

Beyond Intelligence: Finding New Metaphors for AI through a Collaborative Workshop with Artists and Scholars

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ABSTRACT

Artificial Intelligence (AI) systems can be difficult for laypeople to understand despite their widespread usage on digital platforms. This prevents laypeople from questioning and deconstructing the usage of AI when it is appropriate to do so. With the help of artists, this project facilitates more intuitive and interpretable Artificial Intelligence design for the public by generating new AI metaphors. In the first phase of this project, an ethnographic study is conducted in order to understand existing metaphors being used for AI. A 3 day workshop is then conducted bringing together artists and scholars from the Toronto area in order to create new art and explore new metaphors for AI. This workshop culminates in a gallery exhibit. Further research will be designed in conjunction with artists, with the aim of conducting mutually beneficial research that benefits the artistic community while also creating design considerations for new AI systems.

KEYWORDS

art-science collaboration, artificial intelligence, ai literacy, design metaphors

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1 INTRODUCTION

Recently, concern has mounted as to how, unbeknownst to laypeople, AI is effecting the ways in which we consume information and make decisions [8]. According to the Biden Administration's recently released "Blueprint for an AI Bill of Rights" [1], AI can effect hiring and credit decisions and embed harmful bias and discrimination. Recent work in HCI studying social media has noted how AI can prevent us from consuming media outside of our AI-assessed tastes [6] and has been responsible for rapidly generating and distributing fake news accounts [5]. The presence of AI in high-stakes situations continues to grow, with large-scale social implications [7].

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One of the reasons that AI systems haven't been subject to as much legal and ethical scrutiny until recently is that AI systems can be difficult for laypeople to interpret [8]. In order to address these issues, AI Literacy is paramount. AI Literacy has been defined as a set of competencies which encourage users to evaluate AI technology, communicate and collaborate with AI, and use AI as a tool [8]. We argue that AI literacy is critical in part because it allows laypeople to gain an understanding of AI sufficient enough that they can (1) critically engage in conversations about when it is and isn't being used ethically and (2) call for its usage in domains that may not otherwise be addressed.

Design metaphors are critical for helping everyday people develop quick, unconscious understandings of digital systems without additional education [9]. They hold an important place in the history of Human-Computer Interaction: the visual "desktop" metaphor enabled people to understand the computer as a physical work table [2]. Recent work shows that these quick, unconscious understandings of AI can lead to a more rich understanding of how an AI system behaves in practice than their slower, more considered developed counterparts [4]. Finding effective design metaphors for AI is therefore critical. A recent example comes from the science-fiction author Ted Chiang who penned a widely publicized article in *The New Yorker* stating that the Internet is a reasonable metaphor for ChatGPT: it possesses an incredible breadth of knowledge, but is also laden with inaccuracies, follies, and biases [3]. This metaphor doesn't fully capture how ChatGPT works, but reasonably helps the public develop a mental model for the system.

Artists and writers like Chiang are uniquely poised to help us devise new metaphors because they are constantly coming up with visual and linguistic representations to think through human experience. Similar Human-Computer Interaction papers have used this technique in the past to develop new metaphors for climate change [10]. In this project, we will host a workshop with Toronto artists and writers to explore new metaphors for AI. This project will use several common Human-Computer Interaction research methods 1) Ethnographic field work with laypeople and policymakers in order to understand their intuitions about AI, 2) Experimental workshops with Toronto artists and writers that explore new metaphors for AI. In doing so, we hope to address two research questions:

- (1) How do existing metaphors for AI systems found in public discourse effect laypeople's understanding of AI systems?
- (2) What are examples of new metaphors that may better or more ethically characterize how these systems work?

2 PROPOSED WORK

2.1 Phase 1: Interviews with Laypeople and Artists

In this stage, we will use ethnographic techniques to interview 20 laypeople who have only a passing familiarity with AI about current metaphors they use to understand it. By "passing familiarity" we mean that they are familiar with the concepts of artificial intelligence, but have never done anything related to artificial intelligence either through coursework, their job, or through independent research. Through these interviews we endeavor to understand laypeople's intuitions for AI and how these existing intuitions can be developed into ethical design considerations for developers.

2.2 Phase 2: Artist Workshop

We will host a workshop with local Toronto digital media artists and literary writers (through Inter/Access and Coach House Press) in which artists will attend lectures about AI, work with AI systems, and develop their own intuition for these systems. This workshop will be designed in consultation with these arts organizations in order to try and maximize benefit to the artistic community. Input from the artists will then be used to shape the direction of further research. As part of the workshop, artists will also use their respective crafts in order to develop new artwork and stories which explore new intuitions and metaphors for AI in a manner that artists find provocative. These artworks will then be displayed at a local gallery with a literary reading that will be open to the public several weeks later.

2.3 Phase 3: Decided with the Artists

Phase 3 will be designed in conjunction with the artists in the workshop. At this stage of the research, we are interested in developing design considerations and new metaphors for the development of AI systems. We will consult the artists and arts organization to design a third phase of research that will be equally beneficial to the arts community.

3 ARTISTIC OUTCOMES AND CONSIDERATIONS OF ETHICS

Based on the findings of the research team's forthcoming DIS Paper *We're Not Decorators: Fostering Interdisciplinary Exchange in STEM-Artist Collaborations*, in this section we highlight the benefits to artists of this program and how the research projects endeavors to foster interdisciplinary exchange. We argue that in order for the collaboration to be successful, it must both provide artists comparable outputs or resources to those garnered by the research team and also endeavor to foster an interdisciplinary culture in which the value systems of the research team and of the artists will be treated with equal respect. Below, we provide some of the outcomes for artists and considerations the research team will use in order to foster interdisciplinary exchange.

3.1 Outcomes for Artists

- (1) Funding: All artists will be compensated appropriately and fairly for their time and effort participating in the workshop.

- (2) Technical Support: The research team and other scholars at the university will be available to provide logistical and technical support, mentorship, and guidance throughout the project.
- (3) Access to Resources: This project will provide artists with advanced technologies, equipment, and research facilities that artists may not otherwise have access to.
- (4) Increased Visibility and Exposure: A gallery exhibit will be hosted at the end that will be free and open to the public. STEM events, conferences, or exhibitions often attract scientists, researchers, educators, and policymakers who may not typically engage with their work. By showcasing their work in an unusual setting, artists will have the opportunity to reach a broader audience, build connections, and potentially gain recognition and opportunities for further collaborations.
- (5) Recognition: Artists will be able to list acceptance into the workshop as an honor on their CVs.
- (6) Learning and Skill Development: Artists will have the opportunity to develop new technological skills, work with AI technology, and learn about AI technology. AI is a complex social issue and artists will have the opportunity to engage with this issue and provoke discussion.

3.2 Considerations for Interdisciplinary Exchange

In this section, we highlight how we aim to foster interdisciplinary exchange with the artists. Artists and scientists often approach problems and creative processes from different perspectives. Through collaboration, artists can gain new insights, learn about cutting-edge research, and explore fresh ideas that can enrich their artistic practice. This cross-pollination of ideas can lead to innovative and thought-provoking artworks. However, in order for this interdisciplinary exchange to happen in earnest, artists must have the opportunity to shape the design and outcomes of this project. The first author on this project is a working novelist and digital media artist who has used his experience to shape the design of this project. Digital media organization Inter/Access and literary press Coach House Press will help shape the design of the workshop in Phase 2 of this project. Phase 3 will be designed with the help of the artists of this workshop.

Below are additional ways in which the research team intends to organize the workshop so that it fosters interdisciplinary exchange.

- (1) Consultation: This workshop will be designed in conjunction with artists and artistic organizations in both Phase 2 and Phase 3 of the research.
- (2) Gallery space: The final gallery space will not be a part of the University of Toronto or the research community, but rather curated by a local gallery like Inter/Access.
- (3) Readying the Organization: We will prepare scholars to work with artists and clear the time and resources to give artists their attention and aid.
- (4) Interstitial Spaces: We will create casual, interstitial spaces (maybe free lunch) in which the artists can come together and trade information about their work in a low-pressure atmosphere.

- (5) Process vs Outcome: Balancing the need for a final research outcome with the unpredictable time frames of the artistic process, artists will be given a large amount of time between the gallery show and the 2-day workshop in order to develop their work as they see fit.

4 "DIAGRAM" FOR TOWARDS MUTUAL BENEFIT WORKSHOP, DIS 2023

In the spirit of interdisciplinary inquiry with which this project engages, a sound visualization has been provided in lieu of a traditional diagram. The video can be seen here ([link](#)).



Figure 1: Musical Diagram of Mutual Exchange

In it, three instruments can be heard: a drum machine, depicting a STEM organization, a guitar, depicting an artist, and an analog synth, depicting the product of their labors that can transcend what each can achieve alone. The drum machine begins rigid; the guitar amorphous and without a clear tonal center tempo. With time, the guitar becomes more clearly patterned, and the drum machine

more elaborate and adorned. Finally, a sound that neither could create individually, straddling the analog and digital worlds—a synth—comes into play.

REFERENCES

- [1] 2022. Blueprint for an AI bill of rights. <https://www.whitehouse.gov/ostp/ai-bill-of-rights/>
- [2] Anand Agarawala and Ravin Balakrishnan. 2006. Keepin'it real: pushing the desktop metaphor with physics, piles and the pen. In *Proceedings of the SIGCHI conference on Human Factors in computing systems*. 1283–1292.
- [3] Ted Chiang. 2023. ChatGPT is a Blurry JPEG of the Web. *The New Yorker* (2023).
- [4] Katy Ilonka Gero, Zahra Ashktorab, Casey Dugan, Qian Pan, James Johnson, Werner Geyer, Maria Ruiz, Sarah Miller, David R Millen, Murray Campbell, et al. 2020. Mental models of AI agents in a cooperative game setting. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. 1–12.
- [5] Sarah Kreps, R Miles McCain, and Miles Brundage. 2022. All the news that's fit to fabricate: AI-generated text as a tool of media misinformation. *Journal of Experimental Political Science* 9, 1 (2022), 104–117.
- [6] Christoph Krönke. 2020. Artificial Intelligence and Social Media. In *Regulating Artificial Intelligence*. Springer, 145–173.
- [7] Richard N Landers and Tara S Behrend. 2022. Auditing the AI auditors: A framework for evaluating fairness and bias in high stakes AI predictive models. *American Psychologist* (2022).
- [8] Duri Long and Brian Magerko. 2020. What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI conference on human factors in computing systems*. 1–16.
- [9] Dennis C Neale and John M Carroll. 1997. The role of metaphors in user interface design. In *Handbook of human-computer interaction*. Elsevier, 441–462.
- [10] Robert Soden, Perrine Hamel, David Lallemand, and James Pierce. 2020. The Disaster and Climate Change Artathon: Staging art/science collaborations in crisis informatics. In *Proceedings of the 2020 ACM Designing Interactive Systems Conference*. 1273–1286.

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