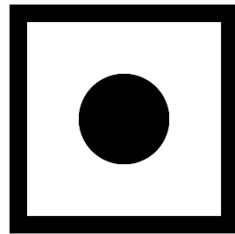


THE SCIENCE AND ART OF DIGITAL TECHNOLOGY

From the Turing Machine to ChatGPT



The widespread media framing of 2023 as ‘the year of AI’ was primarily driven by the launch of ChatGPT, a language-processing chatbot that has arguably triggered an ‘AI boom’ and is accelerating the Fourth Industrial Revolution. This digital advancement is the latest in a long series of modern technological developments since the late 18th century, which have simultaneously been a primary source of economic progress but also of various cultural anxieties. Concerns that human labour could be (completely) substituted by more advanced machines can be traced from the early protests of the Luddites to the more recent, post-WW2 ‘automation anxieties’ (Bassett & Roberts, 2019), and have been notably articulated in Marxist theories of alienation. Similarly, since the 19th-century invention of the telegraph to contemporary virtual realities, communication media have continuously given

rise to fantasies of disembodiment and thus become ‘haunted’ by various iterations of the ghost in the machine (Sconce, 2000). Artificial intelligence, as the latest development, with growing applications across various industries (e.g., healthcare, education, advertising, financial markets, etc.) is renewing these earlier debates about the potential economic and cultural benefits as well as threats, of new technology.

New media are frequently embraced by existing cultural forms, transforming and remediating them in the process. In the post-WW2 Information Age, literature, music, visual and performing arts, and other genres have explored the new creative potential of digital tools. For example, while Shelley Jackson created cybertexts and hypertext fiction by applying the principles of digital technology to literature, Merce Cunningham used computer technology to randomize movement and further his experiments with dance. Performance artist Stelarc has combined biocybernetics, virtual reality and AI to create ‘prostheses’ for his body, bringing us closer to a transhuman future. Digital technology has also ushered in the new genre of ‘digital art,’ encompassing subtypes such as electronic literature, computer music, digital painting, or AI art.

With the onset of 21st century, numerous scholars and scientists have explored the emancipatory potential of digital technology as a means of facilitating our transition into Post-Anthropocene political communities, while digital artists have strived to create eco-centric art that explores alternatives to climate change and extinction, for example, by immersing humans into the *Umwelt* of other species in order to raise awareness of our shared ecosystems.

The eleventh issue of *Pulse*, entitled “The Science and Art of Digital Technology. From the Turing Machine to ChatGTP,” collects original articles and books reviews that span topics such as digital ableism and biohacking, ethics and AI, cybernetics, and digital capitalism. The authors take up a variety of theoretical framework and approaches, from cinema history and literary analysis to critical theory, ecocriticism and posthumanism.

In his article “Machina Sapiens. Artificial Intelligence Between the Symptomatic of Cognitive Capitalism and the Revolutionary Promise of Posthumanism,” Denis Petrina studies AI through the dual lenses of cognitive capitalism and posthumanism, tracing its development through cybernetics, IT, and the global structures of cognitive capitalism. AI is viewed as both a product of capitalist exploitation and a nonhuman cognizing agent. Drawing on the work of Benjamin Bratton, the paper highlights that AI is interwoven with systems of knowledge commodification, before moving on to interrogate posthumanist theories, particularly Katherine Hayles’ concept of cognitive assemblages, in order to redefine agency as distributed and material. The paper concludes by proposing nooecological noopolitics as a solution to the tensions between AI’s involvement in capitalist structures and its posthuman potential.

Jasper Vanhaelemeesch discusses the 2024 International Film Festival Rotterdam, with a focus on its screen-based art installations. His article, titled “Reclaiming A(rt) Future: Speculative Storytelling and Eco-Centrism in Film Art Installations at the International Film Festival Rotterdam 2024,” focuses on themes such as eco-criticism, environmental issues, and social justice, while analysing formal and immersive aspects of the presented artworks. Drawing on methods such as visitor surveys, the article argues that these installations expand the cinematic experience and redefine the boundaries of cinema.

In “Understanding the Aspirational Cyborg: Reflections on the Casualization of Biometric Surveillance”, Micaela Donnabella examines discourses of technoableism in online spaces. Donnabella criticizes the appropriation of medical technology used developed for disabled people by the non-disabled community, arguing that these practices further aggravate the marginalization of people with disabilities. The article lists numerous examples of biohacking as an alternative to the commercialization of vital technological devices, which are often expensive and inaccessible to those who need them most.

In his text, “AI, Ethics, and Pharma Piracy: Challenging Corporate Monopolies of Biomedical Innovation in Annalee Newitz’s *Autonomous*,” Prasenjit Panda focuses on the novel *Autonomous* by Annalee Newitz and the ethical and moral issues surrounding the use of artificial intelligence that the novel raises. Drawing on theoretical concepts such as Kant’s ‘categorical imperative,’ or ‘capabilities approach’ by Marta Nussbaum, the article highlights both the benefits and the drawbacks of using AI. By analysing the behaviour of fictional AI characters in *Autonomous*, Panda also explores the possibility of artificial intelligence making moral choices and overriding its original programming.

In “The Moth and the Bat: A Cybernetic Reading of Ted Chiang’s ‘The Lifecycle of Software Objects,’” Sam Yaziji analyses the short story “The Lifecycle of Software Objects” as an example of ‘cybernetic fiction.’ Yaziji focuses on the aesthetical dimensions of the narrative that he sees as manifestation of the cybernetic logic. He situates Chiang’s story within the historical development of cybernetics and the contemporary epoch of digital capitalism. The article concludes that the only way to counter what the author views as the dehumanising and commodifying logic of cybernetics is through empathy.

The intersections of digital technology and art are also interrogated in an interview with Darko Fritz, Croatian artist and curator known for his exhibitions on digital art. Fritz discusses the history of Croatian digital art, particularly the historical *New Tendencies* movement, and reflects on the challenges that artists and curators face working with digital art. In her visual essay, titled *Edible Notions: Tasting AI, Food, and the Bias of Perception*, Laura Elidedt Rodrigues describes her artistic project *Edible Notions* which questions how artificial intelligence reflects cultural narratives, with food as case study.

The issue also features several book reviews which address recent developments in digital technology and its intersections with various aspects of culture. Paul V. Schmidt reviews *Adversarially Evolved Hallucinations* (eds. Trevor Paglen and Antony Downey, Sternberg Press, 2024), Shiva Mainaly discusses Ethan Mollick's *Co-Intelligence: Living and Working with AI* (Portfolio, 2024), and Milan Kroulík analyses *Exoanthropology: Dialogues with AI* by Robert Leib (Punctum Books, 2023). Furthermore, Steven S. George writes on Dan McQuillan's *Resisting AI: An Anti-fascist Approach to Artificial Intelligence* (Bristol University Press, 2022), and Matilde Piu introduces us to *Dismantling the Patriarchy, Bit by Bit: Art, Feminism, and Digital Technology* by Judit K. Brodsky (Bloomsbury, 2021).

The editors hope you enjoy this issue of *Pulse*. ☐

REFERENCES

- Basset, Caroline and Ben Roberts. “Automation Now and Then: Automation Fevers, Anxieties and Utopias.” *New Formations*, no. 98 (2019).
- Sconce, Jeffrey. *Haunted Media. Electronic Presence from Telegraphy to Television*. Durham, NC: Duke University Press, 2000.