

The Imaginaries of Merging Mind and Machine

A Hermeneutic Reflection on the Technofutures of the Neurointerface in Popular Culture



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- Background:
  - Cultural & Media Studies, STS, SF-Studies
- Dual affiliation:
  - University of the Arts, Berlin
  - Technical University in Berlin
- Researching about…
  - … imaginaries of the future (e.g. Neurointerface, PhD-topic)
  - … mediatisation and *Gestaltung* of futures (performances, objects, written stories, audiovisual formats)

My approach to Futures

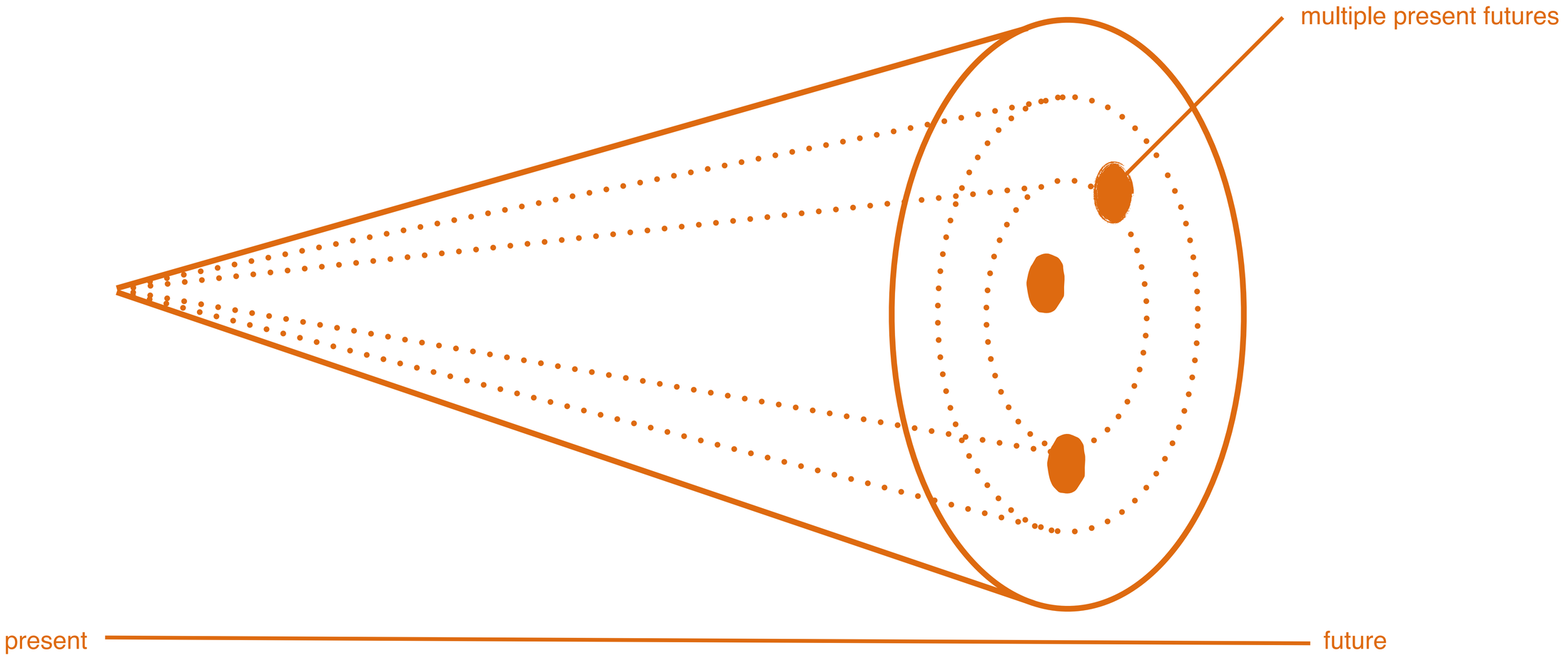
The pluralisation of futures

- ‚The future' is a „a warehouse of possibilities" (Luhmann, 1990, p. 120) and not predetermined.

- Difference between…
  - **Future Present** as a moment later then now.
  - **Present Futures** as a current expectation

Luhmann, Niklas. 1990. „Die Zukunft kann nicht beginnen: Temporalstrukturen der modernen Gesellschaft". in Vor der Jahrtausendwende: Berichte zur Lage der Zukunft 1. + 2. Band, Preis JE Buch , herausgegeben von P. Sloterdijk. Frankfurt), Suhrkamp.

Futures Cone



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Dealing with uncertainties

- Risk Society & Modernisation Risks (Beck, 1986)
  - Technological consequences that may affect society & environment
- Technological pathways are shaped by actions & decisions
  - e.g. by politicians, investors, engineers, entrepreneurs, and more
- Need for **knowledge to orientate** current actions & decision

Beck, Ulrich. 1986. Risikogesellschaft: Auf dem Weg in eine andere Moderne. 1. Aufl. Suhrkamp Taschenbuch Verlag.

Three Modes of Orientation (Grunwald, 2014)

„Not looking into but looking at the future“ (Brown et al., 2000)

exploratory

critical / discursive

FORECAST

(models, calculations)

mode 1

FORESIGHT

(scenarios, visions)

mode 2

HERMENEUTIC

(interpretation, reflection)

mode 3

Grunwald, Armin. 2014. „Modes of Orientation Provided by Futures Studies: Making Sense of Diversity and Divergence“. European Journal of Futures Research 2(1). doi: 10.1007/s40309-013-0030-5.

Brown, Nik, Brian Rappert, und Andrew Webster, Hrsg. 2000. Contested Futures: A Sociology of Prospective Techno-Science. Aldershot, England; Burlington, VT: Ashgate Publishing Limited.

Deconstructing Futures

„So mode 3 orientation is about trying to learn something about ourselves, our societal practices, subliminal concerns, implicit hopes and fears from the diversity and divergence of futures studies. Of course: first, to this end futures have to be interpreted or even ‚deconstructed' accordingly which calls for adequate assessment procedures and for hermeneutic effort.“ (Grunwald, 2014, p. 7)

Grunwald, Armin. 2014. „Modes of Orientation Provided by Futures Studies: Making Sense of Diversity and Divergence“. European Journal of Futures Research 2(1). doi: 10.1007/s40309-013-0030-5.

Future studies as Imaginary studies

(Imaginationsforschung)

Technofutures…

- … are **representations of future worlds** in which projected forms of technology play a central role and shape society or the environment.
- … are **social texts** which hold the socially shared imaginaries of a culture. They can be interpreted and need to be reflected from interdisciplinary perspectives.
- … have a **sociotechnical** impact, as they, despite being fictional, shape technological processes through discourses and visions (Leitbilder) that guide the development.

- Different wordings, similar meanings, different perspectives
  - sociotechnical imaginaries / futures, visions, leitbild, technofutures, expectations, technoscientific imaginaries, science-fiction, corporate visions, and more…

Lösch, Andreas, Knud Böhle, Christopher Coenen, Paulina Dobroc, Reinhard Heil, Dirk Hommrich, Martin Sand, und Christoph Schneider. 2016. „Technikfolgenabschätzung von soziotechnischen Zukünften“. 26.

Two Perspectives on Technofutures

SOCIETIES IN THE FUTURE

(content)

- imaginaries
- attribution of meaning
- biographies

FUTURES IN SOCIETY

(impact)

- Leitbilder
- socio-epistemic practices
- alliances & discourse

Lösch, Andreas, Knud Böhle, Christopher Coenen, Paulina Dobroc, Reinhard Heil, Dirk Hommrich, Martin Sand, und Christoph Schneider. 2016. „Technikfolgenabschätzung von soziotechnischen Zukünften“. 26.

Robot Imaginaries

- Frankenstein Complex: The anxieties over a loss of control over machines.
  - Examples: Shelley (1818), Cyberpunk-SF (1990s)
  - But also „A.I. will take our jobs“
  - Expresses the fear of technological progress and change

- Robot as a Companion: Machines that help and assist us.
  - Re-Imagination of the robot
  - Examples: I, Robot (Asimov, 1940), R2D2 (Lucas, 1972)
  - „Expresses the wish for better humans.“ (Grunwald, 2016)

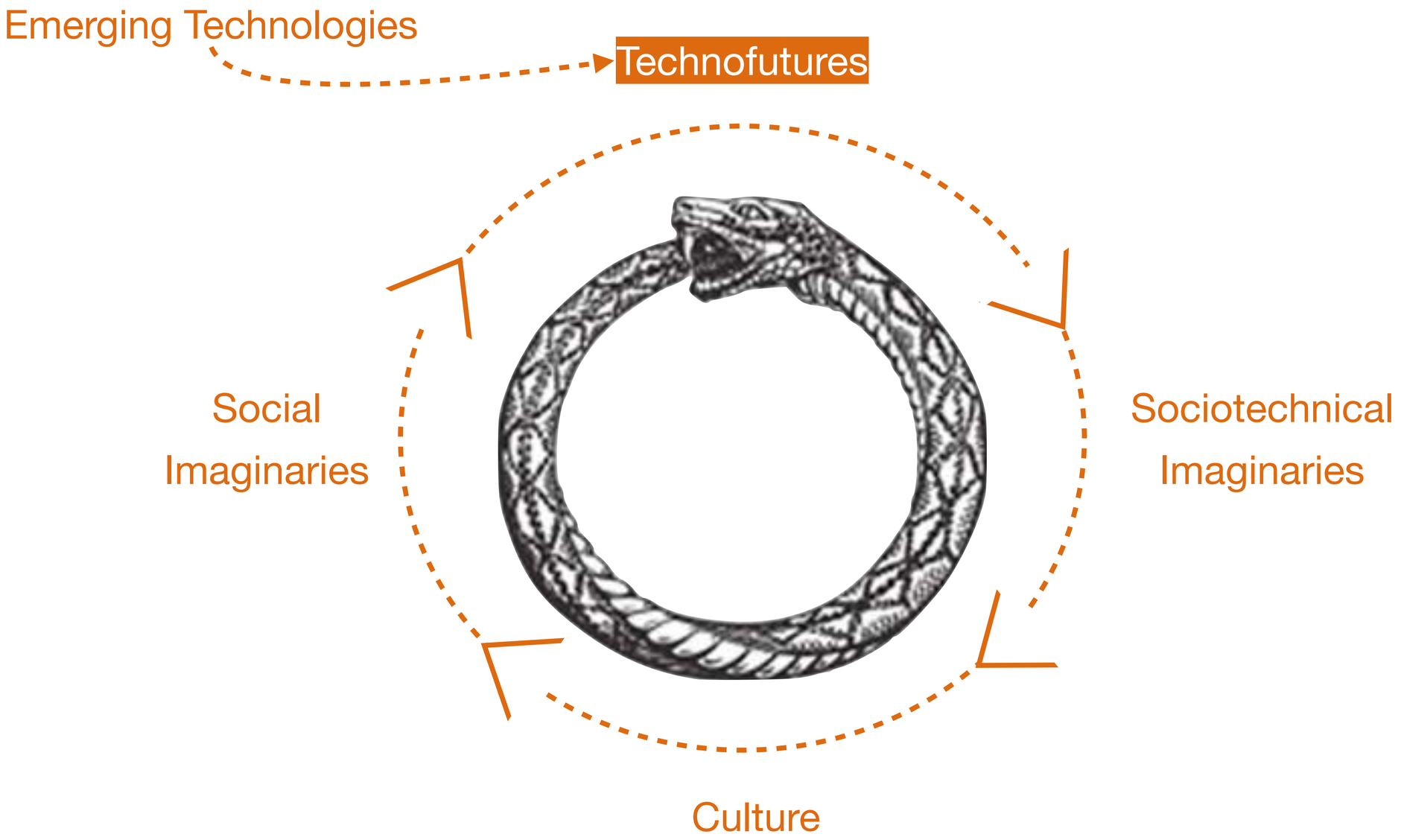


T-800 (Antagonist)



R2D2 (Companion)

Telotte, J. P. 2016. *Robot Ecology and the Science Fiction Film*. 1. Edition. Routledge.
Grunwald, Armin. 2016. The Hermeneutic Side of Responsible Research and Innovation. London, UK: Hoboken, NJ, USA: ISTE; Wiley.


Emerging Technologies
Technofutures
Social
Imaginaries
Sociotechnical
Imaginaries
Culture

What is a neurointerface?

Neurointerface

- aka Brain-Machine Interface or Brain-Computer-Interface

- Function:
  - Measures the action potential in the brain
  - transmits the signals to a computer
  - either invasive or non-invasive





Mangan, Andrew. 2018. Plugged In: How Mind Machine Interfaces Will Transform the World. New Degree Press.

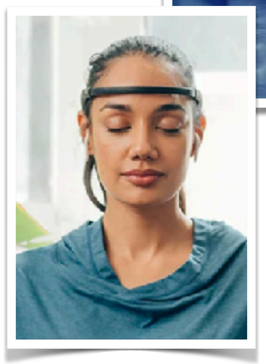
Deconstructing Neurofutures

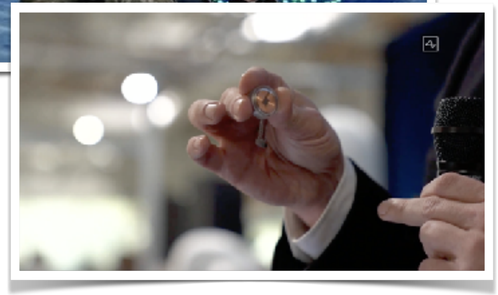
- Neuropunk
  - Science-Fiction Subgenre that focusses on the Neurointerface as main Novum
  - Corpus: 50+ narrations
    - Mixed media: text, audio-visual, performance, games
- Corporate visions
  - Building 8
  - Neuralink
  - Muse

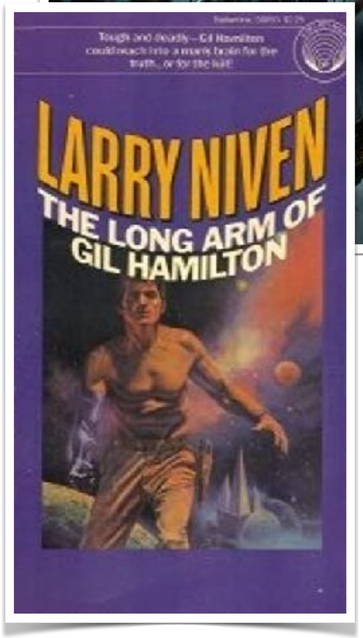












Guiding questions

- Which imaginaries are associated with the device?
- What functions are attributed to the device?
- How is it imagined / framed to change our society?

Three recurrent imaginaries

THE NEUROINTERFACE TO ENHANCE THE BODY

THE NEUROINTERFACE AS A MORE IMMERSIVE MEDIA EXPERIENCE

THE NEUROINTERFACE TO UPLOAD THE MIND

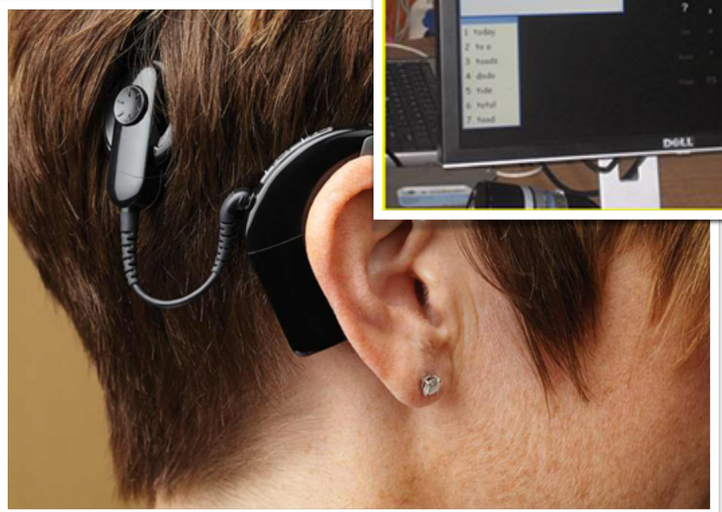
The neurointerface to enhance the body

Current use cases

- a few examples of the neurointerface in use
  - Robotic arm fist bump (Nathan Copeland, 2015)
  - Locked-In patients
  - Cochlear implants







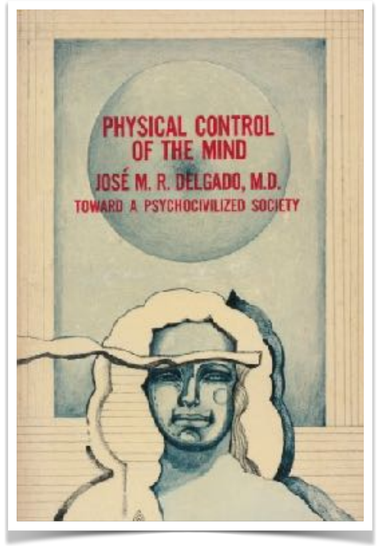
Mangan, Andrew. 2018. Plugged In: How Mind Machine Interfaces Will Transform the World. New Degree Press.

Correcting dysfunctions

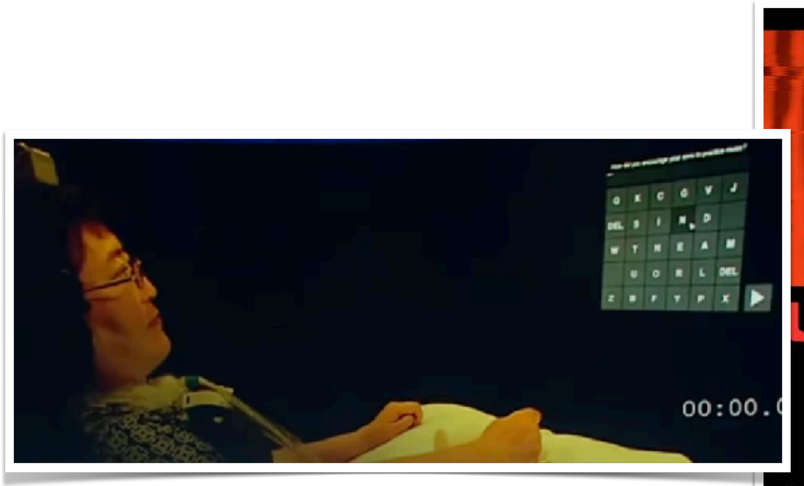
- Psychological dysfunctions
  - Jose Delgado (1970)
  - Terminal Man (Hodges, 1972)

- Physiology dysfunctions
  - Krishna Shenoy (Stanford, 2017)
  - Upgrade (Whannel, 2018)

- Imaginary:
  Correct human dysfunctions and impairments









Cure the healthy

- Redefining bodily malfunctions
- Example:
  - Eternal sunshine of the spotless mind
  - Love Sickness as dysfunction
  - Treated by deleting memories from the brain

- Imaginary:
  Restoring „normal“ efficiency

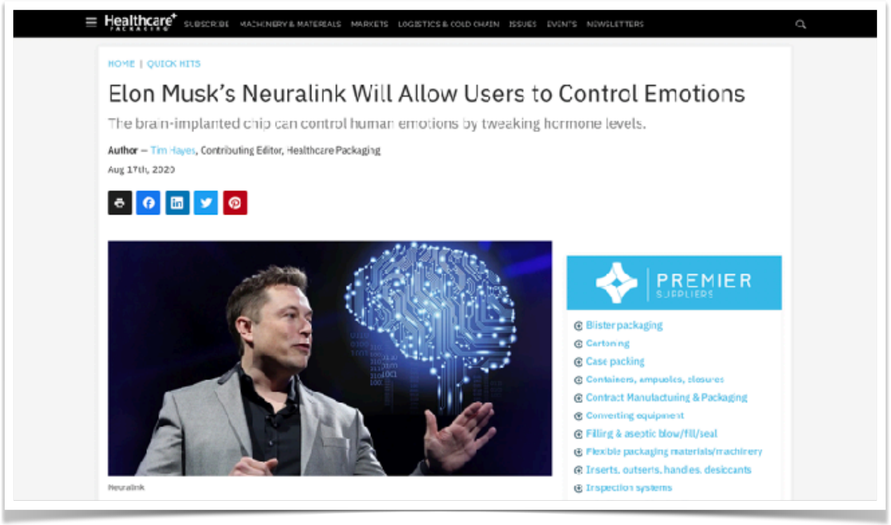


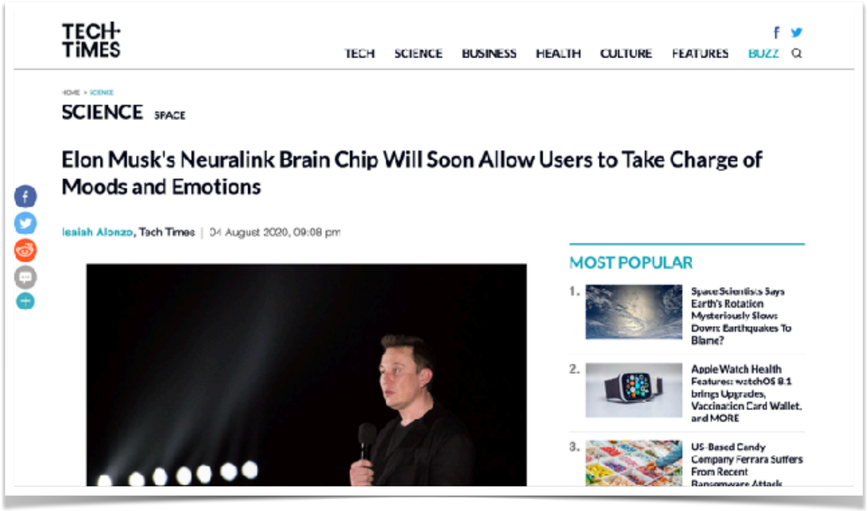
Cure the healthy

- Redefining emotions

„Are you ever in a bad mood for seemingly no reason at all? Wouldn't it be great to control your emotions and turn a bad mood around with the flip of a switch? According to a recent Tech Times article, that concept isn't just science fiction; Elon Musk's Neuralink is already working on it."

„This technology will help in a person's temperament and emotional levels to handle a surge in stress and emotions. In turn, the person using Neuralink's chip will have more control and have better reasoning skills."





https://www.techtimes.com/articles/251574/20200804/elon-musk-neuralink-update-mood-control.htm

https://www.healthcarepackaging.com/quick-hits/article/21160496/elon-musks-neuralink-will-allow-users-to-control-emotions

Enhance the healthy

- Building 8 (Regina Dugan, 2017)

  „Your brain is capable of producing about one terabit per second. About 40 HD movies are streaming in your brain every second now“

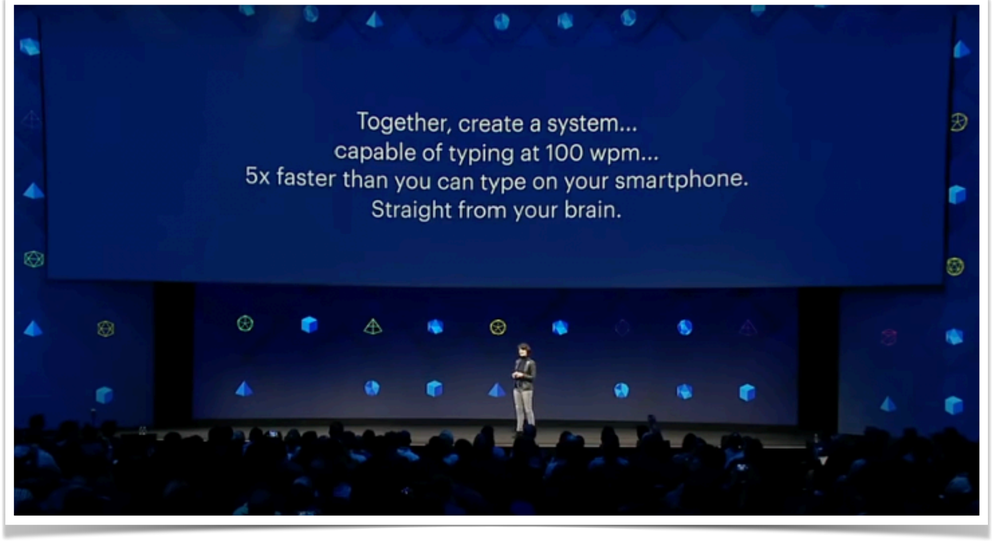
  „Speech is essentially a compression algorithm – and a lossy one.“

  „What if you could type directly from your brain? It sounds impossible but it’s closer than you may realize.“

- Becoming more efficient, as we are not good enough yet.

- Imaginary:
  Human beings as creatures of deficiency (Gehlen, 1988)





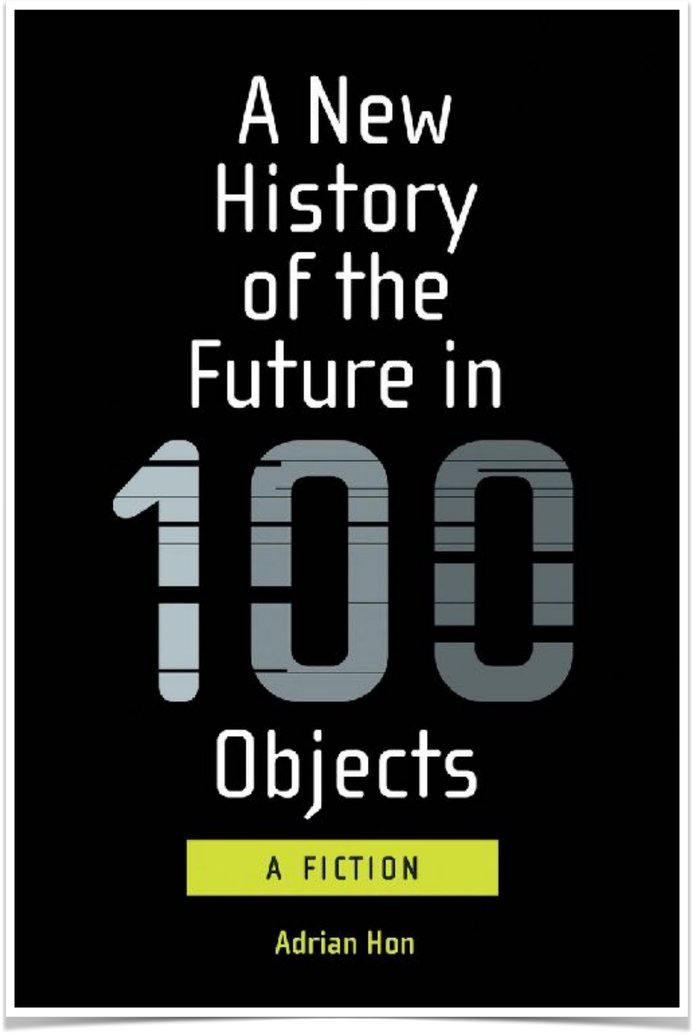
Gehlen, Arnold. 1988. Man. His Nature and Place in the World. UK ed. Columbia University Press.

Sociotechnical Implications

- The Brain Bubble – A story about the „Neural Lace“
- „Buying a lace let you leapfrog the competition in the labor market by increasing your productivity, and thus your income.“

- The bubble exploded: „After 2.1 second, the entire neural lace market had been decimated.“

- Imaginary:
  The Hype Cycle // Gold rush // Market crashes



Hon, A. (2020). A New History of the Future in 100 Objects: A Fiction. The MIT Press.

Neurocapitalism

„While we are working with computers to enable them to learn from experience through better software and smarter algorithms, in other words to become more human in some way, with humans it is going in the other direction. We want them to think faster, better and more efficiently, to become more like the machine and more predictable.“ (Meckel, 2018)

Meckel, M. (2018). Mein Kopf gehört mir: Eine Reise durch die schöne neue Welt des Brainhacking. Piper.

Wrap Up and Take Away

- This approach…
  - … cuts away the glossiness of futures and marketing.
  - … reflects the imaginaries, not the technology.
  - … allows discussing not the plausibility but preferability of the depicted future.

Thank you!

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The study of imaginaries

Imaginationsforschung

THE EVERYDAY LIFE IN A FUTURE

- Explorative:
  - How does the mundane everyday life of the future look like?
  - What could be the next normal?
  - How might Tech change the world?

FUTURES IN THE EVERYDAY LIFE

- Reflective:
  - What images of the future do we use?
  - Which imaginaries are they build up upon?
  - Where do those imaginaries come from?

Socio-Technical Imaginaries (Jasanoff, 2015)

- „Socio-Technical imaginaries are **collectively held** and performed **visions of desirable futures** (or of resistance against the undesirable) animated by shared understandings of forms of **social life** and social order **attainable through**, and supportive of, advances in **science and technology**.“ (Jasanoff 2015, 19)

- one:
  - Imaginaries of how technology might change our society in the future.
  - Imaginaries of what might be a **better** future and for whom.
- two:
  - These imaginaries have an impact on the actual development of emergent technologies (Leitbild).

Jasanoff, S., & Kim, S.-H. (Hrsg.). (2015). Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power. The University of Chicago Press.

Imaginaries

- Commercial use cases in development
  - Building 8
  - Neuralink
  - Muse

- Different imaginaries associated with it



