Tool Analogies: ChatGPT Between Calculator, Virus and Telescope
Fanny Tockner

With the sudden arrival of ChatGPT in universities, observers sought to understand its impact, comparing it to a calculator, often to contain narratives of a pandemic-like contagion. While such analogies may aim to demystify a new technology and emphasize control, they can also present the technology as neutral and value-free. Why not liken ChatGPT to a telescope, a tool that informs and extends the user's perception of reality as they use it?

When OpenAI's ChatGPT was made publicly available in November 2022 its abrupt introduction and accessibility to a broader public inflamed discussions on social media, within academic institutions, and in news outlets: While some, for example, warned about the "existential risk of what happens when these things get more intelligent than us,"[1] others didn't "buy" into fears of an impending "AI apocalypse."[2] ETH has also taken up this issue by organizing events on AI in teaching and learning, setting up an FAQ page on ChatGPT directed at students and researchers and by posting several blog and news articles on their website. Noticeable within these discussions are the host of "tool analogies" used to render this new technology meaningful. As has been emphasized "[t]he struggle towards a vocabulary with which to attribute meaning, rhetorical and narrative resources provide an outline of the cultural and moral 'work' that is undertaken in this collective accomplishment."[3] The following paragraphs will therefore show how the tool analogy of the calculator demystifies the metaphor of AI as a pandemic, while simultaneously leaving the meaning of a tool opaque, even mysterious, thereby obscuring how tools may interact with their environment to become media.

TOOL NARRATIVES

In discussions within ETH, ChatGPT has occasionally been compared to a tool, in particular as analogous to a calculator. Dr. Gerd Kortemeyer, head of ETH's Department of Educational Development and Technology, for example, cautions against the

implementation of ad hoc "draconian rules and regulations" to contain the "spread" of AI like ChatGPT, writing that "AI is not a pandemic, but a tool – albeit an impressive one."[4] ETH's FAQ page also emphasizes that "we need to be careful about restricting tools where we cannot justify it" and further reads that "in a way, the discussion is similar to the extensive and hotly contested discussions about using pocket calculators in schools and for exams in the 1970s – eventually, pocket calculators were understood as what they really are: tools."[5] And in the ETH Refresh Teaching event participants also endorsed the "tool approach," explaining that ChatGPT might be like a calculator, or a hammer with the question now being "what the right nails are."[6]

Abbildung 1: Launched in 1972, the HP-35 was the world's first pocket-sized scientific calculator.

A TECHNOLOGY OF THE EVERYDAY

Such a narrative framing seems to demystify ChatGPT and render this new technology manageable. A calculator is an ordinary technology of the everyday – one which has already been seamlessly integrated into natural science practices and enabled researchers to "outsource" previously time-consuming labor to a reliable and controllable tool while leaving researchers' particularly human ingenuity intact. It arguably locates agency within the user: The analogy of the calculator seems to portray the human/user as the locus of control, empowering them to utilize the tool for their own instrumental research purposes. Speaking of ChatGPT as a calculator could perhaps also be read as a reclamation of agency, considering that universities initially found themselves on an uncertain terrain and had to find ways to respond to the sudden (external) introduction and rapid public dissemination of this Large Language Model (LLM). References to the unease with which

people initially eyed calculators in the 1970s, seems to caution against ad hoc "panics" and overly pessimistic reprobation.[7] Hence, one could argue that the calculator analogous to ChatGPT is one which is primarily conceived as an instrumental tool of the (soon) everyday assisting human users in their pursuit of scientific progress. This demystifies ChatGPT and shifts questions away from outright rejection to questions about its appropriate use domains (i.e. "finding the right nails").[8]

NARRATIVES OF CONTAGION AND CONTAINMENT

The analogy of the calculator also stands in stark contrast to an image of AI as a pandemic. A metaphorical comparison to a pandemic could arguably be a response to the inundated spread of ChatGPT into university classrooms. It evokes a sense of contagion, lack of control and (potentially dangerous) uncertainty seemingly necessitating fast, containment-driven measures. There are series of such narratives in public responses to emerging technologies, for instance the familiar story about Pandora's box, which, broadly construed, refers to the danger of unintended consequences.[9] Simeone, in her analysis of the debate around artificial general intelligence, refers to "a broader, basic rift between optimistic and pessimistic outlooks" and opposes ordinary/spectacular and gradual/catastrophic stories.[10] The sobering analogy of a calculator arguably places ChatGPT on the ordinary side of this rift. The metaphor thereby perhaps also responds to and restrains catastrophic and spectacular stories "provid[ing] assurances that it is safe to live with the powers unleashed by technology."[11]

CONCLUSION: RE-MYSTIFICATION OF THE TOOL

In summary, making ChatGPT analogous to a calculator renders the technology more manageable, less uncertain and subtracts from (mythical-)pessimistic imaginations of AI. Yet, the meaning of a tool remains opaque and is primarily conveyed through its representation as a calculator which seems to be imagined as "a tool, subject to ideas and ideals that originate elsewhere, outside the sphere of the technological."[12] The calculator, so imagined, surfaces as a value-free tool, where the appropriate domain of application becomes the central question. As Langdon Winner explains: "To our accustomed way of thinking, technologies are seen as neutral tools that can be used well or poorly, for good, evil or something in between. But we usually do not stop to inquire whether a given device might have been designed and built in such a way that it produces a set of consequences logically and temporally prior to any of its professed uses."[13] The thematization of ChatGPT reflecting biases[14] is one way such questions on the politics of technology come to the forefront. Overall, it seems like a more interactive conceptualization of the tool may be critical. Media theorist Joseph Vogl for instance examines, through Galileo's telescope, how scientific tools "become media."[15] He writes that in Galileo's hands, the telescope is not merely an apparatus to enlarge distant objects, or an aid to extend the human senses. Rather it defines what sense perception and vision may be and constructs visible facts as calculated data. Here scientist, theory and instrument are deeply enmeshed and the telescope surfaces not only as an instrumental and mechanistic tool. Rather, "the phenomena and 'messages' it produces bear the mark of theory [and] the sensory evidence transmitted by these messages is conveyed alongside the procedure by which that evidence was established."[16] To stay with the theme of vision, Louise Amoore emphasizes that "contemporary algorithms are changing the processes by which people and things are rendered perceptible and brought to attention."[17] To conclude, the

analogy of ChatGPT as a calculator demystifies the new technology shifting discussions away from blunt rejection towards appropriate use. The analogy works against dominant narratives such as the metaphorical comparison to a pandemic. At the same time such a tool analogy allows the AI agent to obscure itself – the meaning of the tool remains opaque while the frame of vision shifts towards the appropriate use contexts originating outside of the technology. Such a construal somehow re-mystifies the tool and overlooks the ways a tool by design and in its contextual entanglements may shape perception. "Metaphors [may] leap off of pages"[18] and into the questions deemed to matter also directing ETH's frame of vision.
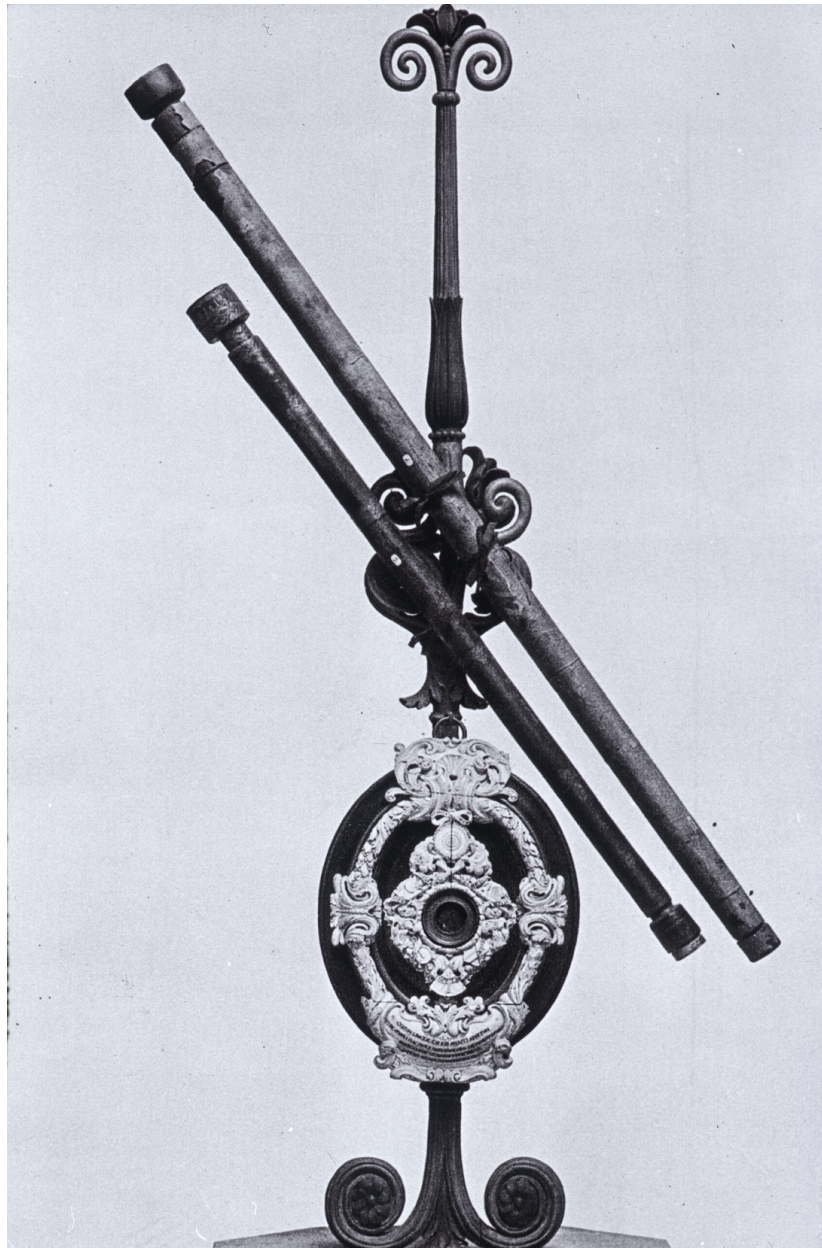

Abbildung 2: Galileo's telescope.

Autor*in

Fanny Tockner completed her Bachelors in Philosophy, Politics and Economics at Vrije Universiteit Amsterdam in 2021 and currently studies in the Master History and Philosophy of Knowledge at ETH Zurich.

Seminar

Literaturverzeichnis

[1] Josh Taylor, Alex Hern: "'Godfather of AI' Geoffrey Hinton Quits Google and Warns Over Dangers of Misinformation", in: *The Guardian*, https://www.theguardian.com/technology/2023/may/02/geoffrey-hinton-godfather-of-ai-quits-google-warns-dangers-of-machine-learning (2 May 2023).
[2] Ivana Bartoletti: "Another Warning About the AI Apocalypse? I Don't Buy it", in: *The Guardian*, https://www.theguardian.com/commentisfree/2023/may/03/ai-chatgpt-bard-artificial-intelligence-apocalypse-global- rules (3 May 2023).
[3] Phil Macnaghten, Sarah Davies, and Matthew Kearnes: "Understanding Public Responses to Emerging Technologies: A Narrative Approach", in: *Journal of Environmental Policy & Planning* 21/5 (2019), pp. 504–518, here: p. 506.
[4] Gerd Kortemeyer: "AI is not a Pandemic", in: *ETH Zürich News*, https://ethz.ch/en/news-and-events/eth-news/news/2023/04/artificial-intelligence-is-not-a-pandemic.html (4 April 2023).
[5] ETH Zürich: "FAQ ChatGPT", in: *AI in Education*, https://ethz.ch/de/die-eth-zuerich/lehre/lehrentwicklung/ai-in education/chatgpt.html (4 April 2023).
[6] ETH Zürich: "AI in Education and Teaching", in: *Refresh Teaching Event*, https://refresh-teaching.ethz.ch/events/artificial-intelligence-inteaching-and-learning-opportunities-and-challenges/ (28 March 2023).
[7] References to the introduction of calculators perhaps also places ChatGPT on a continuum of scientific progress: As time (and with it science) progresses, researcher's tools become ever more sophisticated and complex. Furthermore, describing new technologies with a vocabulary of older, and therefore more tangible developments seems not to be new. Peters, writing on sound history, mentions that as "McLuhan remarked [...] the content of a new medium was a previous one. The car, he said, was first known as a horseless carriage. Likewise, the telephone was a speaking telegraph, the radio a wireless telegraph." Sound History", in: Lauren Rabinovitz, Lauren; Abraham Geil, Abraham (eds.):. *Memory Bytes: History, Technology, and Digital Culture.*, (2004)
[8] ETH Zürich: "AI in Education and Teaching", in: *Refresh Teaching Event*, https://refresh-teaching.ethz.ch/events/artificial-intelligence-inteaching-and-learning-opportunities-and-challenges/ (28 March 2023).
[9] Phil Macnaghten, Sarah Davies, and Matthew Kearnes: "Understanding Public Responses to Emerging Technologies: A Narrative Approach", in: *Journal of Environmental Policy & Planning* 21/5 (2019), pp. 504–518, p. 506.
[10] Micaela Simeone: "Unknown Future, Repeated Present: A Narrative-Centered Analysis of Long-Term AI Discourse", in: *Humanist Studies & the Digital Age* 7/1 (2022), p. 2.
[11] Sheila Jasanoff: "Technology as a Site and Object of Politics", in: Robert E. Goodin, Charles Tilly (eds.): *The Oxford Handbook of Contextual Political Analysis*, Oxford: Oxford University Press (2006), p. 747.
[12] Sheila Jasanoff: "Technology as a Site and Object of Politics", in: Robert E. Goodin, Charles Tilly (eds.): *The Oxford Handbook of Contextual Political Analysis*, Oxford: Oxford University Press (2006), p. 745.

[13] Langdon Winner: "Do Artifacts have Politics?", in: *Daedalus* 109/1 (1980), pp. 121–136, p. 125.
[14] See the contributions of Alice Collins and Sara Kinell on Entropie.
[15] Joseph Vogl: "Becoming-media: Galileo's Telescope", in: *Grey Room* 29 (2007), pp. 14–25.
[16] Joseph Vogl: "Becoming-media: Galileo's Telescope", in: *Grey Room* 29 (2007), pp. 14–25, p.17
[17] Louise Amoore: *Cloud Ethics: Algorithms and the Attributes of Ourselves and Others*, Durham, London: Duke University Press (2020), p. 15.
[18] John Durham Peters: "Helmholtz, Edison, and sound history" (2004), p.186.