

Stranger than Fiction: Artificial Intelligence, Media, and the Domestic Realm

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“The best way to predict the future is to invent it.”

—Alan Kay

Alan Kay’s famous soundbite from a 1971 Xerox PARC (Palo Alto Research Center) meeting presents a bizarre chicken and egg paradox. It goes like this: which came first, the science fiction representation of the object or the desire for specific objects themselves? In other words, is the plethora of technological advancements a direct result of anthropomorphic inevitabilities or are we simply trying to realize objects, vehicles, and environments we saw in science fiction representations in the mid-twentieth century? In this paper, I will argue that media and literature are equally as responsible as engineering for our current architectural reality. With the rise of Web 2.0, advances in graphics visualization, and their attendant cultural shifts, aspects of contemporary urban life increasingly resemble a science fiction. The pervasiveness of app culture and recent factual and fictional examples of artificial intelligence augmenting the built environment suggest that engineering advancements exist as part of a tight feedback loop between consumer expectations—largely influenced by Hollywood—and scientific discoveries. Therefore, in order to fully understand, historicise, or speculate on the future of interactions between humans and machines, we must first unpack the cycle of fiction-to-fact that typically occurs. Taking the domestic realm as an example, we can identify a series of uncanny, artificially intelligent, technologies which reflect human desires for subservience, assistance, and interconnectedness. Here, AI will serve as a case study through which to analyze the effect of fiction on scientific advancements and their

subsequent dissemination into the consumer world, ultimately constituting a history based less on fact and more on media, image, and variable levels of reality.

SCIENCE AND FICTION

“The [computational] Stack is not only a design and engineering program but a political-philosophical maneuver as well.”

—Benjamin H. Bratton, *The Stack: On Software and Sovereignty*

In 1953, Philip K. Dick published a short story in the science fiction magazine, *Imagination: Stories of Science and Fantasy*. The piece, entitled, *Mr. Spaceship*, revolves around a military operation to embed a human brain into a spacecraft in order for it to ward off an invading enemy’s military armada. Arguing that having an “intelligent” spaceship with human intuition and reasoning will overpower the alien forces, the brain of a wise old professor is selected for their experiment. The operation is a success, however, the new ship now under the control of the old professor’s brain rebels and does not fight the enemy. Instead, it kidnaps a human couple and speeds off into a distant galaxy with the mission of establishing a new human colony; one free from war and violence.¹

Appearing three years after Alan Turing’s groundbreaking paper “Computing Machinery and Intelligence,” and three years before the seminal Dartmouth conferences on Artificial Intelligence, Dick’s story is one of earliest instances of an intelligent physical environment in SF. Though the system cannot be classified as AI per se (since the term would not be used until 1956), the conflicts encountered predict accurately those which will be later explored by writers, philosophers, and mathematicians in the following decades. *Mr. Spaceship* addresses the problems of controlling a system embedded with free will, the use of experimental technology in military applications, and—most significantly for architects—the functionality of a ubiquitous networked environment.

It is not clear whether any of the founding fathers of AI research actually read *Mr. Spaceship*, but the link between science and fiction in the 1950s is incontrovertible. In a 1997 interview, Marvin Minsky was asked, “was your science influenced by science fiction?” To which he replied, “oh, absolutely. I read about equal parts of Jules Verne and H.G. Wells.”² Minsky, known for founding the MIT Artificial Intelligence Laboratory in

1959 and collaborating with Stanley Kubrick, also eventually wrote his own SF novel, *The Turing Option* in 1992. This close relationship to fiction enabled scientists to speculate and theorize on the implications of the physical work they were conducting. SF was not only a “good venue for exploring the implications of AI,” but also a way to communicate to the public the potential virtuosity of futuristic technological systems.

As popular media gained momentum, the film and TV industry became equally responsible for further suggesting futuristic engineering advances. *2001: A Space Odyssey's* automaton, HAL 9000 entered the public imaginary in 1968 as a rogue computer, to whom human life was disposable. Much like *Mr. Spaceship*, HAL embodied the concerns of living with an AI unit as an environmental controlling agent. HAL could manage all aspects of the ship, open doors, send messages, and talk back. Yet, it's monotonous voice and response, “I'm afraid I can't do that, Dave,” seemed to induce more apprehension than love for the machine.³ In a less sinister example, *Star Trek* directly influenced the development of the cell phone in 1973. That year at Motorola, Martin Cooper completed a prototype of the first cellular phone, the idea of which he claims to have come from *Star Trek's* portable communicators.⁴ For Cooper, that device was seen not a fantasy, but rather an objective. The inspiration (television) led to modifications of existing car-phone technology, and eventually to the portable devices we know today. Other examples of the device feedback loop include Arthur C. Clarke's “news pad” from *2001: A Space Odyssey*—a proto-tablet-computer—and Dick Tracy's radio watch (1946)—a primitive smart watch.⁵

The trend to realize fictional technologies is perhaps most exemplary in the 1990s; a decade characterized largely by fast-paced technological innovation both on and off the screen. Together with the emergence of the internet, advanced robotics not only contributed to the accessibility of information but also reflected a social consciousness that prioritized the network as the dominant cultural logic. Kazys Varnelis reminds us that “information [became] less the product of discrete processing units than the outcome of the networked relations between them, links between people, between machines, and between machines and people.”⁶ Parallel to these shifting modes of living and thinking, Hollywood released *Bicentennial Man* (1999), *Artificial Intelligence* (2001), *Minority Report* (2003), and *I, Robot* (2004): blockbuster films that highlighted probable not-too-distant futures with hyper-real visual effects. Science-fiction cinema, previously limited in its ability to realistically represent imagined futures, began to depict more plausible environments, due both to the rate at which representational tools became accessible, and to increasing expectations for real-world technologies. The cycle of expectations, speculation, and real-world innovation sped up, spurring new social conditions and environments driven by flexibility and systems thinking.

Following this acceleration, science fiction's role as reality's far removed “other” shifted its representational model. In contrast to radical speculative visions we normally associate with the genre, fantasy and reality rapidly began to approach one another. This can be attributed to simultaneous advancements in the visual effects industry and consumer technologies which reified the tight feedback loop between the factual and fictional. Current science fiction representations are less ideal

and fantastic, since much of the contemporary urban landscape owes more to Philip K. Dick than *The Jetsons*. Because we have grown less concerned with plausible utopias or dystopias, and more concerned with the democratization of access to technology, artificial personal assistants, and augmenting an existing reality, representation of future environments today emphasizes complex interactions over complex appearances. These recurring themes within the genre of SF can contribute to a fuller understanding of the limits of technology within our built (and unbuilt) environments, allow designers to study anthropocentric desires for specific functions, and predict with a degree of certainty the character of our immediate protean future.

FROM HOME TO GOOGLE HOME

“Hello, I'm Macintosh. It sure is great to get out of that bag.”

—The Macintosh 128K (1984)

In the case of science fiction, the domestic realm, often the environment most recognizable to the viewer, is the host for the majority of these interactions. Humans need to eat and sleep and despite technological advancements, some things will always remain, such as the desire for comfort and entertainment. The futuristic home, thus becomes an object that must actively cater to these desires and requirements. For example, in the 2008 Marvel Studios motion picture, *Iron Man*, Tony Stark's house is an augmented intelligent system that responds to every whim of its inhabitant. Here, walls are screens, systems are voice activated, and robot arms replace servants. Bill Gates's house is not so different. Nicknamed Xanadu 2.0 (a cinematic reference to *Citizen Kane*), the house features GPS tracking, customizable LCD screens, and sensors that modulate temperature and lighting based on the occupant's preferences.⁷ The house of the future is very much a reality. But the similarity between Gates's futuristic house and Stark's fictional futuristic house highlights not only the potential of technological innovation, but the subtext of science fiction: desire. When presented with images of both houses, the question becomes: will everyone have this house in the future? To which the answer is increasingly positive. The spread of “smart” systems has accelerated to the point where one need not design a custom home for it to be intelligent. The number of consumer devices that emulate Xanadu's features grows every year: thermostats which learn user's habits and optimize HVAC usage, and devices that use voice recognition to control light and power switches, read the news, and play music throughout the house. Our desire for domestic automation offers a range of new relationships between humans and their homes. As their intelligence increases, we expect more from them, talk to them, and are constantly connected to them via mobile devices and digital concierge apps.

To date, major tech companies have released a handful of artificially “intelligent” personal assistants. Though the computational prowess of these systems has not reached Asimovian self-awareness, they are nevertheless capable of learning specific behaviors and responding in intricately advanced ways.⁸ Apple's Siri, for instance, is capable of analyzing individual user's speech patterns and “learning” their voices.⁹ With the wide proliferation of smartphones, the arms race to true artificial intelligence is afoot, led by tech giants like Google, Microsoft, Apple,

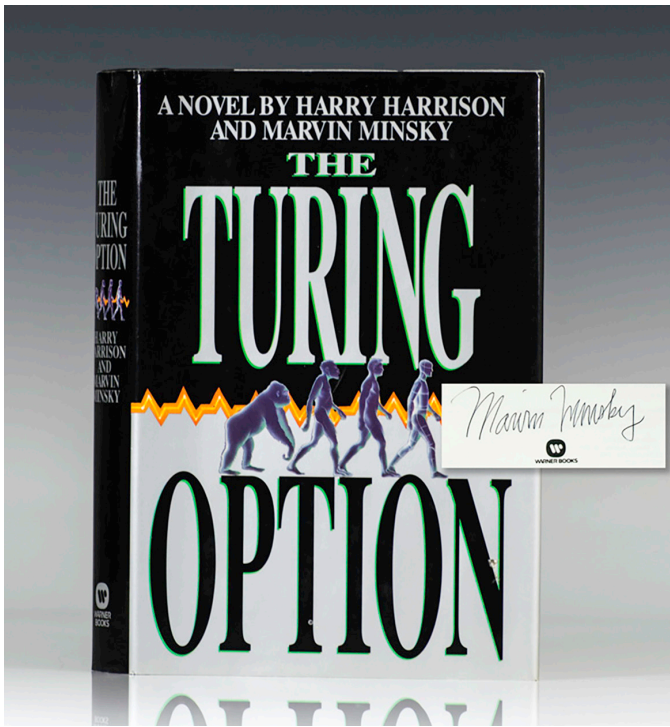


Figure 1: The Turing Option, a novel by Harry Harrison and Marvin Minsky

and IBM. But the race is not limited to operating system manufacturers. Facebook recently unveiled its limited release “M,” a company-wide virtual assistant that works in conjunction with human customer service teams to widen its knowledge base and capabilities. Facebook’s advantage is that its “assistant” can be a true concierge, able to make reservations, purchases, and even be on hold with the cable company.¹⁰ Its disadvantage is that in its current state it relies on human mediators to interpret the data; more of an android than an autonomous robot.

But Facebook’s M also furthers the notion of desire in domesticity. Coming from the periphery of the artificial intelligence field, M more closely resembles a high end butler than an intelligent scheduler. The primary selling point of the application therefore becomes the quality of the domestic work it can do; schedule Uber requests, buy anniversary presents, etc. We can liken M to *Iron Man’s* virtual assistant Jarvis. Fans will note that this character began as Tony Stark’s butler in the comic books, but was reimagined as an artificially intelligent system, J.A.R.V.I.S. (Just A Rather Very Intelligent System) for the motion pictures. The combination of domestic personal assistant and AI gives the character a curious position in the sci-fi universe, self aware and capable of controlling any component connected to its network, yet simultaneously subservient. Fear of potential problems in a system like J.A.R.V.I.S. are recurring themes in science fiction from *2001: A Space Odyssey’s* HAL 9000 to *Her’s* operating system, Samantha. These movie parallels present moral quandaries and cultivate skepticism of limitless intelligence for the machine. From conception, the applications reflect a desire for help and comfort with daily tasks, but SF films also show us that widespread access to a high class digital butler would fundamentally change daily social interactions and rituals within the home, especially if we think of them as pseudo-human. We need only look at Google Home’s

late 2016 advertising campaign which puts forth the tagline, “Home by you. Help by Google” for a glimpse at these new relationships.¹¹ As a way of alleviating these fears, Benjamin H. Bratton has suggested that we shouldn’t measure AI’s intelligence against ours, but think of it as a distinct entity, something beyond “a machine version of our own reflection.”¹² Seen in this light, AI can either acknowledge and aid the human condition or ignore it altogether. At the social level, this is an attempt at restructuring the domestic roles of humans and machines, and achieving a balance between “smart home” and “machine-servant.” The questions then become: to what extent do we develop the intelligence of our subservient systems? And do we give them physical form or embed them as networks within our existing environments?

Domestic interactions with AI have evolved from text input commands, to touch screen controls, to voice recognition. The speed at which these shifts have occurred has left little time for architecture to adopt any specific mode. Touch technology is already losing its traction with the emergence of voice command in an increasing number of environments: the home, the car, the body. From a safety standpoint, hands free communication is the most efficient way of preventing device-related distractions, while from an architectural standpoint, it presents a new realm of sensory interactions with which to design. Voice activation features, such as Google’s phrase, “ok, Google” and Apple’s “hey, Siri” envision a world where On/Off switches are simple commands. But the move to be less “handsy” and start talking to inanimate objects is symbolic from another humanist perspective. It is highly probable that the amount of time we spend looking at screens might decrease as we start communicating more with our voices. Text conversations might once again be able to convey tone without the use of graphics, emojis, or animated GIFs. New figures of speech might replace abbreviations and make their way back into the social milieu. Vocal conversations with machines may allow us to communicate with our environments in a human way, which is to say a more political-philosophical maneuver than a strictly engineered design solution.¹³

ACCIDENTAL HUMANISMS

Spike Jonze’s 2013 movie, *Her*, is primarily the story of a neurotic, moustached letter-writer, who falls in love with an intelligent operating system. It is also a cautionary tale about advanced computing in general. Much like with Kubrick’s *2001: A Space Odyssey*, there’s a subtle aftertaste of techno-phobia that lingers upon finishing it. But the world in which Jonze sets his premonition highlights a set of devices and interactive tools which seem less inspired by hard science-fiction, and more akin to advanced versions of the current spread of tablets, phones, game platforms, and headgear, including some eerie premonitions of the new features in each subsequent computer operating system update.

Apple’s new operating system has recently added a new set of virtual tools to their messaging platform, seemingly to make text communication more interactive, and perhaps, more human. It is a showcase consisting of handwritten messaging, Facebook-style reactions, emoji translator, and expanded Siri (voice control) capabilities. Obviously, the reception of these additions is still to be seen, but what is worth

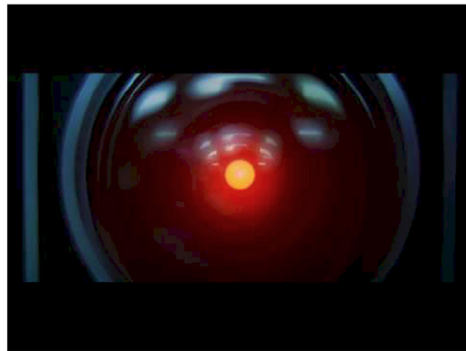


Figure 2: Two instances of fictional technologies and their real-life counterparts. Top: Star Trek Communicator and the Apple Watch. Bottom: HAL 9000 and Google's Nest home thermostat.

examining is the impetus for these novel messaging options. They seem to run parallel to the digital assistant's slow move towards voice controlled interactions. On the one hand, the drive to make texting more nuanced and personal could be interpreted as part of a neo-humanist mission, and on the other, it could be another case in our feedback loop of tech inspired by science fiction which, as we have seen, provides a context in which to see potential applications.

The hypotheses put forth—largely by popular tech websites—that Kubrick and Arthur C. Clarke “invented” the mobile tablet, or that Dick Tracy predicted the smart-watch, establish a new mediatic history of the gadget and the humans who use it.¹⁴ Along these lines, Jonze's story places the social milieu at the core of these modes of communicating; a kind of natural evolution of our contemporary relationship to devices. *Her's* protagonist, writes digital handwritten letters for a living; a curious profession in a world without keyboards. Jonze suggests that in the near future, the desire for a personal touch would be so great that companies will emerge solely to specialize in the production of pseudo-handmade items. This is a logical evolution from Etsy and other

independent handcraft commerce sites operating today which respond to demand for objects with human qualities. In *Her's* world, the capitalization of craft does not depend on the fact of whether the letter was or was not made by hand, but rather that the thoughts and appearance of it are unique (yet, consequently outsourced). In other words, future Hallmark could thrive with a simple algorithm or letter-generator, yet the fact that they require real people, dictating real thoughts into virtual machines shows a wider scope of social desires in the not-too-distant future. In various scenes, Theodore is seen romantically dictating other people's correspondences into his screen, effectively writing love-letters to himself.

Apple's handwriting feature seems to follow a similar train of thought. The new messaging interface will let you, “send a message in your own handwriting [and] your friends will see it animate, just as ink flows on paper.”¹⁵ The app will not only transmit your own scribbled notes, but will also simulate the act of writing on the other end. The gimmickry of this writing simulation, however enticing at the outset, is purely superfluous and inefficient for transmitting information quickly. Images on Apple's site show a large “thank you,” implying that it's not meant for everyday use, and that it might eventually be relegated to special occasions. Ignoring the fact that it is also a novel way to send vulgar

gestures and lude subject matter, Apple has branded this upgrade with the tagline, “Express yourself in bold new ways.”¹⁶

How people will express themselves remains to be seen. Other new tricks for messaging appear to be almost plagiarized from Facebook’s proprietary platform. They include the ability to “react” to texts with gestures (heart, thumbs up, thumbs down, ha-ha) and pre-determined message animations (Happy Birthday, cue balloons). Apple’s integration of these utilities are undoubtedly a response to Facebook’s entire repertoire of interactive messaging tools which, in addition to their digital assistant, include animated GIFs, stickers, emojis, and integrated hyperlinks.

All of these advancements in communication platforms seem to constitute an accidental humanism on the part of software engineers. It is accidental because they come late in the development of text-based interactions; essentially by-products of optimization efforts. These new software features are a result of reflections on cultural premonitions from sci-fi media and neoliberal capitalist *modus operandi*. Facebook’s desire to capitalize on its own exabytes of human data, allowed it create a highly interactive, personal messaging interface. Developers recognized how people communicate online and integrated multiple features into its proprietary system: GIFs, bots, custom stickers, popular site link embedding. Thus, it is hard to believe that unique, personalized messaging is not the offspring of adaptive advertising; marketing tends to work best when you acknowledge your audience’s uniqueness.

Yet despite an acknowledgement of this uniqueness, Elizabeth Diller—who was very briefly involved at the early stages of Jonze’s film—commented that the environment in *Her* was a very “generic space” which symbolized “a kind of monocultural, globalized future, where buildings all more or less look the same.”¹⁷ This suggests that the capital for designing the social milieu will be routed towards the virtual realm rather than the physical realm. Like the worlds depicted in the Netflix series, *Black Mirror*, which often exaggerates today’s realities in a melancholy way, the built environment becomes less prevalent as an interface than the smaller devices we carry or the pods we inhabit. Therefore, architects might be less necessary to design the monocultural material environment and called upon to construct the immaterial virtual metropolis seen through our augmented reality glasses.

If *Her* and *Black Mirror* are cautionary tales of renegade domestic desires, then architects must scrutinize these fictions and position themselves in response to some of the themes which are exaggerated. For example, in both cases, we see that companies which are able to leverage engineering and free market research are in the best position to create new forms of interaction. This suggests that some aspects of society can be optimized through the analysis of human-device and human-device-human communication; for instance, it is unsurprising that Google, cloud-computing giant, sells a consumer device called, “Home.” However, this optimization eschews a number of ethical and moral quandaries which might be best explored through fiction before they are enacted at a wider scale. Like Marvin Minsky writing a novel about AI while conducting very serious AI laboratory research, scientists and designers can no longer ignore the systems and underlying

infrastructures of which we are a part. We should examine the historical trajectory of the same systems and incorporate the imaginary into our speculative ways of operating. The fiction-to-fact feedback cycle illustrates a rhizomatic history of varying levels of reality, which has enabled technological advancements, always rooted in specific desires. Back in *Her*’s world, Theodore’s letters are symptomatic of the innate desire for human to human connections. The harsh reality, however, is that those connections are increasingly facilitated by devices and protocols, making interactions dependent on subtler, sensory technology. Theodore ends up falling in love with an OS because his connection was halted at the protocol level; it never made it to another person. Because Samantha (the OS) simulated human qualities, there was no need to complete the interface and Theodore was unfortunately left trapped in an infinite loop of virtual pseudo-love.

ENDNOTES

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