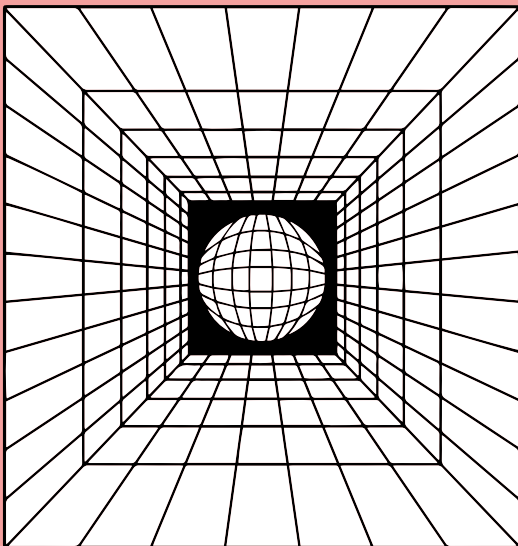
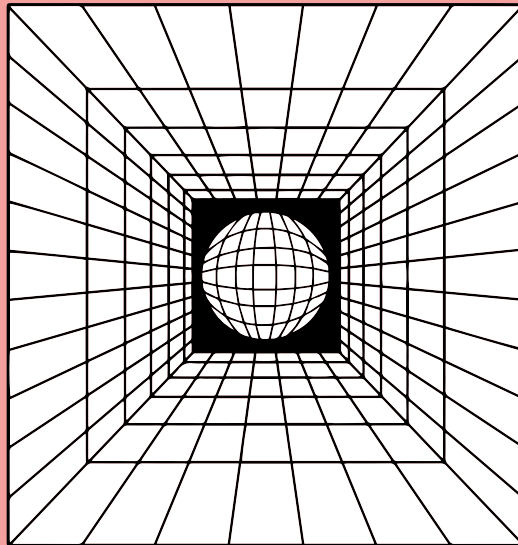


# RATIONALITY ON DEMAND



**Our understanding of the critical implications of technologies of cognitive enhancement is lacking, argues Sofie Hvitved, futurist and senior advisor at the Copenhagen Institute for Futures Studies. As ‘rational augmentation’ becomes increasingly invasive – eventually encompassing neuro-implants – we must remain both cautious and proactive when aiming to shape a future where technology enhances rather than diminishes our humanity.**

TEXT SOFIE HVITVED

**A**s Generative AI and AI wearables push the limits of the machine-human relationship, discussions increasingly focus on AI agents that act on our behalf, seamlessly blending our digital and physical selves. The merging of human and machine identities is no longer a theoretical possibility but a tangible reality, underpinned by a constant flow of new products and services being launched at an ever-increasing rate.

A few years ago, I stumbled upon a project at the MIT Media Lab called the ‘Wearable Reasoner’ – a device designed to enhance human rationality and assist users in evaluating arguments by distinguishing between those that are backed by evidence and those that are not. In their research, the developers found that when users received explainable feedback from the AI, their ability to critically assess information improved markedly. The users valued the AI’s second opinion, which enhanced their decision-making ability by encouraging a deeper consideration of the arguments presented.

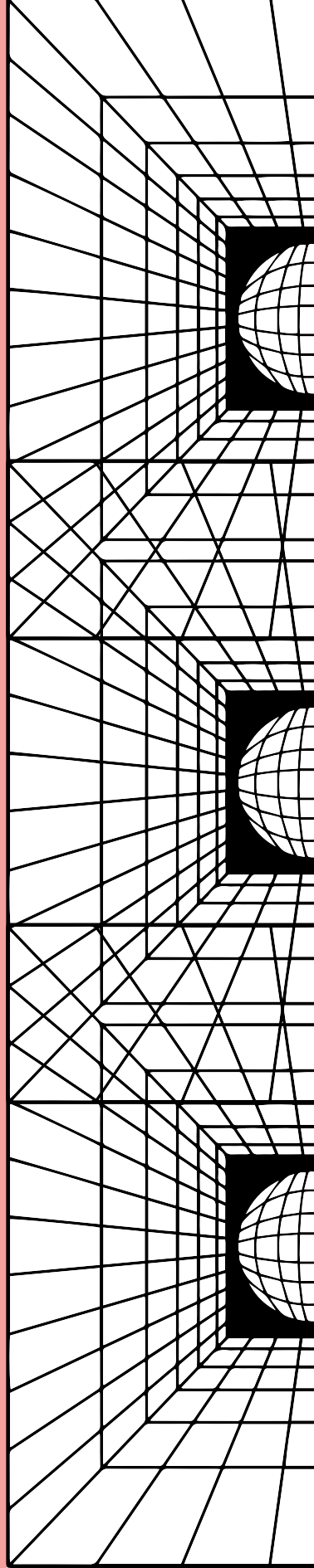
Although the device was a novel experiment that never made it past its proof-of-concept stage, the implications of this kind of technology are profound, and we are now seeing the proliferation of start-ups focusing on concepts that are similar in nature. One example is the software company Humani, developing what they call ‘your communication compass’, a device created for the purpose of giving *“timely and personalized advice, the moment you need it, to make the most of any conversation”*. Or the ‘Rabbit R1’, a personalised operating system using a Large Action Model (LAM) that emphasizes a *“commitment to better understand actions, specifically human intentions expressed through actions on computers and, by extension, in the physical world.”*

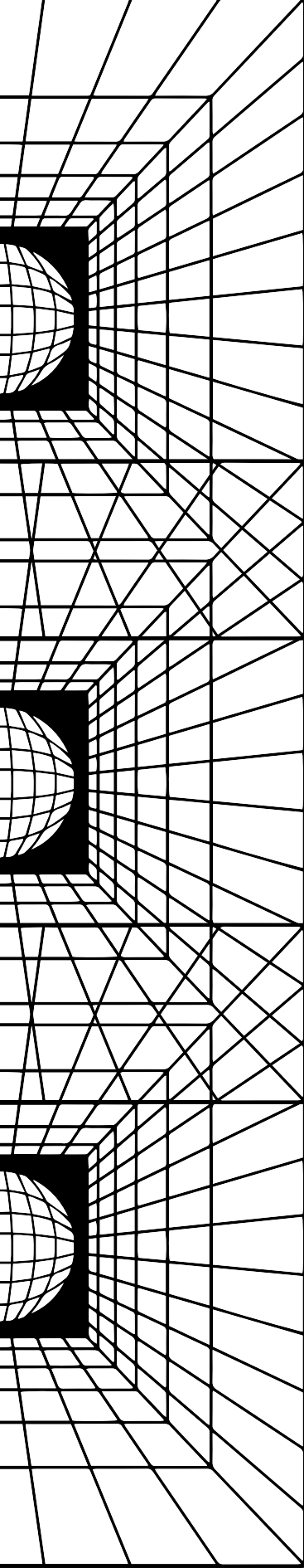
This is just the beginning. This intersection of technology and cognitive enhancement creates new future possibilities for human augmentation. In a way, we already live in this future. Through its ability to swiftly analyse vast amounts of data, AI is already able to uncover patterns and insights at a rate unattainable by the human brain alone. As the technology progresses, it will become ever more invasive, moving inside our bodies, and even becoming implanted in our brains. If implants become indispensable to us, it could make purely physical bodies and brains incompatible with a future of omnipresent augmentation. What could the rise of technologies of ‘rational augmentation’ mean for how we as human beings function and operate in the world?

One potential area of change is in consumption. At the Copenhagen Institute for Futures Studies, we work with the concept of ‘liquid consumers’ – where individuals are seen as having fluid identities, demanding ‘a better me’ while at the same time striving for being part of creating ‘a better world’ through the products and services they buy. These consumers navigate a vast array of options, and their choices are driven by both a desire for convenience and a need for alignment with their personal values. The desire for frictionless experiences is a powerful force driving public adoption of new technology. And when that technology is increasingly capable of both predicting and shaping consumer preferences, the task of determining the consumer’s decision-making landscape becomes increasingly complex.

When seen in a broader societal perspective, it’s vital to consider the trade-offs these technologies entail, which relate to access equality, potential biases in data inputs, and the risk of creating an even more uneven playing field between those with and without access to the technologies.

There are also questions relating to diverging attitudes to consider, as well as how the risk of making ourselves over-reliant on the cognitive crutch that the technology provides. Will those of us who more readily adopt technologies of





cognitive augmentation risk becoming ‘mentally obese’; lazy in our thinking due to the ease with which decisions are made for us? Will those who adopt the technology face a significant backlash from those who don’t, or vice versa?

These questions will only become more pressing with the eventual proliferation of brain-computer interfaces (BCIs), from companies like Neuralink, which hint at a future where our bodies will be even less ‘our own’. Understanding the implications of these developments is a necessary first step, which will quickly need to be complemented with action. It is evident that regulation will play a central role in the advancement and adoption of these technologies, yet history shows that regulators are often playing catch-up to the rapid pace of technical innovation – and the profound social consequence of technology is only fully understood once it has made its impact felt across society. We’ve seen it with the internet, with social media, and we will see it with AI as well.

The most invasive technologies of rational augmentation are unique in that they have faced regulatory hurdles from the get-go. But as the technology progresses, we are seeing the regulatory barriers come down. Neuralink has managed to obtain permission by the FDA to initiate human trials in 2023, with the first chip having been implanted in a human being in 2024. Unless considerations are given to what happens once the rest of these barriers are broken down, the future will be decided for us, on our behalf.

Elon Musk’s long-term vision for Neuralink, for instance, is decidedly trans-humanist. He envisions a world where technology enhances memory capacity, or enables perception at levels of detail and sensitivity currently beyond human reach. Musk and others who share his perspective argue that such implants will become necessary for humans to remain significant in an era dominated by increasingly advanced artificial intelligence. Is his vision an inevitability? Do we share it, or would we prefer an alternative outcome?

It’s crucial to consider these questions already today, before technologies of rational augmentation can break free from their current technical constraints – and we must remain both cautious and proactive when aiming to shape a future where technology enhances rather than diminishes our humanity.

The dual potential of augmented human technologies, as tools for both empowerment and control, also requires careful consideration and, most importantly, a framework that prioritises ethical considerations alongside technological advancements. A more nuanced exploration of technological readiness, potential roadblocks, and realistic time frames is essential in understanding our possible future as augmented humans. ■