

AI FROM PHILOSOPHY TO SCIENCE TO TECHNOLOGY TO ETHICS TO LAW AND BACK

PART 1

ARTIFICIAL INTELLIGENCE: PHILOSOPHICAL &
MULTIDISCIPLINARY SCIENTIFIC VIEW

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Ethical Considerations in AI
Gothenburg, 2020

<http://gordana.se/Presentations>



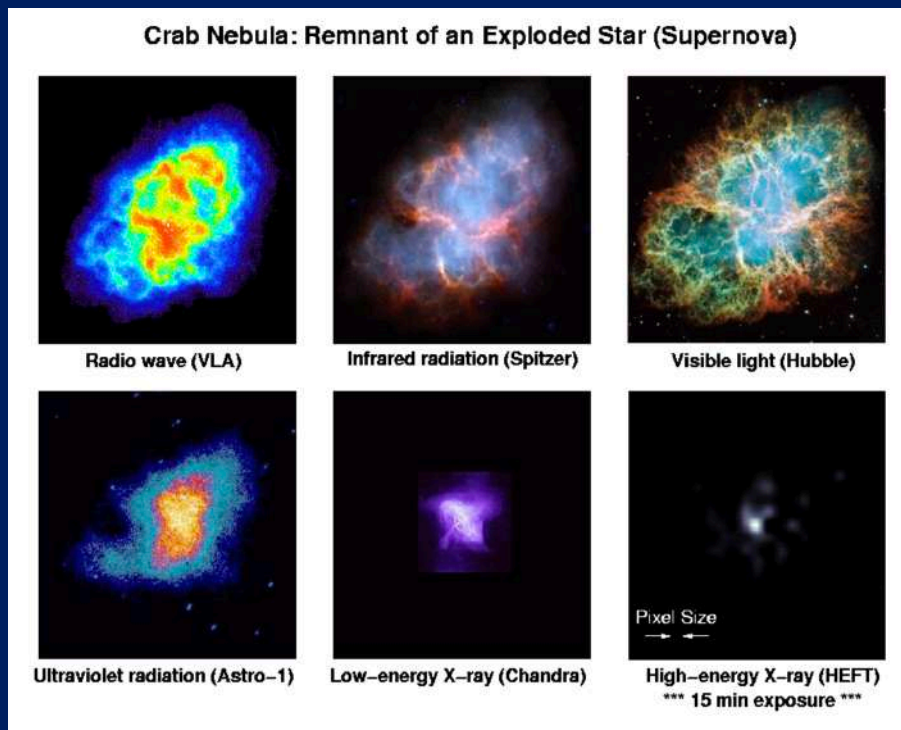
<https://www.quantamagazine.org/artificial-intelligence-will-do-what-we-ask-thats-a-problem-20200130/Ai-genie-in-a-bottle>

AI IN A TRANSDISCIPLINARY PERSPECTIVE

WE TAKE A VARIETY OF DIFFERENT VIEWS IN
ORDER TO GET A MORE COMPLETE
UNDERSTANDING OF AI ETHICS IN ITS
CONTEXT

My background: theoretical physics, computer science,
philosophy of computing and ethics,
computational models of cognition,
recent interest: interaction design
interdisciplinary/transdisciplinary elucidation of AI.

AN OBJECT IN DIFFERENT VIEWS



This simple example illustrates how the same physical object in different wavelength of electromagnetic spectrum reveals different characteristics. If we would approach it with even greater variety of models, at different scales and with different parameters we would find even more diversity.

For a complex phenomenon, it is obvious that one view is not enough for systemic (wholistic) understanding.

The same nebula in different wavelengths

PHILOSOPHICAL APPROACH TO AI

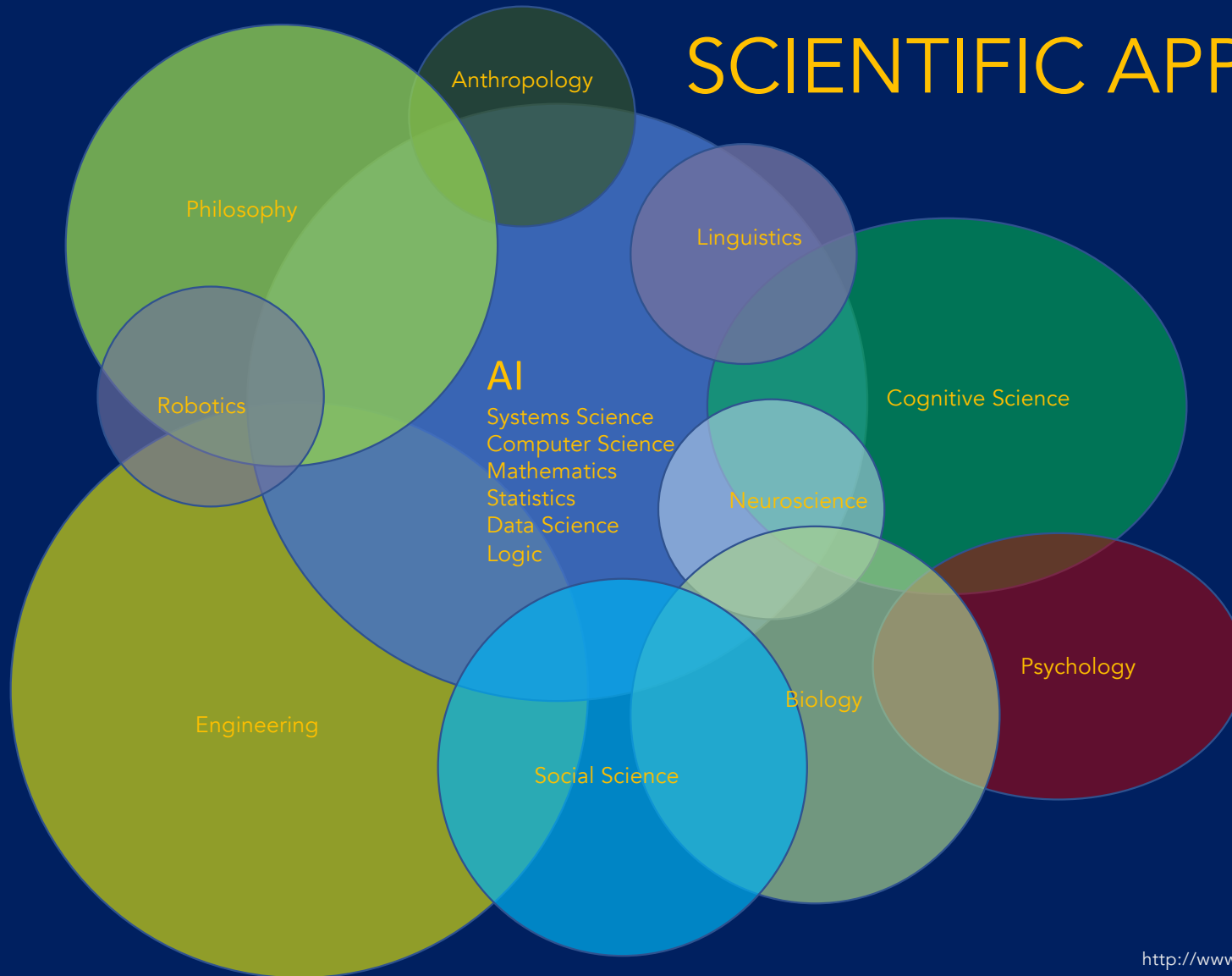


Philosophy → Metaphysics → Ontology
What is AI? (AI that exists and can exist)

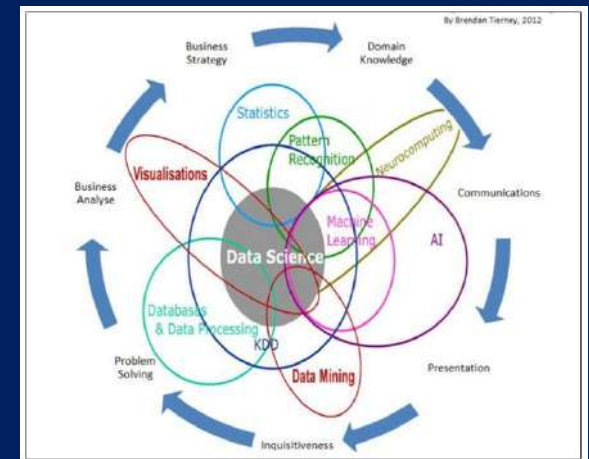
Philosophy → Epistemology
Knowledge of AI
(What and how we know about AI)

Philosophy → Axiology → Ethics
Good and Bad
Right and Wrong in AI

SCIENTIFIC APPROACH TO AI



Transdisciplinary / Interdisciplinary/
Multidisciplinary view of as connecting
different scientific disciplines



AI & HUMAN INTELLIGENCE ENHANCEMENT TECHNOLOGIES

Artificial general intelligence approached through construction (by engineering)

Human level intelligence: Starting from the human brain, scientific approach.
Cognitive enhancements. Restoring & enhancing memory. Creating artificial memories.

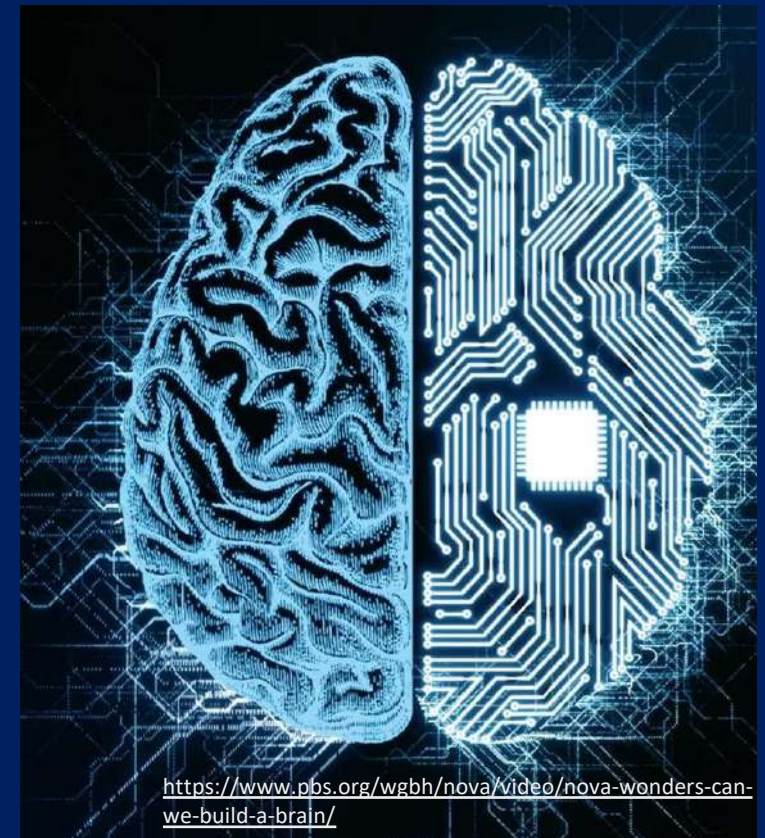
[Theodore Berger](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3141091/) (University of Southern California, L.A.) [Engineering Memories: A Cognitive Neural Prosthesis for Restoring and Enhancing Memory Function](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3141091/)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3141091/>
<https://viterbischool.usc.edu/news/2018/03/prosthetic-memory-system-successful-in-humans-study-finds/>

<https://www.youtube.com/watch?v=r8bix3d0tCs> A Hippocampal Neural Prosthesis for Human Memory (2019)

Developing a hippocampal neural prosthetic to facilitate human memory encoding and recall,
Robert E Hampson et al 2018 J. Neural Eng. 15 036014
<https://iopscience.iop.org/article/10.1088/1741-2552/aaaed7/pdf>

A Successful Artificial Memory Has Been Created. Scientific American <https://tiny.cc/obuxbz> The growing science of memory manipulation raises social and ethical questions. By Robert Martone on August 27, 2019

Ethical aspects of memory manipulation – affecting human identity and autonomy

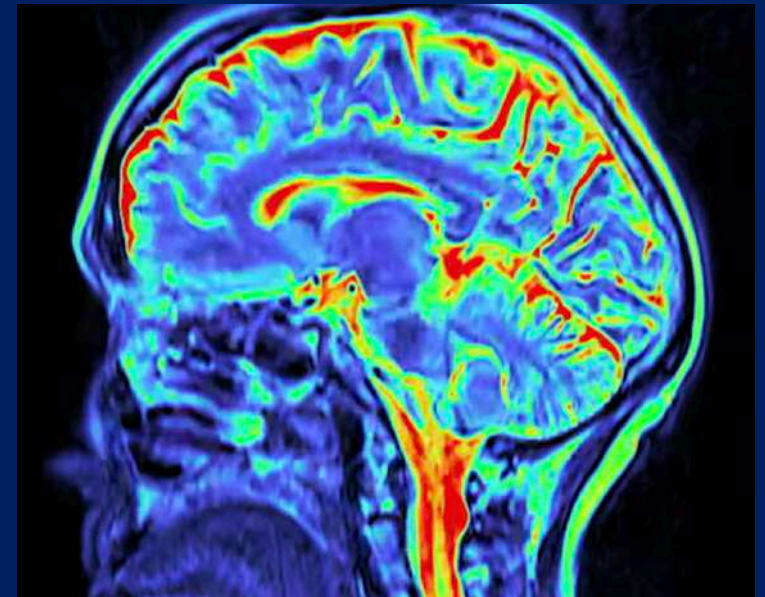


AI MIND READING & MIND CONTROL HUMAN INTELLIGENCE ENHANCEMENT & REPLACEMENT TECHNOLOGY

“Mind reading” technologies. MIT, The University of California in San Francisco, Elon Musk and Facebook are “in the race to read minds with computers” - in order to enable merging the human brain with the computer
<https://www.youtube.com/watch?v=R3G5fzz76lQ>

“The ability to control electrical activity in brain circuits has the potential to do for brain disorders what electrical stimulation has accomplished in treating cardiac disorders. By beaming electrical or magnetic pulses through the scalp, and by implanting electrodes in the brain, researchers and doctors can treat a vast array of neurological and psychiatric disorders, from Parkinson’s disease to chronic depression.”

Fields, R. D. (2020) Mind Reading and Mind Control Technologies Are Coming. We need to work out the ethical implications before they arrive.
<https://blogs.scientificamerican.com/observations/mind-reading-and-mind-control-technologies-are-coming/>



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7. Robert Martone (2019) A Successful Artificial Memory Has Been Created. Scientific American <https://tiny.cc/obuxbz> The growing science of memory manipulation raises social and ethical questions.
8. Fields, R. D. (2020) Mind Reading and Mind Control Technologies Are Coming. We need to figure out the ethical implications before they arrive. <https://blogs.scientificamerican.com/observations/mind-reading-and-mind-control-technologies-are-coming/>