Blekinge Institute of Technology
School of Planning and Media Design
Department of Culture and Communication

From 2001 A Space Odyssey to Minority Report: Reflections of Imagining Future on Science Fiction

Sarper Erel

2012

BACHELOR THESIS
B.A. in English and Digital Media.

Supervisor:
Lissa Holloway-Attaway

Sarper Erel

Lissa Holloway-Attaway, PhD

Bachelor's Thesis

June 10, 2012

From 2001 A Space Odyssey to Minority Report:
Reflections of Imagining Future on Science Fiction

It would not be wrong to say that the human and computer interaction in science fiction is one of the most engaging and experimental elements, regardless of what the story is and when it takes place. Even in the earliest examples of future fiction, such as *Metropolis*, we see some interactions and technologies far beyond their time, such as video-calling. However, during the last two decades, instead of imagining the future, future technologies or human-computer interactions, science fictions have started to set the stories in the future but base most of the ideas on today's scientific researches and their reasonable and natural improvements. A very clear example to this would be flying cars. Although flying cars have long been one of the iconic and fascinating elements of future fiction, from *The Jetsons* to *Dr. Emmit Brown's DeLorean time machine (Back to the Future, 1985)*; from *"Do Android's Dream of Electric Sheep?"* to *The Fifth Element*, contemporary science fiction has simply dropped using flying cars as an element to identify future technologies. It is simply because it is not relevant to our lives, to the way technology has evolved during the last couple of decades and most importantly it is no longer relevant to how we

imagine the future.

Science fiction is a genre of fiction largely based on writing, and its stories create prototypes of alternative or possible worlds, futures and experiences based on creative insights of the author. Both, Brain David Johns*on (Science Fiction Prototyping: Designing the Future with Science Fiction)* and Julian Bleecker *(Design Fiction)* write in their works that there is a science fact and science fiction that complete each other in a very interesting way. Bleecker argues "science fact cannot tell a decent story about future. Science fiction does a better job of circulating futures and enrolling people in the possibilities, and does so to the degree that things begin to happen on that basis alone." In this research I analyze and compare two science fiction works which are particularly famous for being heavily based on science fact to identify a paradigm shift based on how imagining and portraying futuristic technology and human - computer (or machine) interaction within science fiction works and explore how they depict the technology and the future thinking of their era. Brain David Johnson, writes "Science Fiction and movies go together like peanut butter and chocolate, soda pop and pop-corn, vanilla ice cream and root beer. They seem to be meant for one another." Making his argument my starting point, I chose two of my primary works from two different decades upon which to base my comparative analysis. The first work is *2001: A Space Odyssey*, a novel by Arthur C. Clarke (1968) and a film by Stanley Kubrick. *2001: A Space Odyssey* stands out for its successful future predictions based on imagination in terms of technology and human-machine interaction. I refer to both the film and the novel in this research simultaneously since they can be complementary pieces of each other. The second

work I chose is a movie, *Minority Report* (2002) by Steven Spielberg. *Minority Report* stands out in terms of human-computer interaction because in contrast to *2001: A Space Odyssey*, all of the interaction ideas and concepts are based on "future concepts" the contemporary scientists have developed. What makes *Minority Report* and *2001: A Space Odyssey* unique pieces to use for this analysis is that they are both very popular and influential works, which explore and display the future's technological possibilities very extensively, according to the decade they belong. My focus is based not only about how creatively written or imagined they are but also about the quality of their production and media form. Both of the works are considered breakthroughs in terms of combining the technical and creative aspects of filmmaking and contemporary scientific elements and innovations.

The creative and production process of *2001: A Space Odyssey* makes it as interesting as the narrative itself when imagining the future. In reference to *2001: A Space Odyssey*, I deliberately use, *narrative*, when referring to both the novel and the film at the same time. I might have also used the word "story" but it may be confused with references to sequences or parts in the *narrative*. Regarding the development of the work, it is significant to note that Clarke was initially assigned to write the screenplay, however, later they decided to write the main structure together, and then adopt it to film and novel. The duo also used Clarke's 1948 short story, *The Sentinel* as base or a starting point. Although, Kubrick and Clarke took *The Sentinel* as a base to *2001: A Space Odyssey*, Clarke stresses that comparing these two works is like comparing "an acorn to the resulting oak-tree". The most interesting part of their collaboration for this analysis is that, Kubrick and Clarke have consulted

numerous universities and NASA to portray the technology of the future as accurately as possible in every detail. On this very point, Dr. David G. Stork, the author of *HAL's Legacy: 2001's Computer as Dream and Reality*, argues that unlike many other films, "the more science you know, more you appreciate a film and esteem its makers." In this sense it is the premier of a phenomenon in filmmaking. In fact, the other work I am going to analyze in this essay, *Minority Report* also follows this very phenomenon. Stork also mentions that because of these qualities "The film, which has been used in the training of NASA astronauts, doesn't look dated even though thirty years have passed since its release." On top of *2001: A Space Odyssey* being so successful and also being scientifically accurate and well made, the other very important aspect is that all these have happened at the peak of the space race (in the late 1960's, 1968 being the release of the movie). NASA was *the* flag carrier of cutting edge technology and the future was based in conceptions of space. The role of NASA during the era and their simultaneous involvement in this project, too, makes *2001: A Space Odyssey* an appropriate work to include as a main material of my research.

It is no secret that Spielberg is a huge Kubrick admirer and on this matter, Andrew O'Hehir writes that, "… if he will never be Kubrick, he has become fully Kubrickian." Although O'Hehir 's point here is Spielberg's progress in mastering as a genre stylist, more than three decades after *2001: A Space Odyssey*, Spielberg successfully emulates similar interesting patterns of Kubrick and Clarke in terms of production. To start with, *Minority Report* is based on Philip K. Dick's dystopian short story from 1956. Though, scriptwriters Jon Cohen and Scott Frank drastically extended and

changed the story. Apart from the plot and character adjustments, this also affected the technological aspects of the story. To say, the famous virtual reality interface of the film is not to be found in Dick's original writing, however, the film still accommodates quite a few mid-century futurism elements such as psychoactive designer drugs, jetpacks or electromagnetic cars.

The names or organizations that consulted Spielberg to present 2054's technology have shifted drastically compared to the channels Kubrick and Clarke have used. Unlike late 1960s where high-end technologies were pictured as space and moon landings; the 2000s were the era technology became more and more ubiquitous. This was reflected in entertainment and within fiction too. Thus, the role of NASA and space scientists in such film has also moved to data visualization experts, UI designers, architects and to companies like Nokia and Lexus whose focus is on technologies that centers around the every-day life of ordinary people. Although, this might have been considered completely as a business decision to place products, Spielberg argues to a veteran cinema critic, Roger Ebert that being abused by advertisement is an idea that they had from the beginning and it is a part of a dystopic future. This is a very interesting reference point to argue about how we imagined the future dystopia has changed through time.

In this research, I analyze each of the works by how the general set up is, what are the distinct objects or technologies that stands out and why they are important. While doing that the reasons behind including such technologies in to the story will be analyzed in terms of what they are revealing about the technology thinking of the

era work is made and also about what they add to the storytelling. In Brian David *Johnson's Science Fiction Prototyping: Designing the Future with Science Fiction* Johnson makes many important references to future technologies. Johnson is one of the researchers at Intel Corp. whose work is called "future casting". He uses ethnographical field studies, technology research to create models to future computing. In his book, he breaks down the elements of science fiction (the one based on real science) and explains how it can be used not only to imagine future but also to help develop new technologies. His methods he explains through the book are valuable to my research as they demonstrate ways to break down or build science fiction stories. *HAL's Legacy: 2001's Computer as Dream and Reality* by David G. Stork is a work in which Stork interviews different scientists and asks them about how realistic HAL is. The fact that the book is written in 1996 makes the scientists' comparisons of HAL and the 1996's technology quite irrelevant today. However, the way they analyze HAL and imagination behind HAL according to 1960s technology will provide great deal of insights.

The other academic articles referred to include Paul Atkinson's "The Visualization of Utopia in Recent Science Fiction Film"; Julian Bleecker's *"Design Fiction";* Paul Dourish and Genevieve Bell's "Resistance is Futile: Reading Science Fiction Alongside Ubiquitous Computing". Lastly, Clarke, Kubrick and Spielberg's interviews about their work as well as some other newspaper articles to support the arguments in this analysis will be referred.

"None (of the numerous stand-out examples of screen science fiction were) so widely accepted and cited as Stanley Kubrick's 1968 *2001: A Space Odyssey*. This single movie, and the collaboration between its creators, has left a deep and permanent mark not only on science fiction but also on since fact as well. You could even go far as to say that the film, its character and the message are firmly lodged in the collective pop culture imagination of the entire world."

In his quote Brian David Johnson analyzes the film and its main character, HAL, in relation to science and popular culture. He explains the impact of Clarke and Kubrick's success at introducing the ethical or/and social situations that may arise when we, the humans, start to give devices agency, the capacity to act or to operate inside of a society and to change its formation. He also finds this similar to what Asimov has achieved with robots. Steven Jay Schneider praises Space Odyssey at *101 Sci-Fi Movies You Must See Before You Die* about its film making aspects "Kubrick's epic *2001: A Space Odyssey* boasts a formidable reputation, not just as one of the greatest of all science-fiction films but also an important milestone in the development of screen art. Seen solely in terms of technique, it remains breathtaking, its special effects still convinces." It is hard to disagree with Jonson's points when it comes to how much *2001: A Space Odyssey* added to the classic totems of science fiction or what it had achieved to communicate an idea of artificial intelligence that mainstream audience as well as scientists could grasp with HAL. It is equally challenging to disagree with Schneider about the importance of the film in terms of screen art and *Space Odyssey's* place in the film history. What also needs to be added here is how outstanding a job Clarke & Kubrick did with reflecting the

ideas about technology and imagination of future during the very special era they were living in.

Space Odyssey opens with a part named "The Dawn of Man." The Dawn of Man takes place millions of years ago where a wild cat kills one of the tribe's members, which results with a chain of events. In the end of the part, "a man (-ape)" discovers how to use a bone as a weapon to kill and defend. In the next picture, the viewers are reminded that after *that* moment nothing has been the same again. It is *the dawn of the new millennium* and the viewers are shown how *far* we have taken the technology, both literally and metaphorically speaking. Also of note here is the fact that the film is made in the late 1960s when it was the peak of the Space Race and also around the time NASA was preparing the Apollo program. Thereby, there is no doubt that *Space Odyssey* has placed the cutting edge technology where it belonged, that is, in the space.

"2001 is no mere science-fiction movie. In truth, to be really accurate, it is more like 'science-fact' simply extended a few decades into the future. In his quest for complete authenticity in terms of present and near-future technology, Kubrick consulted constantly with more than thirty technical experts and the results are an accurate forecast of things to come."

Herb A. Lightman, a crewmember of the film says about the making process and David G. Stork confirms the film's success in this particular topic his book (1997)

and adds that the film's footages have been used by NASA even 30 years after its release.

Space Odyssey was no doubt a triumphant piece of work with its understanding of space travelling, imagination of the future of that era and the projection of the technological achievements of 1960s for 30-years-time in near future, except for one thing: Only four years after Space Odyssey is made, Apollo programs were shut down (1972), which brought an end to space travelling for humans. Famous astrophysicist Stephen Hawking reflects on our space exploration's yesterday and today and says, "Robotic missions are more cheaper and they provide more scientific information but they don't catch the public imagination in the same way."

Luckily enough, *Space Odyssey's* prosperous predictions about future are not only about space exploration. It also offers a rich amount of material about how technology would improve the daily life in 33 years time, 2001. These are in a wide range from computing to communication, from transportation to consumption. It even offers ideas about how to solve issues to do with toilet use on commercial space flights at zero gravity! What is more striking is that how accurate Clarke and Kubrick were with these, except for some core issues to do with lack of understanding of technology. This subtle balance of accuracy of their imagination versus the problems they have with applying them in the projected future, makes author William Gibson's famous quote very appropriate to summarize Space Odyssey with one sentence: "The *future* is already *here* — it's just not very evenly distributed."

The excessive number of controls is one of the elements in Space Odyssey that stands out due to the lack of understanding of technology. It's probably the first one of those you notice when you look at it today. To be completely fair, this is not only a problem of *Space Odyssey* but also a problem of many other science fiction works from the 1960s-1970s, as well. It was mainly because even the advanced 60s were made to perform a single task: to calculate one sort of information. Stork directly points at this issue in the introduction of his book:

> Kubrick and Clarke -- and indeed all but a few computer visionaries in the 1960s -- failed to understand the important and unique nature of software: that it is general purpose, infinitely malleable, and can be divorced from hardware. This lack of understanding helps explain the excessive number of control buttons we see in the film, especially in the pods. Currently, jetliners and fighter jets are equipped with numerous computer screens that display different types of information and replace mechanical buttons. One good computer screen with windows and software buttons would have sufficed for *Discovery.*

Despite the fact that, it failed to understand and deliver ideas about the divorce of hardware and software *Space Odyssey* still offered graphical user interfaces, one way or another. They were basically drawings of function to X on a Cartesian plane but this was made almost two decades before Apple developed Macintosh computer (1984) with a graphical user interface, which is accepted as a milestone of computing. Even today, we are using the main principals that Macintosh has introduced in terms of graphical user interface.

There are also some daily life objects or elements that successfully predict the future. However they fall short when it comes to the actual application of them. Some of the most interesting ones of those are the ones focused on communication, considering how today's society is heavily dependent on communication technologies. One of those technologies that have actually been referred quite often in the last couple of years is newspads. In the scenes where we are introduced to life on a spaceship and how astronauts can spend their free time or what they eat, we are shown these devices in very detail. The way the astronauts interact with these devices directly mimics how "a man" reads a newspaper. Astronauts have the device in their hand or on the table to receive the news while eating their breakfast. However, what is most entertaining and valuable for this research at the same is the way the device is designed and how it behaves in the movie. The product design is directly inspired by the TV sets of that era. The newspad has a big color screen and 8 buttons on the side for channels. On the other hand, it also has the form and thickness of a newspaper. And again, it reflects the new way of receiving news for the time and the idea of how to consume information in the 60s. Even though one could hold it in your hand like a newspaper, one does not need to read the news, it's being read to you. Clarke's definition, however, is different, yet scarily close to how tablet computers are and how we use Internet today. The only inaccurate piece in this passage from Clarke' s novel illustrates how he projected the technology while also were imagining the future, in terms of transmissions, data and communication. Both in this piece from Clarke's novel and also several times in the film, we are exposed to the fact that, transmissions or data is not something they kept. Simply, the computer systems warn the astronauts before they receive a transmission so

they are ready to receive it. In another example in Clarke's text that have I cited below, the news is something that is flowing through the satellites and refreshes every hour but it is not being stored (just like the TV programming of the times), it is ever changing:

> He would plug his foolscap-sized Newspad into the ship's information circuit and scan the latest reports from Earth. One by one he would conjure up the world's major electronic papers; he knew the codes of the more important ones by heart […] Switching to the display unit's short-term memory, he would hold the front page while he quickly searched the headlines and noted the items that interested him […] He was, far out in space, speeding away from Earth at thousands of miles an hour, yet in a few milliseconds he could see the headlines of any newspaper he pleased. The text was updated automatically on every hour [...] one could spend an entire lifetime doing nothing but absorbing the ever-changing flow of information from the news satellites.

Another example of predictive technologies would be the phone call between Dr. Floyd and his daughter back home. The audience is introduced to the phone booth, Picturephone, at the International Space Station where Dr. Floyd can conveniently pay with his card and place a call. During their conversation, we learn that it is normal to own more than one telephone in 2001, calling earth from outer orbit is very cheap and the quality of the connection seem to be very good too. Despite these accurate predictions, telephone is still not something you can carry around.

The understanding of transmissions (in this films case it is radio waves), data, data

storage and computing in the 60s and projecting it to 2000 become more clear when we look in more details at HAL 9000. HAL (Heuristically programmed Algorithm) is not only the standout star of *Space Odyssey* but also the most important and useful element of the film to illustrate HCI (Human-computer Interaction) principles and the imagination of future technologies. First of all the concept of the TV, described above, with the excessive number of buttons and the reasons behind its design, and the lack of understanding about the divorce hardware and software, is relevant to HAL's design. HAL 9000 has a birthday, a day it went from off to completely operational. This is unlike traditional hardware and software development today, especially AI technology. For example Google is said to rewrite 50% of its code every month. In addition to that, HAL is not only an algorithm that runs *Discovery One* but it has one physical body which Dr. Bowman (Dave) later walks in to turn off. In contrast, our most advanced AIs today run ubiquitously on several different hardware systems around the world. Finally but most importantly HAL is self-aware of it's own physical entity and begs Dave to not turn him off once he realizes that he will be turned off.

Although, HAL is not the first portrayed artificial intelligence in films, what Clarke and Kubrick successfully achieve is to give HAL an agency, which makes it (or him) a true character. Brian David Johnson argues that even thought the concept of agency is an abstract term used by social scholars to in their academic work, it is not at all an abstract concept for computer scientists and artificial intelligence developers:

> The scientists are working through the concept of agency and apply it pragmatically to the development and programming of service robots. For

> these scientists, agency is a state that could help develop robots that are better suited for complex environments and operations. What Space Odyssey delivers is a portrayal of agency in AI system and the implications that this could have on the humans around him. And this aspect of HAL "[…] can be seen clearly as a science fiction prototype. It vividly explores the ramification of conflicted or malfunctioning AI as it begins to breakdown and deal with situations that had never been imagined.

It's not only the dystopic aspects and results of the agency it has or the way it is imagined as one big computer that makes HAL interesting. The technical aspects of HAL's interaction with humans offer the final bit of future imagination relevant to my analysis. First one of those is the one we witness through the entire story within Discovery One (and the pods) is the speech recognition and the semantic computing skills of HAL. Despite the fact that it is purely imagined as the main interface of the central computer system of a spaceship at *Space Odyssey*, the technology and the user case of it is once again successfully predicted. The second one of them is the lip reading skills of HAL, which comes as a surprise to the audience later on in the narrative. This, too, is a very accurate imagination of a future technology. Even though the user case of the motion recognition technology today is somehow different than how Clarke and Kubrick have imagined, the technology is extensively placed into a similar context (data input) with a completely different user case than in Minority Report.

Even though it does not go as far as claiming that it changed the entire landscape of science fiction and science as in the quotation I cited from Brian David Johnson to introduce *2001: A Space Odyssey*, Ian Rothkerch's on *Salon.com* also addresses the similarity behind the film when he writes about *Minority Report's* success:

> Eye-scanning spider robots, vomit-inducing "sick sticks," holographic home video cameras, vertical highways: Welcome to the United States circa 2054. Steven Spielberg's "Minority Report" is essentially a neo noir in which Tom Cruise runs around trying to prove his own innocence. But what distinguishes the film — besides its ominous political warning — is its dense, ingenious conception of what life will look like 50 years from now. Not since the neon-soaked "Blade Runner" (like "Minority Report," also based on a Philip K. Dick story) has such a conceivable, self-contained and ultimately disconcerting vision of the future been captured on-screen.
>
> That the film succeeds is as much a credit to Spielberg's direction and Cruise's sturdy performance as it is to Alex McDowell's inspired production design. Helping McDowell achieve the look and ideas of the film were a coterie of self-styled futurists assembled by Spielberg prior to filming. This "think tank summit" (as it's been widely dubbed) hosted a cross section of philosophers, scientists and artists.

Rothkerch among many others, points out the collaboration between the producers and scientists, philosophers and futurists as the element of *Minority Report's* successful future prediction. However, the technologies and the atmosphere

Spielberg, McDowell and their colleagues brought to the film are much more different than elements scientists involved in *Space Odyssey*. To start with, the film opens with a murder scene in a bedroom. The decoration of the bedroom does not tell anything about the year the events are occurring. Right after the murder scene, we are introduced to John Anderton and *the future*. In contrast to Kubrick's *Space Odyssey* where even the set up about the future is in spaceships, not all aspects of our lives have to be futuristic in the future anymore (that is according to how we imagine *the future* today.) Spielberg argues about this to Roger Ebert during an interview prior to the premiere of the film. "The city is not all skyscrapers with coils around them. In Washington, with its historical preservation rules, they're never going to change some neighborhoods, or the Mall, the Jefferson Memorial and the Lincoln Memorial. We mixed the old and the new."

In addition to the imagined atmosphere of 2054 at *Minority Report*, the ideas about what the technology will be like and how it will be used give direct references to the way technology is today and how it has been imagined to evolve in the future. As Interesting enough and as *Kubrickian* as it can get, the viewer is introduced to the technology of 2054 with classical music in *Minority Report* as well. Tom Anderton (Tom Cruise) orchestrates the computer system by using his hands in a special pair of gloves, just like a Maestro orchestrates his orchestra. We see transparent and non-flat screens, mid-air hand gestures to navigate in the computer system, digital files and objects' behavior as if they are physical objects. About this matter Charles Arthur, a technology columnist of The Guardian, writes "Minority Report included numerous gadgets but didn't rely on any of them as the key to its plot, which still

revolved on people's ability to deceive themselves about truth, lies and reality." Every other small or big device in the film aside, the main computer that attracts the most attention in *Minority Report* is worth to be compared with *Space Odyssey's* HAL 9000. Even though HAL is only an artificial intelligence In Kubrick's *Space Odyssey*, it stands out as most humane personable character whereas in *Minority Report* we see a major shift from this. The devices and technology are there only to assist humans. Technology neither plays a humane role, nor has an agency like HAL has. On the contrary, like Arthur points out, the technology is a tool to and complements human. This gives direct references to today's computing and technology. Although it is wide open for debate, one can argue that Google's learning algorithms and precision, Apple Siri's voice recognition and semantic computing skills and finally Microsoft Kinect's motion recognition may add up to be HAL 9000. However the user cases of these technologies today is detached from each other and far away from HAL's. They are not meant to be a part of space science, but instead simple daily life gadgets or services. The way computers are imagined are more ubiquitous and networked unlike HAL in *Space Odyssey*, which is a one piece of computer system where hardware is physically loaded when it is supposed to be used and physical interaction with the inner parts is required to edit the software of the hardware.

The difference between these two future ideas also causes the shift about idea of futuristic dystopia. In *Space Odyssey*, the main element is that the dystopic future designed around is the uneasy ethical situation when devices start to have agency. Agency that made HAL do whatever he "believed" the best for the sake of the mission he is assigned to, even if this means go as far as killing all the crewmembers.

In *Minority Report,* we are presented a depiction of completely different dystopic futures. The main theme of the movie is pre-crime, a technology that remediates crime before it happens which is a very interesting and major theme; however, for this research I found another idea from the film more suitable: a world where the advertisements recognize the retinal pattern, follow you around and speak to you:

> The Internet is watching us now. If they want to. they can see what sites you visit. In the future, television will be watching us, and customizing itself to what it knows about us. The thrilling thing is, that will make us feel we're part of the medium. The scary thing us, we'll lose our right to privacy. An ad will appear in the air around us, talking directly to us.

Spielberg explains this idea(in the quote above) to Roger Ebert in his interview, and says because of the technological achievements we have, we are facing a completely different issue than the ones Kubrick and Clarke once pointed at. Even though the computer systems we have today, or that we project to have in the near future, do not have a capacity to act freely to operate in the world, they have the ability to recognize you, cross-reference your taste, personality and mood in order to sell you commodity goods in an almost abusive way with personally tailored ads. As a person in the street you don't have an escape from it. Although their ability to recognize people and their mood and then download their taste in order to provide them the most suitable advertising seems like what HAL was doing, and some can argue that those computers have agency like HAL's, I strongly believe simple facial recognition technology and smart algorithms written only to work with advertising

are similar. Because if those computers had unity, intelligence and the judgmental ability that HAL has, they would have easily figured out that Anderton is a fugitive and let the authority know about his location.

It has only been a decade since Spielberg's *Minority Report* has amazed us not only with its realistic computer effects (compared to cartoonish the *Spider Man* which came out only a couple of months before Minority Report), but also with its futuristic technology. Unlike *Space Odyssey*, *Minority Report*'s future imagination accuracy is not moving away from the specific technology in the film, but going in its direction too fast. Charles Arthur addresses to this very issue in his article *"Why Minority Report was a spot on?"* in *The Guardian*:

> Now science is fast catching up. The launch of Microsoft's new Kinect games system, which allows players to run, jump, punch and shoot without having to wear strange clothing or hold any kind of controller, has got technology and cinema buffs alike thinking of Tom Cruise again. Specifically, the moment in the film Minority Report when Cruise, playing police chief John Anderton, tries to figure out film footage and computer data by waving his hands around in mid-air to manipulate it: turning it, shrinking it, pushing it aside, revolving it. Give it time: in a few years, we'll more than likely be controlling our computers in a similar way.

Even though "why and how technology advances this fast?" might sound like a big topic to debate about to some, Julian Bleecker 's answer is very short and simple:

"Because we are trying to create new things forward from today, but we are not willing to wait on the usual ways in which the future obtains."

Science fiction is at its best when it is not only speculatiive, which have completely no root or point of reference in today's technology. This is exactly what both *Space Odyssey* and *Minority Report* have in common in a nutshell, though; they are quite different than each other. So what has changed? I believe this is the way we perceive the technology. First of all, like Bleecker's quote above we are not willing to wait. We don't make 5-year plans about our technological advancement anymore. Unlike 1960s, technology is not defined by what we can achieve, but it is defined by human's needs. One of the best examples to this would be in the mid-century: pushing the technology meant to make faster jets so we made the *Concorde*. In the 2000s we realized that we do not really need that fast jets but more comfortable, silent ones with less footprint on the nature, so we have Boeing 787. Secondly, in 1960s technological advancements were made by super powers and it was about humanity, mankind. Every attempt made in favor of exploration of "the last frontier" was a global event to look forward to. Neil Armstrong's quote is enough to understand the way of thinking, "That's one small step for a man, one giant leap for mankind." Whereas today, we are the excited about global technological achievements to do with communication or they are gadgets and technologies related to personal, individual needs. They most simple evidence to that could be the number of Google search results. As June 7 2012, NASA's latest and most advanced robot on the way to explore Mars has only 5 million results, while Apple's yet to be announced new phone has 5 billion. Science fiction speculates about the possible

future worlds by using an imaginative and aspirational style of story-telling with some strong inspiration from science fact. This is the most distinct difference of it from fantasy as genre. Both Kubrick and Clarke's *2001: A Space Odyssey* and Spielberg's *Minority Report* (among many others) have successfully played this role of prototyping to possible worlds. The only thing that has changed from *A Space Odyssey* to *Minority Report* is the way we want future technology to be. We don't necessarily want future technologies for mankind, but preferably for a man, and we want them to have it as soon as we can.

Works Cited

Atkinson, P. (2007). The Visualization of Utopia in Recent Science Fiction Film. *Colloquy - Text Theory Critique* (14).

Clarke, A. C. (1968). *2001: A Space Odyssey .* USA: New American Library.

Spielberg, S. (Director). (2012). *Minority Report* [Motion Picture]. USA: DreamWorks Pictures.

Dick, P. K. (1956). *The Minority Report.* Fantastic Universe.

Dourish, P., & Bell, G. (n.d.). Resistance is Futile: Reading Science Fiction Alongside Ubiquitous Computing.

Johnson, B. D. (2011). *Science Fiction Prototyping: Designing the Future with Science Fiction.* Morgan & Claypool.

Lang, F. (Director). (1927). *Metropolis* [Motion Picture]. Germany.

O'Hehir, A. (2002, June 21). Minority Report Reviewed. *Salon Magazine* .

Sterling, B. (2009, May-June). Design Fiction. *Interactions* .

Steven Spielberg, T. C. (2002, June 16). Spielberg & Cruise & the movies. (R. Ebert, Interviewer) Chicago Sun-Times.

Stork, D. G. (1996). *HAL's Legacy: 2001's Computer as Dream and Reality.*