.mit.edu/events/03.01.NAS/McDowell.html> (accessed September 21, 2004).
- Moovies.** 2002. *Minority Report Production Notes*.  
[http://www.moovies.com/3419/89-production\\_notes](http://www.moovies.com/3419/89-production_notes) (accessed August 16, 2005).

- Naha, E.**, 1982. *Blade Runner's Sid Mead: An Artist with Designs on the Future*.  
Starlog Interview/Portfolio  
[http://docman.sourceforge.net/home\\_html/bladerunner/design.htm](http://docman.sourceforge.net/home_html/bladerunner/design.htm)  
(accessed October 12, 2004).
- NASA.** 2005. *Blockbuster Technology*.  
[http://www.nasa.gov/vision/earth/technologies/star\\_wars.html](http://www.nasa.gov/vision/earth/technologies/star_wars.html) (accessed  
June 20, 2005).
- Neer, K.**, 2005. *How Product Placement Works*.  
<http://money.howstuffworks.com/product-placement3.htm> (accessed  
February 22, 2005).
- Nice, K.**, 2005. *How Cruise Control Systems Work*  
<http://auto.howstuffworks.com/cruise-control4.htm> (accessed September  
4, 2005).
- Nuthall, P.**, 1999. *Knight Rider Archive*. <http://www.knightriderarchive.com/>  
(accessed August 28, 2005).
- Ordway III, F.I.**, 2001. *A Space Odyssey in Retrospect*. <http://www.visual-memory.co.uk/amk/doc/0075.html> (accessed September 13, 2005).
- Parenteau, P.**, 2001. *The Blimp*. [http://www.geocities.com/EXILE\\_STUDIO/](http://www.geocities.com/EXILE_STUDIO/)  
(accessed March 19, 2005).
- Perkins, A.J.**, 2005. *Cybernetic Prosthetics for Amputees*.  
<http://www.technologyowl.com/p239-nc92-ni2225681> (accessed  
November 22, 2005).
- Purcell, R.**, 2004. *The Cars of I, Robot*.  
<http://www.canadiandriver.com/articles/rp/irobot.htm> (accessed August  
30, 2005).
- Rothkerch, I.**, 2002. *Will the Future Really Look Like Minority Report?*.  
[http://www.salon.com/ent/movies/int/2002/07/10/underkoffler\\_belker/index.html](http://www.salon.com/ent/movies/int/2002/07/10/underkoffler_belker/index.html) (accessed October 23, 2005).
- Samsung.** *Matrix*. <http://www.samsung.com/Features/BrandCampaign/matrix/>  
(accessed January 26, 2004).

- Seiko.** *Seiko Final Fantasy Watch*. <http://www.seikowatches.com/special/ff/> (accessed June 25, 2003).
- Serious Wheels.** 2003. Toyota Press Release <http://www.seriouswheels.com/top-Lexus-Concept-Minority-Report.htm> (accessed February 5, 2005).
- Serious Wheels.** 2004. Audi Press Release. <http://www.seriouswheels.com/top-2004-Audi-RSQ-Concept.htm> (accessed January 11, 2005).
- Space Island Group.** 2005. <http://www.spaceislandgroup.com/home.html> (accessed November 21, 2005).
- Szondy, D.,** 2004. *Logan City* <http://davidszondy.com/future/city/logancity.htm> (accessed February 10, 2005).
- Tatopoulos, P.,** 2005. *Tatopoulos Studios*. <http://www.tatopoulosstudios.net/> (accessed October 15, 2005).
- Terho, J.,** 2002. *The Knight Rider Dashboard Pictures*. <http://www.juhaterho.fi/drawings/kitt/> (accessed August 14, 2005).
- The Film Asylum.** 2001. *Spawning of an Alien*. <http://www.thefilmasylum.com/features/retro/alien/alien.php> (accessed October 2, 2005).
- The Tech Museum of Innovation.** 2001. *Fiction and Fact*. [http://www.thetech.org/exhibits/online/2001ds/fiction\\_fact/index.html](http://www.thetech.org/exhibits/online/2001ds/fiction_fact/index.html) (accessed October 3, 2005).
- What Is.** 2002. *Positron*. [http://whatis.techtarget.com/definition/0,,sid9\\_gci869317,00.html](http://whatis.techtarget.com/definition/0,,sid9_gci869317,00.html) (accessed July 9, 2005).
- Wheat, L.F.,** 2001. *Misconceptions About 2001*. <http://www.underview.com/bhpress/wheat/misconceptions.html> (accessed August 16, 2005).
- Wikipedia.** *Bullet Time*. [http://en.wikipedia.org/wiki/Bullet\\_Time](http://en.wikipedia.org/wiki/Bullet_Time) (accessed November 20, 2005).
- Wikipedia.** *Clarke's Three Laws*. [http://en.wikipedia.org/wiki/Clarke's\\_three\\_laws](http://en.wikipedia.org/wiki/Clarke's_three_laws) (accessed September 12, 2004).

**Wikipedia.** *KITT*. <http://en.wikipedia.org/wiki/KITT> (accessed October 5, 2004).

**Wikipedia.** *Knight Rider*. [http://en.wikipedia.org/wiki/Knight\\_Rider](http://en.wikipedia.org/wiki/Knight_Rider) (accessed October 2, 2004).

**Wikipedia.** *Product Placement*. [http://en.wikipedia.org/wiki/Product\\_placement](http://en.wikipedia.org/wiki/Product_placement) (accessed April 3, 2004).

**Wikipedia.** *Science Fiction Film*.  
[http://en.wikipedia.org/wiki/Science\\_fiction\\_film#Definition](http://en.wikipedia.org/wiki/Science_fiction_film#Definition) (accessed January 6, 2004).

**Wikipedia.** *Speculative Fiction*. [http://en.wikipedia.org/wiki/Speculative\\_fiction](http://en.wikipedia.org/wiki/Speculative_fiction) (accessed May 14, 2004).

**Wikipedia.** *Star Trek*. [http://en.wikipedia.org/wiki/Star\\_trek](http://en.wikipedia.org/wiki/Star_trek) (accessed October 11, 2005).

**Wikipedia.** *VTOL*. <http://en.wikipedia.org/wiki/VTOL> (accessed June 23, 2004).

**Williamson Labs.** 1999. *Computer Architecture (Simplified)*.  
[http://www.williamson-labs.com/480\\_cpu.htm](http://www.williamson-labs.com/480_cpu.htm) (accessed October 5, 2005).

**Zamichow, N.,** 1984. *The Insider's Knight Rider, Fact and Fantasy: Behind the Scenes with KITT the Computer Car*.  
<http://www.teamknight rider.com/classic/articles/enter.html> (accessed August 18, 2005).

## APPENDIX

### APPENDIX 1

Complete list of product placements in “Back to the Future Trilogy” (**Craig’s Back to the Future Website**).

Brand	Type	BTF	BTF2	BTF3	Notes
7-Eleven	Dept Store	0	1	1	-
Adidas	Clothing	1	1	1	Biff's jumpsuit
Aiwa	Electrical	1	0	0	Marty's walkman
AK-47	Gun	1	0	0	The Libyans' weapons
All State	Insurance	0	1	0	-
AMC	Automobiles	1	0	0	Jennifer's father's car
Arroflex	Electrical	1	0	0	Across from Doctor Brown's
AT&T	Telecom	0	1	0	The conferencing screen
Bank Of America	Bank	1	0	0	-
Best Books, Inc.	Magazine	1	0	0	Magazine
BIC	Pen	1	0	0	In George's pocket
Black & Decker	Electrical	0	1	0	The dehydration machine
Blue Blocker	Sunglasses	0	1	0	-
BMW	Automobiles	1	1	0	-
Body Glove	Clothing	0	1	0	Square
Bowie	Knife	0	0	1	"A saloon in Virginia..."
Budweiser	Drink	1	0	0	-
Buick	Automobiles	1	0	0	-
Burger King	Restaurant	1	0	0	Near Doctor Brown's lab / Dave's uniform
California Raisin	Snack	1	1	0	-
Calvin Klein	Clothing	1	0	0	Purple underwear
Casio	Wristwatch	1	0	0	Marty's wristwatch
Chevrolet	Automobiles	0	1	0	Corvette and Camaro
Chiquita	Guitar	1	0	0	Small one at the start
Citroen	Automobiles	0	1	0	-
Coca-Cola	Drink	1	1	0	-
Cocoa Crispies	Cereal	1	0	0	On top of fridge
Cocoa Flakes	Cereal	1	0	0	On top of fridge
Colt	Gun	1	0	1	Peacemaker / Doctor Brown's starting pistol
Conair	Electrical	1	0	0	Doctor Brown's hairdryer
Converse	Clothing	1	0	0	-
Cooper	Tyres	1	0	0	Square
Corn Flakes	Cereal	1	0	0	On top of fridge

Dayton	Electrical	1	1	1	Time circuit control switch
Derringer	Gun	0	0	1	Buford's gun
Disney	Clothing	1	0	0	The "erased" photo
DMC	Automobiles	1	1	1	-
Dodge	Automobiles	0	1	0	Hubcap
DustBuster	Electrical	0	1	0	-
Edsel	Automobiles	0	1	0	-
Eskimo	Pies	1	0	0	Cart during the skateboard chase
Fender	Guitar	1	0	0	-
Foot Locker	Store	1	0	0	-
Ford	Automobiles	1	1	0	Griff's/Needles/others
Fox	Photo hut	1	0	0	The Mall
Frisbee	Toys	0	1	1	-
General Electric	Electrical	1	0	0	-
Gibson	Guitar	1	1	0	-
GMC	Van	1	0	0	-
Goodyear	Tyres	1	0	0	-
Heinz	Ketchup	1	0	0	On table
Hetzel	Publishers	0	0	1	Jules Verne novels
Hog's Heaven	For motorcyclists	1	0	0	Next door to Texaco
Ibanez	Guitar	1	0	0	-
JC Penney	Dept Store	1	0	0	The Mall
Jeep	Automobiles	1	1	0	-
JVC	Electrical	1	0	0	Camcorder
Kal Kan	Dog food	1	0	0	-
Kentucky Redeye	Drink	0	0	1	-
Krup's Quick Drip	Coffee	1	0	0	-
Krystrok	Speaker cases?	1	0	0	Audition
Levi Strauss	Clothing	1	1	1	Marty's jeans
Life	Game	1	0	0	-
Lysol	Cleaning solution	1	0	0	-
Macintosh	Electrical	0	1	0	-
Mattel	Toys	0	1	1	-
Maxwell House	Coffee	0	0	0	-
Milkbone	Dog food	1	0	0	-
Miller	Drink	1	0	0	-
Motion Picture	Magazine	1	0	0	Lorraine's bedroom
Mounds/Almond Joy	Candy	1	0	0	Lou's café
Mountain Dew	Drink	1	0	0	-
Mr.Coffee	Drink	1	0	0	-
National Geographic	Magazine	1	0	0	At Doctor Brown's lab
NFL	League	1	0	0	Denver Broncos clock
Nike	Clothing	1	1	1	Marty's adjustable shoes
Nintendo	Game	0	1	0	Wild Gunman
Packard	Automobiles	1	1	1	-
Panasonic	Electrical	1	0	0	-
Papermate	Pen	1	0	0	-

Pepsi	Drink	1	1	0	-
Permacel	Batteries?	1	0	0	At Doctor Brown's lab
Perrier	Drink	0	1	0	-
Photo Play	Magazine	1	0	0	-
Pizza Hut	Restaurant	0	1	0	-
Plymouth	Automobiles	1	0	0	-
Pontiac	Automobiles	0	1	0	-
Popov	Vodka	1	0	0	Lorraine's
Porsche	Sunglasses	1	0	0	-
Presto Logs	Fuel	0	0	1	In the locomotive furnace
Proctor Silex	Coffee machine	0	0	0	-
Proffits	-	1	0	0	-
Quaker State	Motor oil	0	1	0	Biff's truck
Regulator	Drink	1	0	0	-
Revell	Model kits	1	0	0	Boeing in George's bedroom
Rolex	Wristwatch	0	1	0	Marty's watch in 2015
Rolls Royce	Automobiles	0	0	1	-
Schwinn	Bikes	1	0	0	Across from Texaco
Scotties	Tissues	1	0	0	Lorraine's bedroom dresser
Seald Sweet	Fruit	1	0	0	Lou's Café
Seeberg	Jukebox	1	0	0	At Doctor Brown's lab
Seiko	Wristwatch	1	0	0	Round Einstein's neck
Sherwin Williams	Paints	1	0	0	Billboard in 1955
Simpson	Amps	1	0	0	-
Slice	Drink	0	1	0	-
Slugger	Baseball bats	0	1	0	Griff's telescopic bat
Sony	Electrical	1	0	0	-
Sophie Mae	Candy	1	0	0	-
Sports Illustrated	Magazine	0	1	0	In Cafe'80s
Stanley	Electrical	1	1	1	LED readouts
Studabaker	Automobiles	0	0	0	-
Tab	Drink	1	0	0	-
Texaco	Fuel	1	1	0	-
Toyota	Automobiles	1	1	1	-
Toys R Us	Dept Store	1	0	0	Near Doctor Brown's lab
Tylenol	Medication	0	0	1	Doctor Brown
Universal	Studios	1	1	1	Jaws19, and the drive-thru
US Postal Service	Deliveries	1	0	0	Match Made in Space
USA Today	Newspaper	0	1	0	In 2015
Valterra	Skateboard	1	0	0	-
Vavoline	Motor oil	0	1	0	Tins in Biff's car
VolksWagon	Automobiles	1	0	0	The Libyans' car
Wessel	Hardware	1	0	0	At Doctor Brown's lab
Western Union	Deliveries	0	1	1	-
Wrigleys	Chewing gum	1	0	0	-
Wurlitzer	Jukebox	1	0	0	Lou's Cafe
Yamaha	Electrical	1	0	0	The band's drum
YMCA	Accommodation	1	0	0	Hill Valley
Zales	Jewellers	1	0	0	-

## **APPENDIX 2**

Zero Gravity Toilet Instructions (2001 Exhibit).

### **“ZERO GRAVITY TOILET PASSENGERS ARE ADVISED TO READ INSTRUCTIONS BEFORE USE :**

1. The toilet is of the standard zero-gravity type. Depending on requirements, System A and/or System B can be used, details of which are clearly marked in the toilet compartment. When operating System A, depress lever and a plastic dalkron eliminator will be dispensed through the slot immediately underneath. When you have fastened the adhesive lip, attach connection marked by the large "X" outlet hose. Twist the silver coloured ring one inch below the connection point until you feel it lock.

2. The toilet is now ready for use. The Sonovac cleanser is activated by the small switch on the lip. When securing, twist the ring back to its initial-condition, so that the two orange line meet. Disconnect. Place the dalkron eliminator in the vacuum receptacle to the rear. Activate by pressing the blue button.

3. The controls for System B are located on the opposite wall. The red release switch places the urolimator into position; it can be adjusted manually up or down by pressing the blue manual release button. The opening is self adjusting. To secure after use, press the green button which simultaneously activates the evaporator and returns the urolimator to its storage position.

4. You may leave the lavatory if the green exit light is on over the door. If the red light is illuminated, one of the lavatory facilities is not properly secured. Press the "Stewardess" call button on the right of the door. She will secure all facilities from her control panel outside. When green exit light goes on you may open the door and leave. Please close the door behind you.

5. To use the Sonoshower, first undress and place all your clothes in the clothes rack. Put on the velcro slippers located in the cabinet immediately below. Enter the shower. On the control panel to your upper right upon entering you will see a

"Shower seal" button. Press to activate. A green light will then be illuminated immediately below. On the intensity knob select the desired setting. Now depress the Sonovac activation lever. Bathe normally.

**6.** The Sonovac will automatically go off after three minutes unless you activate the "Manual off" over-ride switch by flipping it up. When you are ready to leave, press the blue "Shower seal" release button. The door will open and you may leave. Please remove the velcro slippers and place them in their container.

**7.** If the red light above this panel is on, the toilet is in use. When the green light is illuminated you may enter. However, you must carefully follow all instructions when using the facilities during coasting (Zero G) flight. Inside there are three facilities: (1) the Sonowasher, (2) the Sonoshower, (3) the toilet. All three are designed to be used under weightless conditions. Please observe the sequence of operations for each individual facility.

**8.** Two modes for Sonowashing your face and hands are available, the "moist-towel" mode and the "Sonovac" ultrasonic cleaner mode. You may select either mode by moving the appropriate lever to the "Activate" position. If you choose the "moist-towel" mode, depress the indicated yellow button and withdraw item. When you have finished, discard the towel in the vacuum dispenser, holding the indicated lever in the "active" position until the green light goes on...showing that the rollers have passed the towel completely into the dispenser. If you desire an additional towel, press the yellow button and repeat the cycle.

**9.** If you prefer the "Sonovac" ultrasonic cleaning mode, press the indicated blue button. When the twin panels open, pull forward by rings A & B. For cleaning the hands, use in this position. Set the timer to positions 10, 20, 30 or 40...indicative of the number of seconds required. The knob to the left, just below the blue light, has three settings, low, medium or high. For normal use, the medium setting is suggested.

**10.** After these settings have been made, you can activate the device by switching to the "ON" position the clearly marked red switch. If during the washing operation, you wish to change the settings, place the "manual off" over-ride switch in the "OFF" position. you may now make the change and repeat the cycle”.

## **APPENDIX 3**

### **K.I.T.T. TECHNICAL SPECIFICATIONS (Knight Rider Archive).**

#### **Vehicle Type:**

Front engine, rear wheel drive, two passenger, two door coupe.

#### **Dimensions:**

Wheel base: 101 in.

Length: 189.8 in.

Width: 72 in.

Height: 37.2 in.

#### **Engine:**

Type: Knight Industries turbojet with modified afterburners

#### **Transmission:**

8-speed microprocessor turbo drive with auto pilot (needs no driver)

#### **Steering:**

Type: Modified rack-and-pinion

Turn-circle: 2 ft. with rocket assist

#### **Brakes:**

Type: Electromagnetic hyper-vacuum disc

#### **Chassis/Body:**

Type: Unit construction

Body Material: Classified (compound is virtually indestructible)

#### **Price New:**

\$11,400,000 est.

#### **Acceleration:**

0-60 mph: .2 sec. with power boosters

Standing 1/4 mile: 4.286 sec. at 300 mph

**Braking:**

14 ft. (70-0 mph)

**Fuel Economy:**

Classified

**Accessory Features:**

Operationally controlled by the Knight Industries 2000 microprocessor. Features include: Auto Cruise, Auto Pursuit, Auto Collision Avoidance (with over-ride option), and Emergency Eject. Knight 2000 microprocessor is equipped with a computer 'voice,' known as 'K.I.T.T.' Complete audio/video in-dash entertainment/surveillance capabilities, including radar, sonar and x-ray.

## APPENDIX 4

### LIST of K.I.T.T.'s FEATURES (Wikipedia).

**Computer AI** - KITT was essentially an advanced supercomputer on wheels. The "brain" of KITT was the Knight 2000 Microprocessor which is the centre of a "self-aware" cybernetic logic module that allowed KITT to think, learn, communicate and interact with humans. Although KITT wasn't programmed to have feelings, he always had an ego that was easy to bruise and displayed a very sensitive personality. The system was programmed to drive the car better than a human operator could. He also has an in-dash entertainment system that can play music and video, and run various computer programs including arcade games which Michael sometimes indulged in whenever KITT was driving. The belief that KITT was truly sentient was never discussed in the show, however KITT was fully aware of himself and programmed to obey all orders given to him by his human creators, so long as they didn't violate his prime directive of protecting human life (especially Michael's) to the best of his abilities. KITT has, however been referred to as being "alive" in at least one episode.

**Molecular Bonded Shell** - KITT is armoured with "Tri-Helical Plasteel 1000 MBS (Molecular Bonded Shell)" plating which protects him from almost all forms of conventional fire arms and explosive devices. He could only be harmed by heavy artillery and rockets, and even then, the blast left most of the shell intact and only damaged internal components. The shell protected every part of the car including the tires. KITT could even act as a shield for explosives by driving over bombs and suppressing the blast. The shell also protected him from fire and electricity, however it was vulnerable to some potent acids and at least one formula was made to completely neutralize the shell. The shell is actually a combination of three secret substances referred together as the "Knight Compound", developed by Wilton Knight who entrusted parts of the formula to three separate people. These individuals only know two pieces of the formula, ensuring that any two of them could make more of the Knight Compound in an emergency situation and that no one person would be able to make it. The shell provided a frame tolerance of 223,000 lbs and a front and rear axle suspension load of 57,000 lbs.

**Pyroclastic Lamination** - KITT is protected by a thermal-resistant coating that can withstand sustained temperatures of up to 800 degrees. First used in episode 32 *Ring of Fire*.

**Power System** - KITT is powered by the Knight Industries Turbojet with modified afterburners and a computer controlled 8-speed turbo drive transmission. Specifications 0 to 60 MPH in 2 seconds, Standing to quarter mile 4.286 seconds. Electromagnetic hyper-vacuum disc brakes: 14 foot braking distance (0 - 70 MPH).

**Turbo Boost** - Used at least once in every episode, a series of rear mounted undercarriage rocket motors allows KITT to accelerate to incredible speeds of up to 200 MPH. When activated in combination with the Trajectory Guidance System and a pair of rocket motors mounted just behind the front tires that lifted the front of the car, KITT could jump 40 feet into the air and pass over obstacles in the road. The system also allowed KITT added power whenever he had to manoeuvre heavy objects such as pushing a heavy boulder off a cliff, or pulling a large vehicle out of danger. The boosters could fire forward or backward.

**Voice Synthesizer** - KITT's Voice Synthesizer allowed his logic module to speak and communicate. With it KITT could also simulate other sounds, such as a police raid to fool criminals, and even growl like a wild animal, which was useful for scaring away dogs who try to pee on his tires or a gator that was a little too friendly. KITT's primary spoken language was English, however by accessing his language module, he could speak fluently in others like Spanish and French.

**Anamorphic Equalizer** - KITT's most apparent feature was his front scan bar called the Anamorphic Equalizer. The device is a fibre-optic array electronic eyes. The scanner could see in all visual wavelengths including X-Ray and infrared. When KITT's surveillance mode was active, the bar would light up and make a ominous swooping sound as it panned left and right. Occasionally, the bar could pulse in different patterns and sweep rapidly or very slowly. The scan bar is also KITT's most vulnerable area. In an attempt to stop KARR, Bonnie rigged a laser that could penetrate KARR's sensor and disable his electronics.

**Etymotic Equalizer** - This system allowed KITT to hear sound. An array of audio sensors was threaded throughout his interior and exterior.

**Olfactory Sensor** - KITT could "smell" via an atmospheric sampling device mounted in his front bumper.

**Microscanners** - Microscanners are tiny audio and visual sensors embedded into the grooves of KITT's body. They allow for visual tracking and display of anything around the car.

**Cruise Modes** - These are KITT's three cruise modes:

**Normal Cruise** - On "Normal", Michael had control of the car. In an emergency, KITT could still take over and activate Auto Cruise mode. In order to prevent this, one has to use the Manual Override.

**Auto Cruise** - In "Auto", KITT could drive himself utilizing an advanced Auto Collision Avoidance system.

**Pursuit** - "Pursuit" is used during high-speed driving and is a combination of manual and computer assisted operation. KITT could respond to road conditions faster than Michael's reflexes could however Michael was technically in control of the vehicle and KITT helped guide certain manoeuvres.

**Computer Override** - KITT has a hidden switch and setting dial under the dash that either completely shuts down his AI module or deactivates certain systems should the need arise. First used in episode #18 "*Chariot of Gold*".

**Manual Override** - KITT has a function which can be activated in order to completely lock the AI from all the vehicle controls. Unlike the Computer Override, Manual Override simply keeps KITT from activating Auto Cruise or preventing anyone inside the car from doing something that would probably hurt them. KITT's AI is still able to protest such actions vocally. First used in episode #9 "*Trust Doesn't Rust*".

**Police Lights/Siren** - KITT's headlights can flash red and blue as police lights, and he has a siren. First used in episode #38 "*Race for Life*".

**Silent Mode** - KITT could run silently. The feature dampened his engine noise and allow him to sneak around. First used in episode #37 "*White-Line Warriors*".

**Grappling Hook and Winch** - KITT has a hidden winch and grappling hook system, one mounted under his front bumper, and another in a compartment behind his tail light plate.

**Parachute** - KITT is equipped with a parachute. First used in episode #23 "*Goliath Returns (Pt. 1)*".

**Oil Jets/Smoke Screen** - KITT could spray an oil slick and a plume of smoke from under the rear bumper. First used in episode #2 "*Knight of the Phoenix (Part 2)*".

**Flame Thrower** - KITT has flame throwers mounted under his bumpers. First used in episode #3 "*Deadly Manoeuvres*".

**Tear Gas Launcher** - KITT can dispense a cloud of tear gas.

**Ultramagnesium Charges** - KITT can launch magnesium flares, which can also be used to divert heat-seeking missiles fired at him. First used in episode #26 "*Merchants of Death*".

**High Traction Drop Downs** - When activated the HTDD system hydraulically raises KITT's chassis for better traction when driving off-road. First used in episode #39 "*Speed Demons*".

**Telephone Comlink** - Michael could contact home base and communicate with Devon over KITT's video display.

**Microwave Jammer** - KITT has an electronic jamming system that played havoc on electrical systems. The three main components are the Electromagnetic Field Generator, Electronic Field Disrupter and Microwave Ignition Sensor. The system could take control of electronic machines, allowing things like cheating at slot machines, breaking electronic locks, fowling security cameras, and withdrawing money from ATMs. The most common usage was to knock out the electronics systems of a fleeing vehicle where he could disable the engine and activate the brakes. In some episodes, KITT is even capable of using it to magnetize and manipulate non-electronic objects such as a mechanical combination lock and create "poltergeist" activity, moving random objects to frighten people.

**Surveillance Mode** - Surveillance Mode did several things; KITT could detect people and vehicles and track their movements and discern proximity. He could gather structural schematics of buildings, vehicles, or other devices and help Michael avoid potential danger when he was snooping around. KITT could also use it to monitor radio transmissions and telephone communications within a location and trace those calls. He could tap into computer systems to monitor, or upload and download information as long as he could break the access codes.

**Infrared Tracking Scope** - KITT could monitor the position of specific vehicles in the area within 10 miles. For instance, if Michael wanted to know the location of every police vehicle within 5 miles, KITT could display a schematic on his monitors of all police vehicles relative to his position.

**Laser Powerpack** - KITT can fire a high powered ultra-frequency modulated laser capable of burning through steel plating. Like most of KITT's components, the schematics for the laser device are classified. First used in episode #24 *"Goliath (Pt.2)"*.

**Bomb Sniffer** - KITT is equipped with a bomb sniffer module that can detect explosives within a few yards of the vehicle. First used in episode #25 *"Brother's Keeper"*.

**EKG** - **KITT** has a electrocardiographic medical scanner that could monitor and display the vital signs of individuals on his monitors. It could indicate such conditions as if they were injured, poisoned, undergoing stress or other emotional behaviour. KITT could even monitor Michael's physical activity through sensors inside the driver seat. First used in episode #18 *"Chariot of Gold"*.

**Deflatable Tires** - KITT could deflate and reinflate his tires. First used in episode #5 *"Slammin' Sammy's Stunt Show Spectacular"*.

**Fuel Processor** - KITT was powered by a turbine engine primarily fuelled by hydrogen gas, however, his complex fuel processor allows him to run on any combustible liquid, even regular gasoline. KITT's actual fuel requirements and efficiency ratings were classified, however in one episode, KITT mentioned his fuel economy was at least 100 miles per gallon.

**Self-Tinting Windows** - KITT's windows could darken to opacity for various situations. First used in episode #15 *"Give Me Liberty... or Give Me Death"*.

**Voice Stress Analyzer** - KITT can process spoken voices and determine if someone may be lying.

**Auto Doors, Sunroof, and Trunklid** - KITT could automatically open and close his doors. He could also lock his doors to prevent unauthorized entry into his driver compartment. He could also open his hood automatically.

**Rotating License Plate** - KITT can rotate his KNIGHT licence plate to reveal a fictitious one reading "KNI 667". Michael used this to evade police when an APB was placed on him. First used in episode #25 *"Brother's Keeper"*.

**Seat Ejection System** - KITT had two front ejection seats, mostly used when Michael needed a boost to fire escapes or building roof tops.

**Passive Laser Restraint System** - Added to KITT in latter seasons, the restraint system helped protect Michael and any passengers from the shock of sudden impacts and hard stopping, especially after Super-Pursuit Mode. It is speculated that this is a primitive form of inertial dampening device.

**Video Display Monitors** - KITT had two CRT video display monitors on his dash for various readouts. They are controlled by two systems, the Graphic Translator (which sketches likenesses from verbal input) and the Anamorphic Equalizer (which gathered visual information from KITT's front scan bar) and microscanners. KITT had only had one when his dash was redesigned for third season.

**Computer Print Out** - KITT could print hard copies of data on a dashboard mounted printer.

**Ultraphonic Chemical Analyzer** - KITT has a retractable tray with an electron scanner that could analyse the chemical properties of various materials. It could even scan finger prints and read ballistic information off bullets and compare these with a police database. First used in episode #18 "*Chariot of Gold*".

**Fire Extinguisher** - KITT could put out small fires from a CO<sub>2</sub> sprayer in his bumpers.

**Interior Oxygenator** - KITT could release oxygen into his driver compartment and provide air to passengers if he was ever submerged in water or buried in earth. This is also used to overcome the effects of certain drugs.

**Two-Wheel Ski Drive** - The Ski Mode setting allowed KITT to "ski" (driving up on two wheels).

**Aquatic Synthesizer** - With this system, KITT can hydroplane and drive on water, using his wheels and turbo system for propulsion. First used in episode #28 "*Return to Cadiz*".

**Sub Zero** - KITT could release cryogenic gases and "flash freeze" the driver compartment. This was used once when a baby tiger managed to get inside to gnaw oh his steering wheel and KITT wanted him out.

**Sleep Gas** - KITT could spray a gas into the driver compartment that could knock an unwanted occupant out cold.

**Vacuum** - KITT could expend all breathable air from the driver compartment, however, only KARR ever used it to harm someone. KITT used this to rid the compartment of smoke after bombs were disposed of in his trunk.

**Super-Pursuit Mode** - KITT's Super-Pursuit mode was added fourth season. The system was a redesign of his rocket motors that allowed him incredible speeds of up to 300 mph (500 km/h). Fins extended from his body for better aerodynamics.

**Emergency Braking System** - The EBS slowed KITT down from Super-Pursuit speeds. It consisted of a forward braking booster and air panels that popped out to create air friction.

**Convertible Roof** - Added fourth season, by pressing the "C" button on KITT's dash, Michael could bring the top down and KITT became a convertible.

## APPENDIX 5

MEMO: K.I.T.T. CAPABILITIES (**Knight Rider Archive**).

### MCA INTEROFFICE MEMORANDUM

Date: August 26, 1983  
To: All Concerned  
From: Bernie Joyce  
Subject: K.I.T.T. - Capabilities and Equipment

Up To #57823 "Goliath"

X-Rays

Automatic Pilot

Surveillance

Flame Thrower/Rocket Boosters

Grappling Hook

Oxygen

Electronic Field Disrupte

Auxiliary Oil Pan Dumper (to minimize fire hazard and reduce KITT's weight in an emergency)

Infrared Tracking Scope (able to track cars within a 10 mile radius)

Microwave Ignition Sensor (ability to start other engines)

Voice Analyzer

Pyroclastic Lamination (designed to keep KITT cool in extreme temperatures)

Aquatic Synthesizer

Spectrograph (determines elements)

Blood Analyzer

Scans Vital Signs (BP, etc.)

Able to play video cassette games against opponents

Microwave Jammer

Can oxygenate interior of automobile upon Michael's command

Can deflate and reinflate other automobile tires

Smokescreen

Ultramagnesium charges

Ultrapasonic chemical analyser

Trajectory Guide (able to launch KITT at any angle to within A 90 degree arc)

Oil Jets in rear

Skis on two wheels

Traces phone calls

Composes sketches of people based on vocal description

Capable of detecting odours

Electronic Detection Mode (detects presence of Plastique)

Comprehensive Configuration Analysis (indicates potential weak spots)

Ramjet

Rapid Thought Analyzer (quickly analyses information)

Ultra-Frequency Modulator (regulates or adjusts frequency)

Modified laser power pack

Locks automobile steering wheels into position

Darkens car windows

#### TV Monitors

Records and replays scenarios

Freeze Frame

Zoom-In

Reproduce pictures and issue hard copies

Prints up vital signs and x-rays

Produces maps, charts, etc.

## **MCA INTEROFFICE MEMORANDUM**

Date: January 26, 1984  
To: All Concerned  
From: Bernie Joyce  
Subject: K.I.T.T. - Capabilities and Equipment

Up To #57840 "A Good Knight's Work"

X-Rays

Automatic Pilot

Surveillance

Flame Thrower/Rocket Boosters

Grappling Hook

Oxygen

Electronic Field Disrupter

Auxiliary Oil Pan Dumper (to minimize fire hazard and reduce KITT's weight in an emergency)

Infrared Tracking Scope (able to track cars within a 10 mile radius)

Microwave Ignition Sensor (ability to start other engines)

Voice Analyzer

Pyroclastic Lamination (designed to keep KITT cool in extreme temperatures)

Aquatic Synthesizer

Spectrograph (determines elements)

Blood Analyzer

Scans Vital Signs (BP, etc.)

Able to play video cassette games against opponents

Microwave Jammer

Can oxygenate interior of automobile upon Michael's command

Can deflate and reinflate other automobile tires

Smokescreen

Ultramagnesium charges

Ultrasonic chemical analyser

Trajectory Guide (able to launch KITT at any angle to within A 90 degree arc)

Oil Jets in rear

Skis on two wheels

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Ramjet

Rapid Thought Analyzer (quickly analyses information)

Ultra-Frequency Modulator (regulates or adjusts frequency)

Modified laser power pack

Locks automobile steering wheels into position

Darkens car windows

#### TV Monitors

Records and replays scenarios

Freeze Frame

Zoom-In

Reproduce pictures and issue hard copies

Prints up vital signs and x-rays

Produces maps, charts, etc.

## APPENDIX 6

LEXUS 2054 “OFF-SYSTEM” SPORTS COUPE SPECIFICATIONS AND FEATURES (**Serious Wheels**).

### SPECIFICATIONS

**Engine:** Smart recharging electric engine

**Kilowatts:** 500

**Wheelbase:** 106 in.

**Length:** 146 in.

**Width:** 82 in.

**Curb Weight:** 2300 lbs.

**Chassis:** Carbon Fibre & Titanium Composite Monocoque

**Suspension:** Titanium Composite, Fully-Independent Double-Wishbone with Adaptive Variable Suspension (AVS), Speed-Sensitive Automatic Height Control (AHC)

**Brakes:** Computer-Controlled, Servo/Electronic, Ceramic Hybrid Discs, and Regenerative Electric System to charge all Systems.

**Wheels and Tires:** 6-Spoke, Titanium Alloy, C-TEK Wheels, 22x9.5-inch with 285/30R22, High-Speed Run-Flat Tires

### FEATURES

Heads-Up instrumentation with Night Vision and Organic Recognition capability

Colour-impregnated, carbon composite body panels with dent-resistant memory

Body conforming bucket seats with automatic heating and cooling functions

Laser Guided Cruise Control

Stereolithography formed body panels

Body panels colour selectable by owner voice recognition

All systems fully computer-controlled with Voice-Activated and Gesture-Recognition capability

All rearward vision via cameras rather than mirrors

Sonar Parking Assist

Switchable-tint glass all-around with solar panel glass in roof

Retractable solar body panels for recharging and interior climate control during parking

Information system display doubles as owner-recognizable personal computer

DNA Recognition Entry and Ignition System: Via sensory intelligence, the system allows owner to enter and start vehicle.

Accident Avoidance System: Infrared technology senses what's ahead to warn of impending danger. Sonar parking assist and rearward vision cameras. Dent resistant memory metal protects exterior from dents and/or scratches.

Self-Diagnosis System: Car automatically detects and alerts any mechanical or electrical problems. Voice-Activated Concierge Service will schedule necessary service appointments. A Lexus representative will travel to owner's preferred location to service the car.

Auto Valet: Once the car drops the owner off, it then parks to recharge (its retractable solar body panels automatically adjust to accommodate recharging). Upon remote command, the car will arrive at requested location.

Global Digital Entertainment System (with Universal Translator and Personal Digital Recorder): Comprehensive music library, archived with a global directory; updates daily via cyber connection. The PDR automatically records shows via request (similar to TiVo today). The system alerts to breaking news, weather, stock, and/or sports reports based on personal profile data.

Voice-Activated Concierge Service (with Internet Search): Reserves restaurant, hotel and entertainment events via voice command.

Weather Sensitive Response System: Solar panel triggers automatic window tint, adjusting the level of bright light to the driver's sensitivity. Tire traction adjusts automatically to road conditions.

## **APPENDIX 7**

### **MOLLER M400 SKYCAR TECHNICAL SPECIFICATIONS (Moller).**

#### **TECHNICAL SPECIFICATIONS**

**Passengers:** 4

**Top speed at 13,200 ft:** 375 mph

**Cruise speed at 20,000 ft:** 275 mph

**Maximum rate of climb:** 6,000 fpm

**Maximum range:** 750 miles

**Payload excluding fuel:** 750 lbs

**Operational ceiling:** 36,000 ft

**Gross weight:** 2,400 lbs

**Engine power (2 min. rating):** 1,200 hp

**Fuel consumption:** approx. 20 mpg

**Fuel:** Ethanol

**Dimensions (LxWxH):** 19.5' x 8.5' x 7.5'

**Takeoff and landing area:** 35 ft dia

**Noise level at 500 ft (Goal):** 65 dba

**Vertical takeoff and landing:** yes

**Emergency parachutes:** yes

## **CURRICULUM VITAE**

E. Hürsu Öke was born in İstanbul in 1976. He received his B.Sc. degree in Industrial Design from İstanbul Technical University in 2000. In addition to his design education, he is also a MA candidate in MIAM (Dr. Erol ÜÇER Centre for Advanced Musical Research) Sound Engineering and Design programme; in İstanbul Technical University. He has worked as an art director in various advertisement agencies between 2000 - 2005. Öke has his compositions played in various MIAM concerts and recorded for electro acoustic samplers and compilations.

His particular interests lies in playing piano, composition / electro acoustic composition, illustration, 3D modelling and animation, science fiction / fiction literature, future reality, aikido and GO.