



*Beyond the Wall: an
investigation into the
relationship between industrial
design and science fiction*

A Thesis presented in partial fulfilment of the
requirement of the degree of Master of Design

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The study aimed to develop a theory describing the nature of the relationship between industrial design and science fiction, based on the observation that science fiction can inspire industrial designers and enrich industrial design processes and products. The hypotheses were that:

1. The roles of industrial design and science fiction are based on parallel ideas.
2. Industrial design is suffused with, and sympathetic to, science fiction thinking.
3. There is a 'cause and effect' relationship between aspects of industrial design and science fiction. Science fiction cinema is a key 'cause and effect'.
4. Science fiction cinema performs a key function in the roles of science fiction, and cinema can be employed to explore and discuss the roles of industrial design and science fiction.

The study used a range of research methods. An extensive literature review critically compared and analysed the characteristics and roles of science fiction and industrial design. The analysis identified contrasting and common themes, ideas, processes, texts and subtexts between the two areas. The findings were further analysed using graphic analytical tools, to form models that described and structured the industrial design/science fiction relationship. Three case studies were used to further test the model: the work of industrial designer and visual futurist Syd Mead; science fiction author Bruce Sterling; and the industrial design and production design content of selected science fiction films. Analysis of an Internet discussion among industrial designers also illuminated the model.

The findings from the analysis and the case studies supported the validity of the original hypotheses. The study identified as the key elements of an emerging theory the parallel ideas of innovation in industrial design and novum (the new thing) in science fiction; the cause and effect relationship found between the two disciplines; the parallel concepts of *mediation* and *responsibility* in industrial design, and *anticipation* and *interrogation* in science fiction. The theory was presented as a graphic model that demonstrated these elements.

This study concludes that science fiction challenges the design profession to produce better design by requiring that social, political, and technological contexts in which products will exist are explicitly understood and addressed. This is mapped out in an emerging theory that outlines a complex, multi-layered relationship between industrial design and science fiction. In industrial design terms, this emerging theory could be considered a prototype.

Dedication

To Robert Tocher (1947-1999) who I hope would have been proud of me, and to Dr. Ephra Garrett, who I know is.

Family

Linden Loader, Duncan and Chloe Garrett, Keriatu Stuart, Dr. Ephra Garrett.

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Affection

The emotional connection that a user develops with a product.

Canon

Film studies authors Roberts and Wallis (2002) describe the canon as “The list of works that ‘everyone’ agrees that everyone else should know” (Roberts & Wallis, 2002. p.1).

CAD

Acronym for Computer Aided Design – an umbrella term that covers a range of software and other computer-based design processes.

Designer

Used in this study to describe a person with formal design training involved in the product development process.

Director

The director is the person who takes the most individual credit for a movie. They are usually employed by the producers and provide the vision for the production. Movies are a very complex product, and exhibit the influence of many different people in the end result. However, the director is the person who makes the majority of the decisions relating to the final product.

Monomyth

The monomyth is the story at the root of many heroic tales. The concept, often termed ‘the hero’s journey’, is based on the writings of Joseph Campbell. The basic structure of the tale is repeated in many stories and media, and follows the pattern of a man being told he has hidden talents/powers, being forced by

tragedy to leave home on a long journey, receiving mystical aid, and finally conquering evil. This basic pattern is evident in stories ranging from Homer's *The Iliad* to George Lucas's *Star Wars* (1977).

Product placement

Product placement is the commercial practice of placing existing products (or, in the case of science fiction movies, possible products) into a movie. The product or brand is promoted by association with the story, the lifestyles depicted by the movie, or the actors themselves. This is a common practice, although product placement in science fiction movies often requires the design of new products, as contemporary products would be anachronistic in a future world.

Production design

Every aspect of the physical world of a movie, including products, clothes, vehicles, software, graphic design, architecture and town planning, is selected or designed to support and enhance the narrative. This is generically referred to as 'production design'. Science fiction films have a specific set of production design issues if they are to create a believable future world.

Product

The result of the manufacturing process –the object / product that is being designed and produced.

Product technologies

The technologies within the product that make it work – for example, LCD screens, circuit boards.

Production technologies

The processes used to manufacture the product – for example, injection moulding.

Profession

Used in this study as an umbrella term covering both professional and academic design practice.

Science fiction / sci-fi / SF / sf

There is some debate in the literature about the how the term 'science fiction' should be contracted. Three variations are used:

- sci-fi;
- SF;
- sf.

Hartwell (1996) for example, draws a distinction between SF and sci-fi: his view is that sci-fi is what appears on television or at the cinema, but that 'true fans' of the genre use either SF or sf as contractions. In terms of this study, distinctions of this nature are unimportant: the full term 'science fiction' is used.

Semantics

The visual language that a product uses to communicate its purpose, operation and intention.

The Sublime

The concept frequently attributed to the 3rd Century Greek philosopher Longinus that describes the effect of excellence in literature. In the 18th Century, Edmund Burke expanded the concept of the Sublime to encompass the powerful emotive responses that could be generated by works of art and literature (especially poetry), constructed spaces and natural phenomena.

The field of the sublime comprised the majestic, the awe-inspiring, and the literally overpowering: it spoke the language of excess and hyperbole to suggest realms beyond human articulation and comprehension. The sublime was constituted through the combined sensations of astonishment, terror and awe that occur through the revelation of a power far greater than the human. (Bakatman, in Kuhn, (Ed.), (1999 p. 255))

User

Used in this study to describe the person who uses a product.

Novels

- *Frankenstein (or, the Modern Prometheus)*. (Shelley, M. 1818).

Variouly hailed as the first major work of science fiction and a classic of horror fiction, Mary Shelley's *Frankenstein* is responsible for many of the images associated with both genres. The term Frankenstein is usually linked with the image of the shambling monster portrayed by actor Boris Karloff in the classic 1931 movie (stiches on his forehead, a bolt through the neck), although Frankenstein is the name of the monster's creator rather than the monster himself. The narrative follows the experiments of the scientist Frankenstein as he creates life in the form of the now well-recognised monster who, spurned by his creator, turns on Frankenstein and escapes to find his lonely death in Arctic waters. Science fiction's interest in the morality of the idea is clearly evident, as is the use of emerging technologies (Frankenstein harnesses electricity to jolt his creation into life).

- *Foundation*. (Asimov, I. 1951).

A product of the Golden Age of science fiction, Isaac Asimov is one of the Grand Masters of Science Fiction and was mentored by the 'other' influential pulp editor John W Campbell (the first editor being Hugo Gernsback). His three-book Foundation series, initially published as individual stories in Campbell's magazine *Astounding Science Fiction*, is set in the far future, in a galaxy populated by humans who originated on Earth. Asimov's background as a biochemist imbues the works with an air of solidity, and his science fiction ideas are broad and ambitious. The *Foundation* series is seen as one of Asimov's two great works (the other is his Robot series, for which he invented the 'three laws of robotics'), both of which are part of the science fiction canon.

Films

- *Metropolis*. (Lang, F. (director). 1926).

Fritz Lang's *Metropolis* was one of the last of the silent movies and is the first landmark in science fiction cinema. The movie is regarded as a classic, not only as a science fiction movie but as a benchmark piece of movie making. The theme parallels that of many other dystopian statements such as Aldous Huxley's *Brave New World* (1932) and George Orwell's *1984* (1949) with an exploration of the city as machine and the place of people within it. The narrative is a simple allegory of the triadic relationship between power, those who wield it and those under its control, but it is the visual aspects of the movie that exhibit the most power. The future of *Metropolis* is grandiose for a minority and troglodyte for the remainder, and the production design reflects this slant. The sets and architectural design for *Metropolis* remain iconic, although the design of products and vehicles is gestural and deals with the ideas behind them rather than the design of the objects themselves.

- *Things to Come*. (Menzies, W.C. (director). 1936).

The other early landmark in science fiction cinema takes the predictive ideas in H.G. Well's novel *The Shape of Things to Come* (1933) and gives them cinematic flesh in a movie whose acting and production values typifies British cinema of the period. The story follows the residents of 'Everytown', who (in a sequence eerily predictive of the Blitz, four years in the future at the time of the film's release) are bombarded by air at the start of a fifty-year war. The last third of the movie is set in the city as rebuilt by benevolent technocrats, and discusses the value of progress. The concept of progress is visually expressed through the design of Everytown, a uniformly Streamlined Moderne construction (in which everyone wears Greek robes), through the design of aircraft inspired by Norman Bel Geddes and the point of argument itself; the launching of a spaceship aimed at the moon. Some of the technology forecasting was successful in creating products that have only recently become reality: for example, holograms, LCD screens, and electronic projectors.

- *The Day the Earth Stood Still*. (Wise, R. (director). 1951).

A flying saucer lands in Washington; an alien steps out and demands that the human race stops its violent behaviour. To persuade Earth that the alien visitors mean business, they disable every electrical appliance on the planet (hence the title). It transpires that the huge robot who accompanies the alien is not the servant (as humans would expect) but the master, who will ensure that humans accede to this demand. In terms of this study the design issues are minimal, but the movie is of interest owing to its reflection of post-war concerns about invasion and weapons of mass-destruction.

- *Invasion of the Body Snatchers*. (Siegel, D. (director). 1955).

The residents of a small American town are gradually replaced by alien replicas of themselves – replicas who are stripped of all emotions. Like *The Day the Earth Stood Still*, *Invasion of the Body Snatchers* has little design content of interest to this study, but the contemporary issue reflected in this movie is the cold-war paranoia inspired by communism. Owing to its deft handling of these themes, *Invasion of the Body Snatchers* is regarded as one of the best of the 1950's Hollywood science fiction movies (Clute & Nicholls, pg. 625).

- *2001: A Space Odyssey*. (Kubrick, S. (director). 1968).

2001: A Space Odyssey was the result of a collaboration between respected science fiction author Arthur C. Clarke and director Stanley Kubrick. Kubrick's intention was to make "the proverbial good science fiction movie" (Clarke, C. 1999, pg 259) and the critical opinion was that he succeeded. The resulting movie is enigmatic and challenging, and remains one of the most influential science fiction movies to date owing to both the quality of the story and the quality of the movie making. Based on a short story by Clarke, the *Odyssey* of the title is a trip to Jupiter instigated by the discovery of an alien artefact buried on the Moon in such a way that it must have been intended to be uncovered by human exploration. *2001: A Space Odyssey* is often described as a cold and inhuman movie in the way that it subsumes the human elements in its visual and technical grandeur. Given the strong air of reality, the technology apparent in the movie is a mostly a carefully considered and realistic extrapolation of what was considered achievable 39 years into the future. However, in the

pursuit of reality not only do the spaceships look like something that NASA might have produced but - in contrast to virtually every other space-bound science fiction movie ever made - they don't make any sound in space.

- *Star Wars*. (Lucas, G. (director). 1977).

Star Wars and the five subsequent movies (2 sequels, 3 'prequels') all feature on the highest-grossing movie list (see Table 2, pg 108). The story follows Luke Skywalker as he treads the classic path of the monomyth (see 4.1.2 Glossary): raised by his uncle and aunt who are killed by the evil forces of the Empire, Luke travels the galaxy with his mentor Obi-Wan Kenobi, eventually accepting the mantle of responsibility of the mystical energy the Force and using it to overcome the Empire's deadly planet-killing Death Star. Director and screenplay writer George Lucas has frequently acknowledged a wide range of influences on *Star Wars*, including westerns and the writings of Joseph Campbell. The production design and special effects were state of the art for 1977, and the movie is full of science fiction icons that have permeated the culture: the robots C3PO and R2D2, light-sabres, the Force, Storm Troopers, the Millennium Falcon spacecraft that Luke travels in, the villain Darth Vader, the (other) mentor Yoda, and so on. The movie was subsequently renamed *Star Wars Episode 4: A New Hope* when the 3 prequels were announced.

- *Blade Runner*. (Scott, R. (director). 1982).

Like *Metropolis*, the dystopian future in Ridley Scott's *Blade Runner* is bleak and gritty, but has a richness and depth that is more easily recognisable from a contemporary viewpoint as a possible future than most science fiction movies. Based largely on the novel *Do Androids Dream of Electric Sheep* by cult science fiction writer Philip K Dick, the movie explores a melange of issues about humanity, exploitation and society. The title is a relatively meaningless job description for the main character, who is ordered to hunt down and kill a number of 'replicants' (human clones) who have escaped from custody. *Blade Runner* received a very mixed reception on initial release and was strongly criticised for its lack of humanity, but went on to become a cult success. The production design of *Blade Runner* is discussed at several points in this thesis.

- *Minority Report*. (Spielberg, S. (director). 2001).

Minority Report is the first 'adult' science fiction movie from the director of *ET: The Extraterrestrial* (1982) and *Close Encounters of the Third Kind* (1982). Based on the novel of the same name by Philip K. Dick (as many of the more successful science fiction movies have been), the movie investigates the ideas of fate and choice by proposing that people who can foresee the future could be used to prevent serious crimes. Spielberg layers in a considerable amount of design content – which is peripheral to the bare bones of the story, but a key element of the movie. The depth and breadth of the design vision is beguiling, and the ideas that Spielberg insinuates into the movie include an urban transport system that climbs up and down the architecture, and an office workstation for the virtual manipulation of information. The workstation is likely to become one of science fiction cinema's iconic products. The most interesting aspect of the design content is the tension between the celebration of the special effects and the technology in the *mis en scene*, and the interrogation of the technological idea of foreseeing the future.

- *Brazil*. (Gilliam, T. (director). 1985).

Brazil is a dark, satirical black comedy, with the dense production design content playing as much a role in the narrative as the plot. The story is set in a dystopian near future, where fashion and some of the technology is at times Victorian and at other times raw and futuristic. The imagery is of vast, inhospitable, dank buildings and spaces, where the romantic hero chases his paramour through an equally impersonal bureaucracy – ultimately being tortured in retaliation for his romantic leanings. *Brazil* is not a cheerful movie, and the dark, gloomy, misty city in which the hero lives and struggles is the perfect background to highlight the difficulty of an individual struggling against 'the machine'.

- *The Fifth Element*. (Besson, L. (director). 1995).

The Fifth Element is a loud and raucous movie, with a simple plot but a rich, colourful and mildly satirical production design content that matches the mood of the movie. The movie is set in 2300, and involves a fantasy plot that culminates in the Fifth Element – love (after the first four elements, earth, air,

fire and water) – saving the Earth from destruction by a malign, mobile planet. The narrative is secondary to the visuals: with costumes designed by French fashion icon Jean-Paul Gaultier, and the production design based on the work of the French graphic novelist Moebius, the design is innovative in overall feel but leans heavily on interpretations of recognisable icons such as vehicles, weapons, and communication products.

- *K-Pax*. (Softley, I. (director). 2001).

K-Pax is the name of the planet from which the main character Prot claims to have travelled to Earth. The movie, however, is more the story of the psychologist who is assigned to Prot when he is arrested for vagrancy after possibly appearing in a beam of light in the middle of a busy railway station. The story follows the psychologist as he attempts to cure Prot of his delusion – and then starts to question if Prot is really ill or if he might be an alien from K-Pax after all. Whether Prot really is an alien is ambiguous and is not answered by the narrative. Set on the Earth of here and now, there is no fantastic or futuristic design content at all and the very familiarity of the sets underscores the gently disquieting feel of the movie.

Television

- *Star Trek*. (Roddenberry, G. (Creator). 1966 – 69).

The genesis of the *Star Trek* phenomenon was in three series of the original television programme aired in the late 1960's. The television series has spawned several other television series set in the same universe, 10 movies, and many novels and graphic novels. The bare bones of the stories relate to the explorations of the starship *U.S.S. Enterprise* as the mostly human crew 'boldly go where no man has gone before'. Many of the original episodes were written by well-known science fiction authors, and the series has at times displayed excellent science fiction ideas. The impact of the original and subsequent television series in terms of fan culture has been substantial.