Circular Diffusion

By Adam Harvey

Image credit: Adam Harvey

In his essay and collection of images, titled *'Circular Diffusion',* artist Adam Harvey presents a reflection on the perils and possibilities of Generative AI technologies and their unavoidable relationship to energy and propaganda.

'When you have a theory there are two kinds of questions you have to ask. Why are things this way? Why are things not that way? If you don't get the second question you've done nothing.'
Noam Chomsky, 2022[1]

AI is often considered a hopeful technology with unlimited problem-solving capabilities. But new solutions create new problems…

Generative AIs enable ground-breaking new approaches to visual communication. They automate artistic production and auto-complete visual concepts, transforming low-dimensional ideas into high-resolution imagery. But they also create new concerns ranging from computational plagiarism to excessive energy usage.

When Generative AIs are applied to climate change they often produce non-scientific output

cloaked in scientific language. The ['science behind the project'](#) is often not actual climate science, but merely data science built on the theory that 'anything goes', in effect amplifying misinformation and degrading trust in the media.

Not being able to answer these questions is part of the fun of Generative AI. But it is a circular experience. Images are generated to learn how images are generated. The past is represented through new algorithmic lenses, but is still the past. No new knowledge is created.

What the future needs?

Generative AI is compelling, but if its reward function doesn't optimise for global goals, the results are doomed to converge towards a quixotic descent. It could seem that Generative AIs are the opposite of what the future needs: energy intensive fake-image generators that contribute negatively to science. Almost. Their true value is not science but [propaganda](#), or rather their ability to automate the visual layer of communication in cybernetic systems. This is as significant as the JPEG compression algorithm was for photographs or the MP3 compression algorithm was for the propagation

> **'Where Generative AI serves as a medium, what there is to know is what is already known.' Fabian Offert (2021)[2]**

Using AI to address climate change is often a quixotic fantasy. When wind turbines spin they create more energy, which is used to accelerate and improve AI, which increases efficiency and lowers cost, creating more demand. Rather than reducing the environmental impact, more wind turbines must be manufactured to create more energy to meet the surge in demand for more AI, a phenomenon known in economics as the Jevons Paradox.[3]

In a collection of images, titled *'Circular Diffusion',* I reflect on the perils and possibilities of generative AI technologies and their unavoidable relationship to energy and propaganda, asking the viewer if we can truly escape this paradox of AI and use it to benefit humankind, or will we be sublimated into a submissive state of circular diffusion.

of music. Generative AIs just work in reverse, expanding compressed neural potential into formatted visual kinetics. In this way Generative AI contributes a new layer of algorithmic visual communication infrastructure: the power to expand low-dimensional concepts into higher-dimensional representations.

The work

The title *'Circular Diffusion'* is a reference to AI diffusion algorithms, their power to automate the production of awe-inspiring imagery, and the circular logic of extrapolation. The images refer back to the energy waste of their generative production by using this very system to 'diffuse' and propagate an ascendant and sustainable version of itself by cloaking the context in the latent space of classical art and greenwashing stock imagery.

For exhibitions, each image from the panelled artwork is presented as a 2x2 grid (120x120cm total) emphasising a circular clockwise movement of energy being transformed into art promoting the energy systems used to generate the energy-driven art. It is not art but a meta statement about images claiming to be art, while serving the higher purpose of promoting the underlying system, much like the reference to transcendent classical art composition of each image in this work.

Footnotes

The New Real Observatory is part of [The New Real](#), a partnership between [University of Edinburgh](#), Edinburgh's Festivals and [The Alan Turing Institute](#). Featured artists [Adam Harvey](#), [Inés Cámara Leret](#), [Keziah MacNeill](#), [Alex Fefegha](#). Funded by the [Arts and Humanities Research Council (AHRC)](#) - [UK Research and Innovation (UKRI),](#) Towards Turing 2.0 and [Engineering and Physical Sciences Research Council (EPSRC).](#)

'Circular Diffusion' was commissioned as a project of [The New Real Observatory](#), developed between December 2021– August 2022, and first exhibited at [ARS Electronica 2022](#), Linz, Austria.

Author bio

Adam Harvey (US/DE) is a researcher and artist based in Berlin, focused on computer vision, privacy, and surveillance technologies. He received his masters degree from the Interactive Telecommunications Program at New York University (2010) and a BA in Integrative Arts from Pennsylvania State University (2004). Harvey is the founder of VFRAME.io, a software project that innovates computer vision technology for human rights researchers and investigative journalists, which received an award of distinction from Ars Electronica and nomination for a Beazley Design of the Year award in 2019.

References

1. Chomsky, N. (2022) ['Machine Learning Street Talk (MLST) #78,'](#) Prof Noam Chomsky Special Edition (Podcast).
2. Offert, F. (2021) ['Latent Deep Space: Generative Adversarial Networks (GANs) in the Sciences,'](#) Media+Environment. Modelling the Pacific Ocean, Vol 3. Issue 2. Dec 22, 2021.
3. Iyer, A. (2021) ['What is Jevon's Paradox?'](#) ClimaTalk.

Links

1. [Adam Harvey](#)
2. [Explore the science behind the project](#)
3. [*'Is AI Art Soft Propaganda?'*](#)