

Unpacking the Language of AI

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Myths, Metaphors, and Visions

Johanna Teresa Wallenborn



Fig. 1: Geralt / Pixabay/ CC-BY 4.0

Why is Artificial Intelligence so commonly depicted as a machine with a human brain? The narratives and metaphors offered by science fiction, media outlets and special interest groups around what is described by the term “Artificial Intelligence” have affected our views of AI systems in society. Metaphors are all around us and they are extremely powerful: they access our memories, trigger emotions, influence our attitudes and shape our expectations of the future.

When you type “AI” in a search engine of your choice, you may not be surprised to find that most images depict a human brain in vivid blue colors. On second thought, however, this is astonishing: Why would a machine have a human brain? Why would searching for a branch of computer science show depictions of the centre of our nervous system?

Ascribing human characteristics to AI systems is a widespread concept in contemporary descriptions of AI.

1: European Commission: Artificial Intelligence for Europe. (2018). *COMMUNICATION FROM THE COMMISSION, 1*. Brussels: European Commission. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A237%3AFIN>

2: Wyatt, S. (2021). Metaphors in critical Internet and digital media studies. *New Media & Society, 23*(2), 406–416. <https://doi.org/10.1177/1461444820929324>

3: Katzenbach, C., & Larsson, S. (2017). *Imagining the digital society – metaphors from the past and present*. <https://www.hiig.de/en/imagining-the-digital-society-metaphors-from-the-past-and-present/>

4: Lakoff, G., & Johnson, M. (2013). *Metaphors We Live by*. Chicago, IL: The University of Chicago Press

5: Stark, L., & Hoffman, A.L. (2019). Data is the new what? Popular metaphors and professional ethics in emerging data cultures. *Journal of Cultural Analytics, 1*(1), 1–22.

6: Salles, A., Evers, K., & Farisco, M. (2020). Anthropomorphism in AI. *AJOB Neuroscience, 11*(2), 88–95. <https://doi.org/10.1080/21567740.2020.1740350>

Visual, as well as textual metaphors portray AI systems as human-like¹. One can easily think of examples: artificial “intelligence”, machine “vision”, machine “learning” or artificial “neural” networks. All these metaphors are derived from the same metaphorical concept: attributing human characteristics to AI systems.

When we think and talk about the future, we use concepts of the past to imagine and explain unknown phenomena through metaphors², yet they carry normative implications that shape our thoughts³. As per definition, metaphors are transmissions of meanings: One phenomenon is understood and experienced through the properties of another⁴.

Research shows that metaphors are more than puns and phrases: While metaphors are able reveal novel paths of thinking, they can also deliberately mislead by highlighting hidden similarities at the expense of crucial features that are being abstracted⁵.

Myths and Metaphors of Re-creation: Is there anything human in these machines?

Anthropomorphic metaphors promote moral regard for non-human entities by endowing them with human-like qualities. By depicting AI as a human brain, a sense of kinship and familiarity is engendered, implying that these entities share innate similarities with humans that define our essence⁶.

Behind this is the hope and belief that non-human systems are analogous to human minds and, with adequate training, human intelligence can be technically simulated⁷. Interestingly, pictorial metaphors of AI such as the brain-inspired AI metaphor are commonly depicted in blue, green, and purple colours counterbalancing the attributed human resemblance with coldness and distance⁸.

The desire to recreate a sentient being has been a persistent theme throughout human culture⁹, as evidenced by stories such as the golem and Frankenstein, as well as modern portrayals such as the replicants in “Blade Runner”¹⁰.

Historically, new technologies have often been compared to the human brain.

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With the mind being the simpler, sensuously more “known” entity, its characteristics were used to illustrate the functioning of telegraphs, hydraulic machines, or electrical circuits¹¹. And each time a new technology was introduced, new analogies to human brains were drawn.

Today, the formerly unknown machine has become better understood than the human brain¹². As a result, the mechanical metaphor has shifted in terms of target and source: the functionalities of computers are nowadays used in neuroscientific research to help illustrate and understand the structure and functioning of our brains¹³. Expressions such as “I am feeling wired today” have also become commonplace in everyday language.

New metaphors as a chance to shift our vision on alternative futures

Comparing machines and the human mind offers expressive power and heuristic value, explaining its popularity as a metaphor. As a goal-oriented metaphor, it has provided a powerful narrative for policymakers, researchers, and engineers alike. However, with a perceived gap between replicating human intelligence and actual technological progress, the metaphor may be losing its momentum, prompting the need for more nuanced depictions of AI¹⁴.

7: Crawford, K. (2021). *Atlas of AI*. (1st ed). New Haven, United States: Yale University Press. 4-19.

Chunk 4

8: Ganesh, M., & Gilman, N. (2020). Making Sense of the Unknown – The Rockefeller Foundation. *The Rockefeller Foundation*. <https://www.rockefellerfoundation.org/blog/making-sense-of-the-unknown/>

9: Cave, S., Craig, C., Dihal, K., Dillon, S., Montgomery, J., Singer, B., & Taylor, L. (2018). Portrayals and perceptions of AI and why they matter. *The Royal Society*. <https://royalsociety.org/topics-policy/projects/ai-narratives/>

10: Hermann, I. (2021). Artificial intelligence in fiction: between narratives and metaphors. *AI & SOCIETY*. <https://link.springer.com/10.1007/s00146-021-01299-6>

11: Cobb, M. (2022). How technology has inspired neuroscientists to reimagine the brain. *Vox*. <https://www.vox.com/unexplainable/2021/11/17/22770720/brain-science-technology-neurology-matthew-cobb>

Chunk 6

12: West, D., & Travis, L. (1991). The Computational Metaphor and Artificial Intelligence: A Reflective Examination of a Theoretical Falsework. *AI Magazine*, 12(1), 64-78. <https://doi.org/10.1609/aimag.v12i1.885>

13: Cobb, M. (2022). How technology has inspired neuroscientists to reimagine the brain. *Vox*. <https://www.vox.com/unexplainable/2021/11/17/22770720/brain-science-technology-neurology-matthew-cobb>

14: see also <https://betterimagesofai.org/>



Fig. 2: Catherine Breslin / Better Images of AI / Silicon on Black 1 / CC-BY 4.0

Chunk 7 15: Johnson, D. G., & Verdicchio, M. (2017). Reframing AI Discourse. *Minds and Machines*, 27(4), 575-590. <https://doi.org/10.1007/s11023-017-9417-6>

Metaphors help us navigate the unknown by emphasizing certain features. Yet, using language and imagery that is more precise can enlighten aspects of sociotechnical systems that are hidden through metaphors and enrich our understanding of technology and its impact¹⁵.

Chunk 8

Shifting linguistic frames through new metaphors and narratives for AI could help us make alternative future visions plausible and allow needed new visions to emerge.

Chunk 9

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Chunk 10

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