

Artificial Intelligence in the World

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Fromm Institute

Spring Session, 2017

Lecture 6 agenda

- “AI has been oversold”
- Handout – “The Great A.I. Awakening” (at Google)
- People of AI
 - Ray Kurzweil (*The Singularity is Near*)
 - Geoffrey Hinton
 - Yann LeCun
- Key application – **virtual reality (VR), augmented reality (AR)**
- Generative Design – Maurice Conti

Theme – AI has been oversold

- Machine Learning is not intelligence, it's algorithms – E. Kaspersky
- 10 years until a wide range of useful programs are available
- Kevin Kelly – the Technium as extension of human evolution
- Meanwhile, here are some nifty gadgets to play with ...

“The Great A.I. Awakening” – NYTimes

- Highly recommended – about **Google’s** AI, starting with **Translate**
 - Andrew Ng -> Geoffrey Hinton
- “AI is a huge field involving many techniques, **only very loosely inspired by human intelligence.**” – Jeff Dean
- “...Ray Kurzweil and Vernor Vinge's description of the singularity which I believe will happen. Where we disagree is on ‘when’ it will happen. I think it won't happen for **at least another 100 years**, if not longer.” – Raj Reddy

People of AI

- Ray Kurzweil
- Geoffrey Hinton
- Yann LeCun

Ray Kurzweil – The Singularity of AI & Biotech is Near

- <https://www.youtube.com/watch?v=pDmnV6PWv5Y>
 - 30:05 – 34:00
 - April 2017. Raymond "Ray" Kurzweil (/ˈkɜːrzwɑɪl/ kurz-wyl; born February 12, 1948) is an American author, computer scientist, inventor and futurist. Aside from futurism, he is involved in fields such as optical character recognition (OCR), text-to-speech synthesis, speech recognition technology, and electronic keyboard instruments. He has written books on health, artificial intelligence (AI), transhumanism, the technological singularity, and futurism. Kurzweil is a public advocate for the futurist and transhumanist movements, and gives public talks to share his optimistic outlook on life extension technologies and the future of nanotechnology, robotics, and biotechnology.

Geoffrey Hinton – psychologist, neural networks (Toronto)

- Researcher & professor
- Hinton joined **Google** in March 2013 when his company, DNNresearch Inc, was acquired.
 - <https://www.youtube.com/watch?v=AyzOUbkUf3M> [2007]
 - 1:20 - ... 31:00 ...
 - https://www.youtube.com/watch?v=EInQoVLg_UY [2015]
 - ... 26:00
 - ... 37:00 - ...
 - <https://www.youtube.com/watch?v=XG-dwZMc7Ng>
 - 2016 interview

Yann LeCun -- Facebook AI

- **Sebastian Thrun interviews Yann LeCun [2016]**
 - <https://www.youtube.com/watch?v=Gwad1cWMcC0>

Key application – Virtual Reality (VR) & Augmented Reality (AR)

- **Components of VR & AR**

- Modeling the (virtual) world
- Mapping the world to a view (screen or glasses)
- Overlaying AR onto the real world
- Interaction – locomotion, hand & arm, ?voice
- Interfacing with the brain

- **VR –**

- **Star Trek – holodeck**
- **Second Life**
 - Philip Rosedale – now working on *High Fidelity* (AR infrastructure) – IEEE article
- *The Matrix*

Key application – Virtual Reality (VR) & Augmented Reality (AR) (2)

- Economist article: **The promise of Augmented Reality**
 - Overlays on the real world
 - Pokemon Go
 - Google **Translate** on smartphone with camera
 - Tango – 3-dimensional model
 - Smart spectacles [Google Glass; *Snow Crash*]
 - HoloLens (Microsoft)
 - Meta (Bay Area)