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GRAPHIC ESSAY

VISUAL LANGUAGES

OF ARTIFICIAL INTELLIGENCE

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GRAPHIC ESSAY

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SPRING SEMESTER

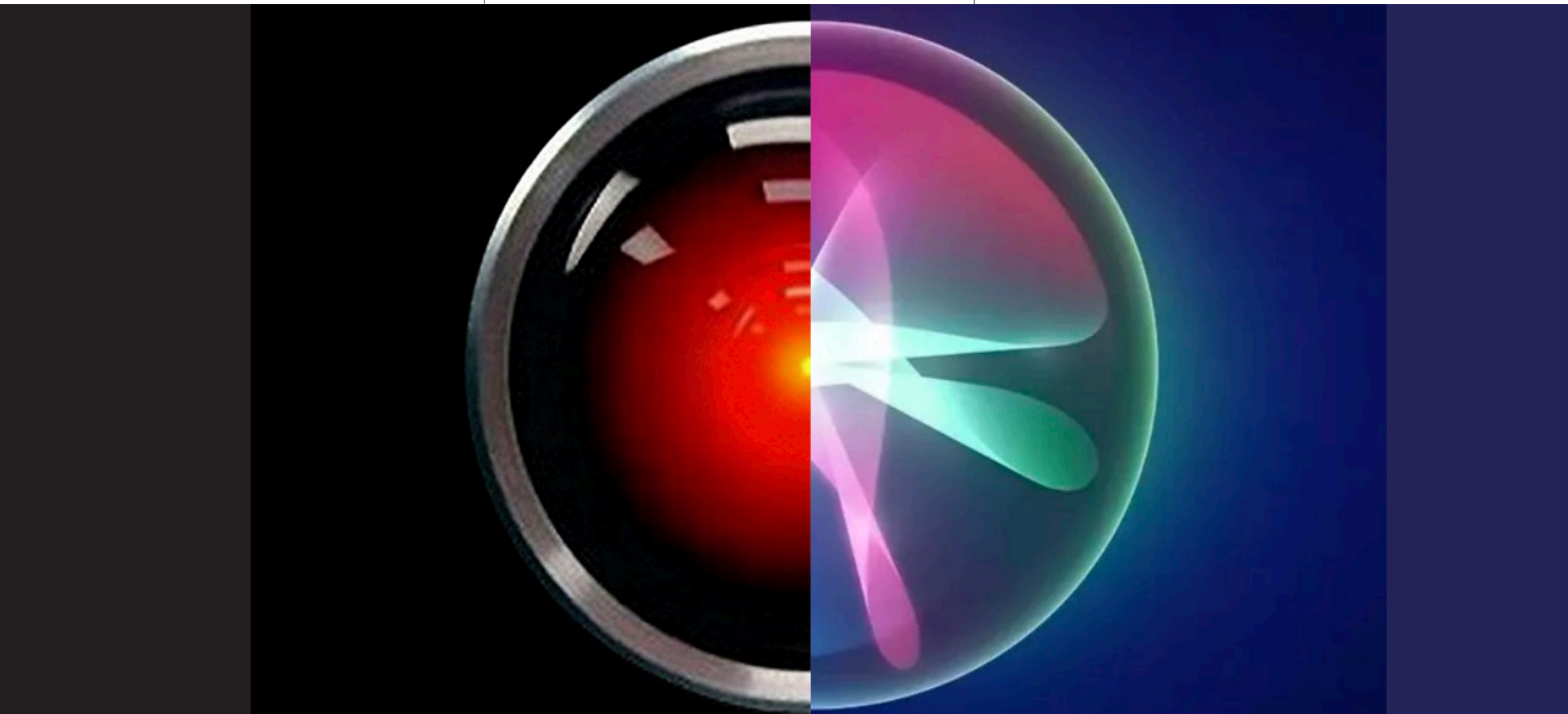


TABLE OF CONTENTS

INTRO-DUCTION

Artificial intelligence is polysemic, utilized in diverse technologies in as many different domains. Traditionally, there has been a technological delineation between artificial general intelligence (AGI; strong AI) and narrow artificial intelligence (weak AI) (Goertzel & Pennachin, 2007). AGI is a human-level intelligence with the potential to have globally catastrophic risks, but has yet to be realized (Bostrom & Cirkovic, 2011). Narrow AI however, is regularly found in tech applications such as autonomous vehicles, search engines, and brokerage trading platforms (Gao et al., 2020; Hengstler et al., 2016).

In this context, this essay examines the use of visual framing in three AI domains that cover both general and narrow AI, as well as AI advocates and detractors to being to understand the breadth of how AI technologies are portrayed to the public: 1) portrayal of AI in popular culture movies, 2) Campaign to Stop Killer Robots website images, and 3) Google's use of images surrounding their DeepMind project.

AI IN FILM

Boris Karloff as Frankenstein's monster (1931). Film directed by James Whale – Universal Pictures. Adapted from Mary Shelly's 1818 novel of the same name.

One can make the argument that Mary Shelly's Frankenstien represents an early representation of intelligence separate from human beings (Botting, 2018; Shelley & Hindle, 1985). More modern interpretations of AI come from cinema, including: 2001: A Space Odyssey's HAL 9000, the Terminator Series' eponymous villain, and Ex Machina's Ava [refs].

Common to all of these films is a visual narrative that compliments the overarching plot: a once benevolent or innocuous AI character becomes corrupted and their visual appearance deteriorates overtime from human to machine. Use of parallel visual and semantic-based narratives in tandem may reinforce the themes such movies are trying to convey by tying complex thematic elements such as dehumanization to visual language and narrative plot structures (Cohn, 2020; Dahlstrom, 2014).

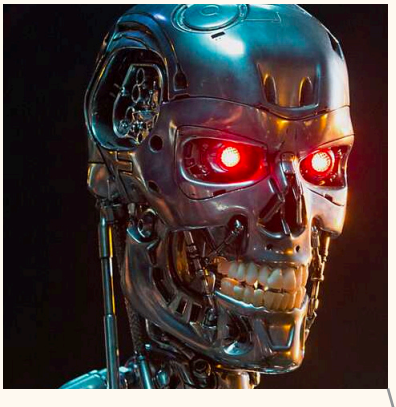
Representations of AI in cinema are also rife with metaphor. Following Mary Shelly's model of an electrified amalgam of human parts, realized in a human form, AI characters in movies are often likewise portrayed as humans running on metal and circuitry or simply as unadorned robots.

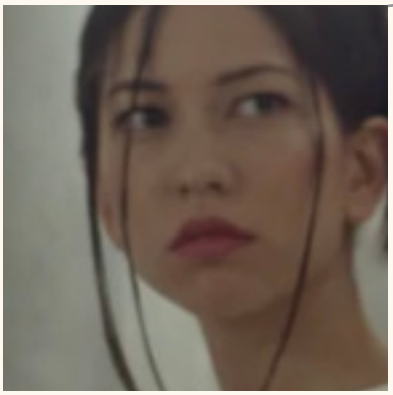
Such personifications may have disparate effects: portrayal of AI in human form may help audiences more closely identify artificial intelligence (Dahlstrom, 2014; Glikson & Woolley, 2020). On the other hand, when AI is represented as a sharp, angular (usually red-eyed) terminator-antagonist, audience trust towards the technology can be eroded (Siau & Wang, 2018). Popular personification of AI as human agents portray the technology as human-equivalent intelligence, and constitute part of a visual culture of AI (Hansen & Machin, 2013).

AGI, however, has not yet been achieved, rather AI is used in myriad narrow applications, but it may be useful in analyzing contemporary framing of AI issues to begin determining if there has been cultural spillover from popular representation of AI.

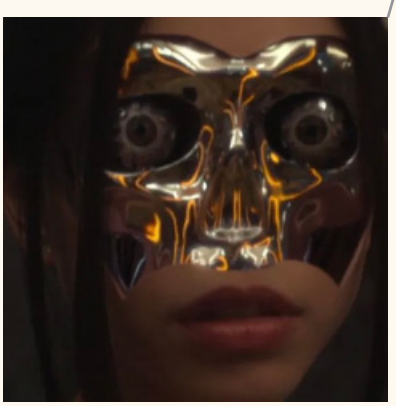
AI IN FILM

TERMINATOR
THE TERMINATOR





KYOKO
EX MACHINA



A common theme for AI characters is dehumanization, visually this regression is often represented through a transformation from human to machine

CENTRAL QUESTION

HAS POPULAR CULTURE'S VISUAL LANGUGE OF AI SPILT OVER TO COMMUNICATIONS CENTERING ON NARROW AI APPLICATIONS?

VIA FRAMING?

VIA METAPHOR?

CAMPAIGN TO STOP KILLER ROBOTS

RISK CAMPAIGN

WWW.STOPKILLERROBOTS.ORG

The Campaign to Stop Killer Robots (CSKR) seeks to convince legislators to implement regulation on autonomous weaponry, and analysis of how this risk campaign visually frames AI offers insight into how narrow AI applications are framed in a risk context (Stop Killer Robots, 2021).

The first striking feature of a plurality of the images used by CSKR is their composition. These images are framed from an AI drone's point of view, or feature human subjects overlaid with computerized glyphs – metaphors for computer vision. They position the viewer in the place of autonomous weaponry by activating a system of culturally understood semiotics: street cameras or drones give birds eye views of pedestrians, and thin, angular spiderwebbed symbols are synonymous with the aesthetics of the tech industry , and in some cases recalling a reticle overlay (Barthes, 1977; Hansen & Machin, 2013).

Of course, while the framing of these photos may transport the viewer into the role of autonomous cameras and weaponry, the subjects of these photos are humans far from a battlefield. Viewers may recognize this fact, and the revelation could reframe the reality of drone strikes to more closely align with the fabric of their lives.

GLYPH | **RETICLE**

Photo from Stop Killer Robot's website. A woman stands centered in the foreground, a glyphic overlay encompasses her face, perhaps as a visual metaphor for facial recognition.

CHARACATURE | **PERSONIFICATION**

The sole visual AI personification on the campaign's website, this image features a young child skipping in front of a robot in a large metroplotian square. This visualization almost crosses over into characature , reminicent of atmoic-age robots.

DEEPMIND, GOOGLE

Google likens Deepmind to the Hubble Space telescope -- both expand human kiowledge. Photo of the Bubble Nebula, NASA

Google's Deepmind, an AI incubator with the ultimate goal of eventually producing an AGI, also does not directly feature personified AI on their website. They do, however, use plentiful metaphor on their impact page when describing how their software is currently used in the field (Deepmind, 2022).

For example, colorful, layered yarn is used as a stand-in for human breast tissue to represent an AI cancer screening project, a human-speech generator uses ripples of paper to portray sound waves, and childrens building blocks are used to approximate computer memory structure.

The persuasive effects of metaphor increase as a function of audience familiarity or resonance with target and base of a metaphor (Ottati et al., 1999; Sopory & Dillard, 2002). Google's use of common household materials may then be read as an attempt to make AI more relatable, as each concept on Deepmind's impact page must first be filtered through audience understanding of AI and subsequently their understanding of each niche application. Taken together, these metaphors can be read as solution frames – unsurprising as Deepmind's stated mission is "to advance science and benefit humanity" (Deepmind, 2022).

SOLUTION FRAMING

HOUSEHOLD METAHPOR

WAVENET: A GENERATIVE MODEL FOR RAW AUDIO

Thin strips of colorful paper are used to represent Google/Deepmind's efforts to create more like-life computer generated human speech.

ACCURATE BREAST CANCER IDENTIFICATION

Again, vibrant color is used. This time, yarn simulates the appearance of human cell sections for deep learning cancer screening applications.

A NEURAL NETWORK FOR DYNAMIC MEMORY

Even more abstract, children's building blocks metaphorically represent the building blocks of computer memory as Google seeks to improve it with AI

From this brief survey of visual AI representations, it would appear that framing follows form. For cinema, AI is personified to increase relatability and perhaps as a necessity to cultivate three-dimensional characters with agency. Meanwhile, a risk campaign concerned with AI surprisingly abstains (for the most part) from personifying the technology in favor of implicit compositional techniques that transport the audience to the vantage point of autonomous weapons and content that places the issue of AI-drone strikes in urban settings. Finally, an AI incubator frames it's visuals to better explain the solutions its AI tech is working towards, using metaphor that grounds AI in terms of household crafts.

CREDITS

SOFTWARE

This project was made using Adobe InDesign, using the Retro Proposal layout as a base upon which significant edits were made.

ACKNOLEDGEMENTS

Thank you to the Spring 2022 Visual Communication of Science (LSC 825) seminar for stimulating discussion and valuble feedback

THANK YOU!

Thank you for reading this zine! This has only been a cursory look at the visual language of AI, but hopefully it's raised some questions

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