

ENVISIONING A FUTURE OF AI PUBLIC SERVANTS

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Speaker @drscotthawley

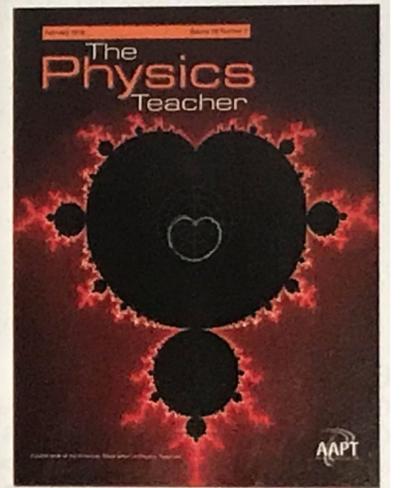


- Ph.D. in Physics (Numerical Relativity) from Univ. of Texas at Austin in 2000.
- 6 years as postdoc: High Performance Computing sim's of binary black holes
- Joined Belmont faculty to *teach* audio engineers and play music, switched to acoustics & audio, wrote visualization apps to help teach
- Began researching/developing machine learning for signal processing in 2015
- Started “ASPIRE: A Research Co-op” in Nashville in 2017. Community network of engineers, scientists & hobbyists

February 2018:

This Month's Cover...

features two naturally occurring heart shapes, an acoustic cardioid tucked inside a fractal valentine. The latter image, the Mandelbrot set in vivid red and black, is by Matthias Hauser (Fine Art America: <https://fineartamerica.com/profiles/matthias-hauser.html>); for more about the former, see “Visualizing Sound Directivity via Smartphone Sensors” by Scott H. Hawley and Robert E. McClain Jr. on page 72.



July 2018:



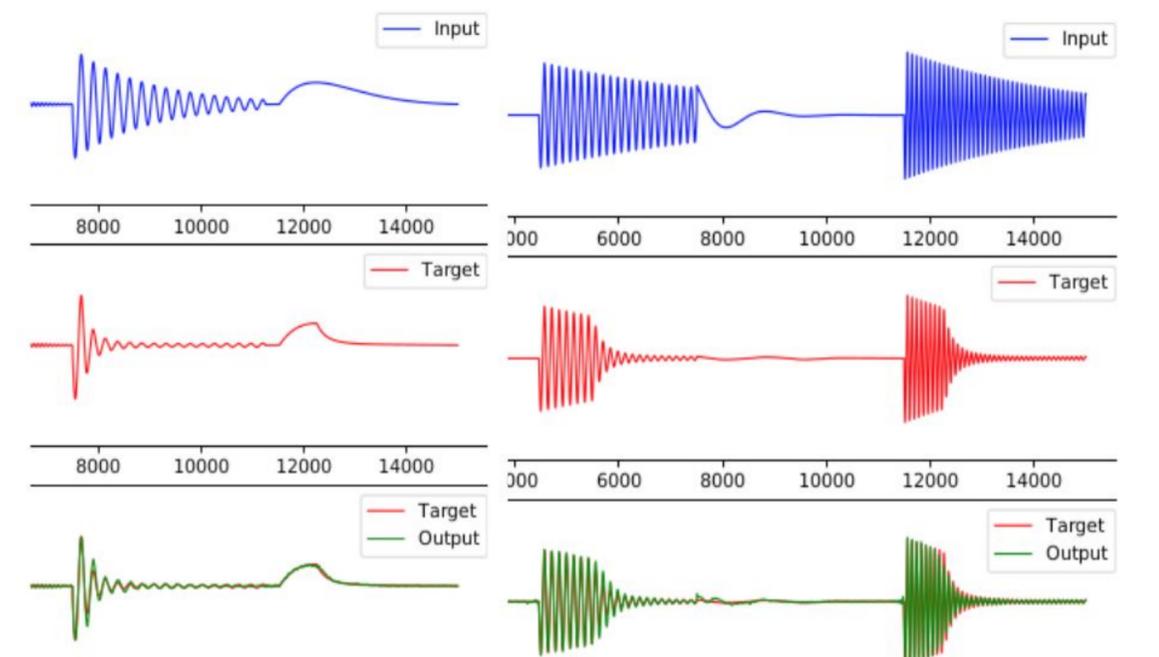
Following

The winner of our Incubator Lab is Scott Hawley, PhD., Associate Professor of Physics at Belmont University. He submitted a machine-learning based app that uses neural networks and Deep Learning to help classify, organize, and query samples and loops. artandlogic.com/2018/07/announ ...



In progress, with Ben Colburn & Stylianos Mimilakis (Fraunhofer IDMT):

Compressor:



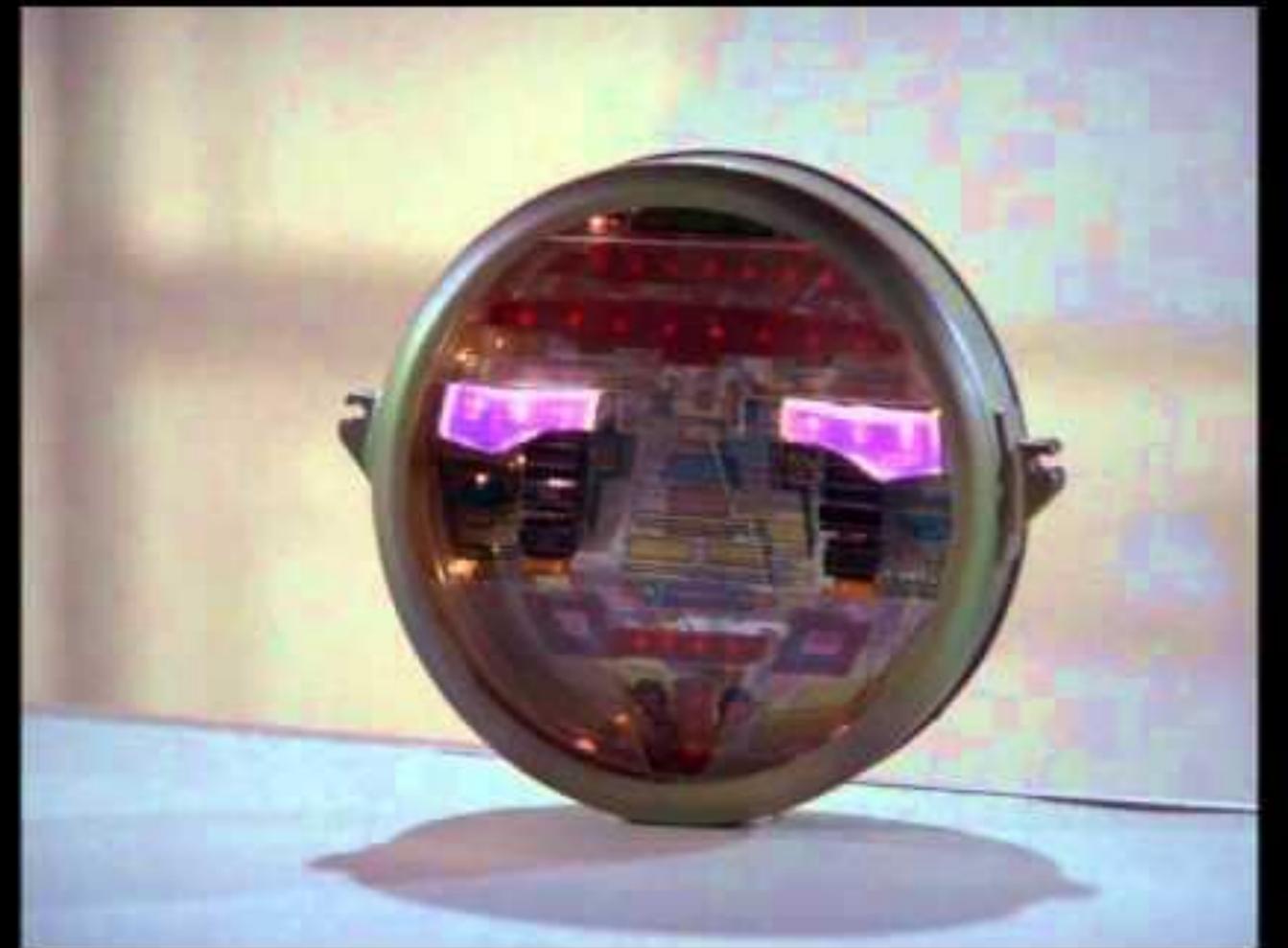


Sci-Fi Nostalgia!

Dr. Theopolis

"Buck Rogers in the 25th Century"
TV Show, 1979-1981

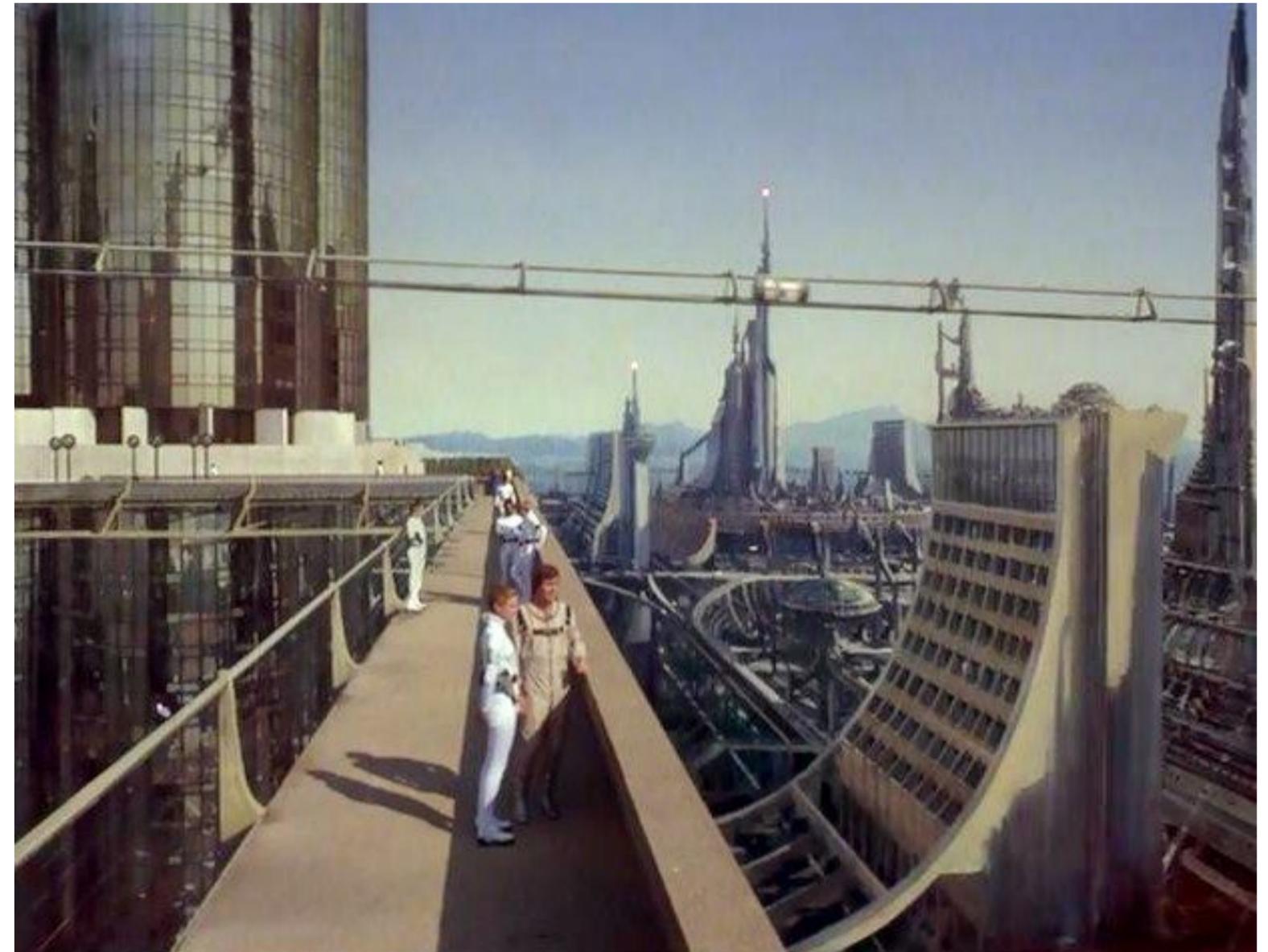
Computerized intelligence known
as a "Quad"



Computer
Council:



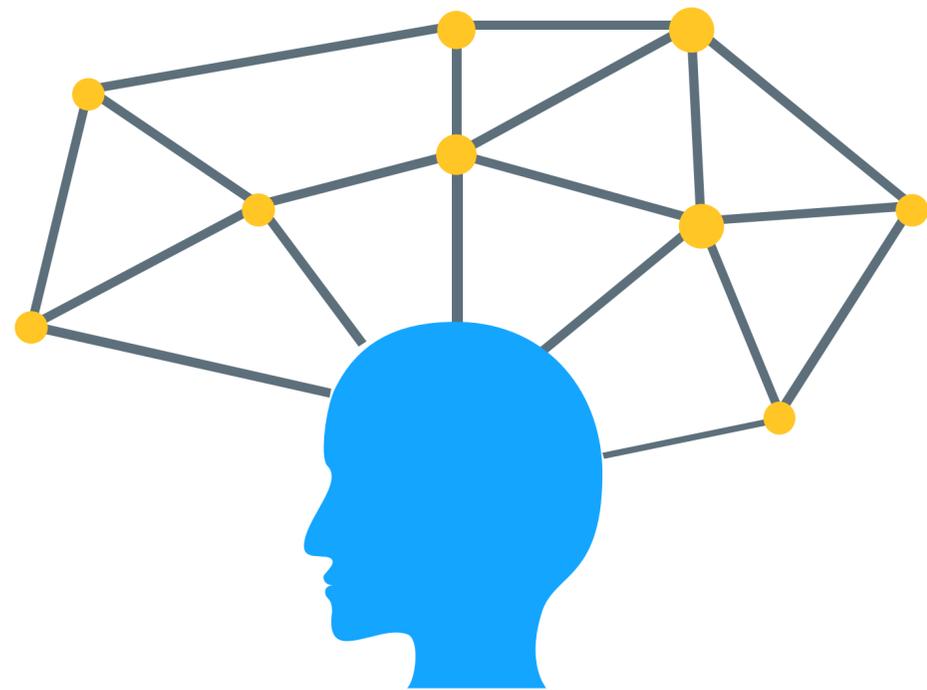
“The mistakes that we have made in areas like our environment have been **entirely turned over** to [the AIs]. And they've **saved** the Earth from certain doom.” -- Dr. Elias Huer



TECHNO-UTOPIA!

- ✓ These AIs were essentially benevolent, public servants
- ✓ Refreshing to see an optimistic alternative to SkyNet, etc.
- ✓ Interesting name: Theopolis - "City of God"

This optimism amounts to a form of hope, which is not unique to the secular culture of technological consumerism and progress made possible by scientific advances...



The Hope

A higher intelligence will somehow
resolve humanity's problems

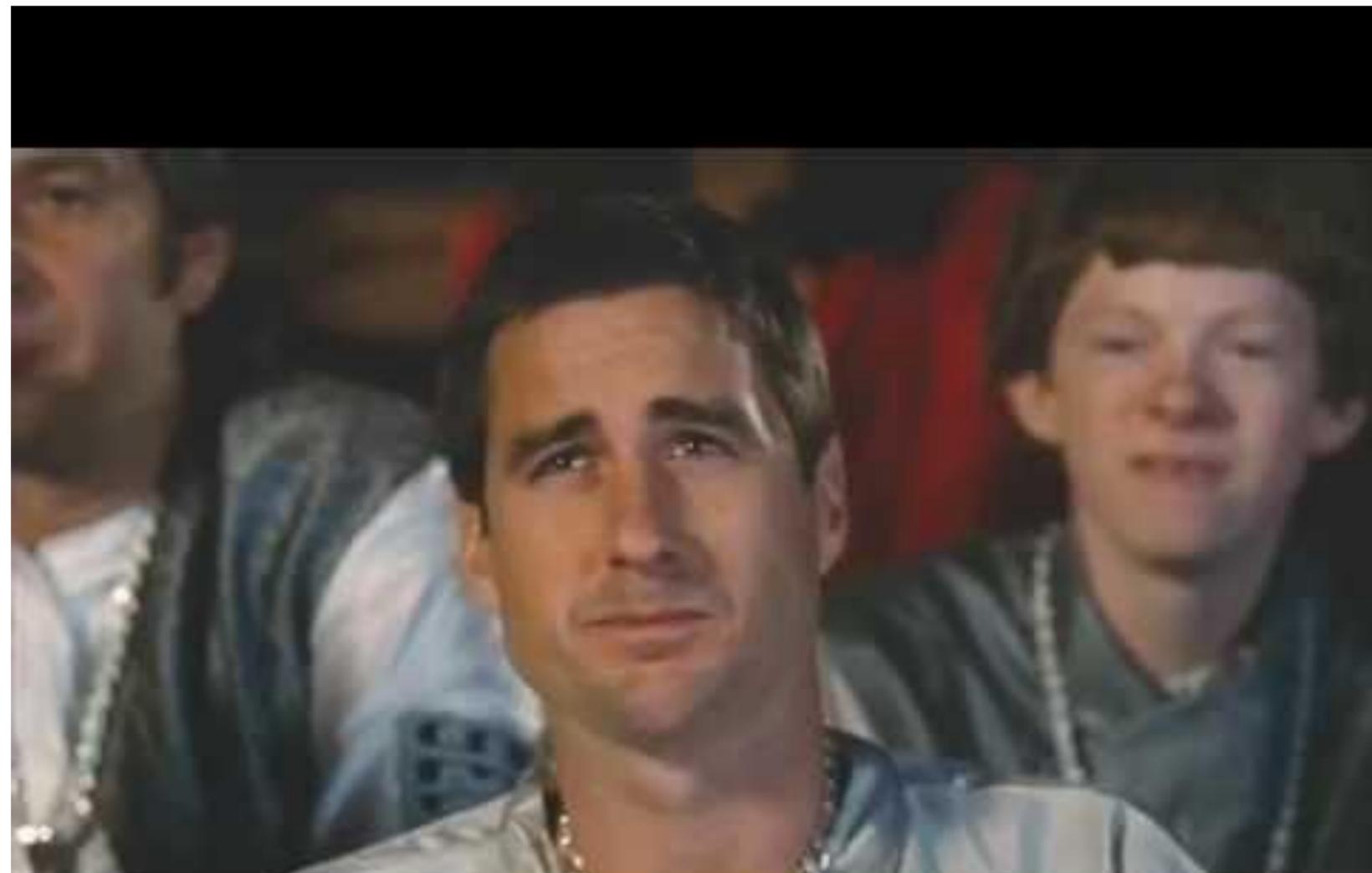
THIS HOPE IS NOT 'SCIENTIFIC'

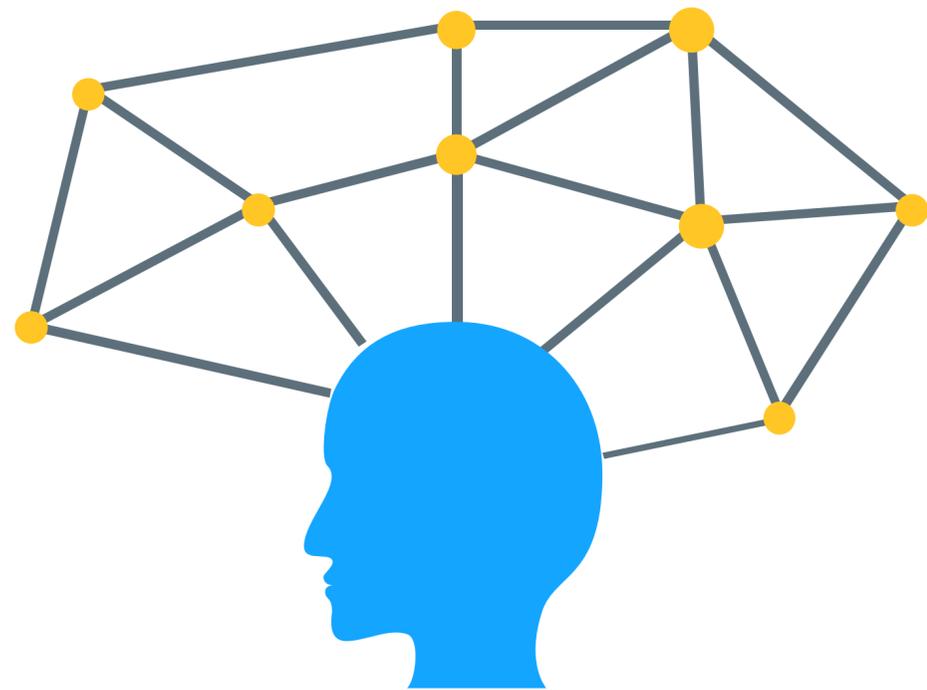
("A higher intelligence will somehow resolve humanity's problems")

Religion: "God will be their light"

Theopolis, "City of God". The New Jerusalem. God will institute a new earth, and a new society of peace and harmony.

Idiocracy: "We got this guy Not Sure"

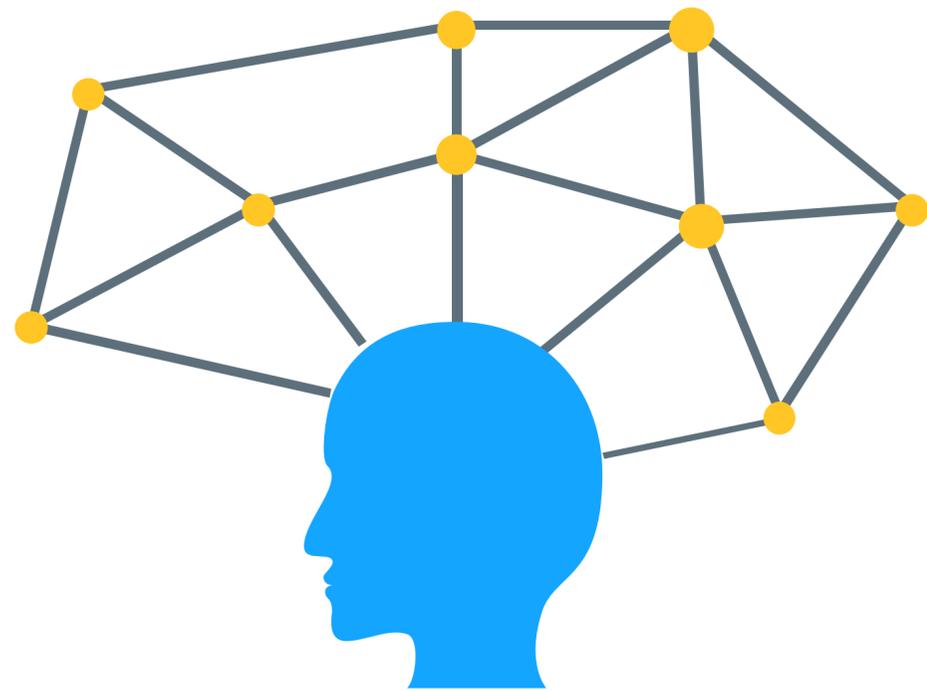




The Assumption

The problems we face result from

- lack of intelligence
- lack of knowledge
- or perhaps: "lack of morality"



The Hypothesis

These problems admit a technical solution.

The Hypothesis is probably wrong

“Science Alone Won’t Save the Earth. People Have to Do That.” by Erle C. Ellis in *NY Times*, Aug 11, 2018

- AI raises --- not solves --- ethical issues
- And these issues require **political solutions**. (Kate Crawford, “Just an Engineer? The Politics of AI”, *Royal Society of London “AI & You” Lecture Series sponsored by DeepMind*, Jul 23 2018)
- ...or **cultural & spiritual transformation**
- “AI Ethics: send money, guns & lawyers” (Richard Sargeant)

“We scientists don’t know how to do that”

“I used to think the top environmental problems were biodiversity loss, ecosystem collapse and climate change.

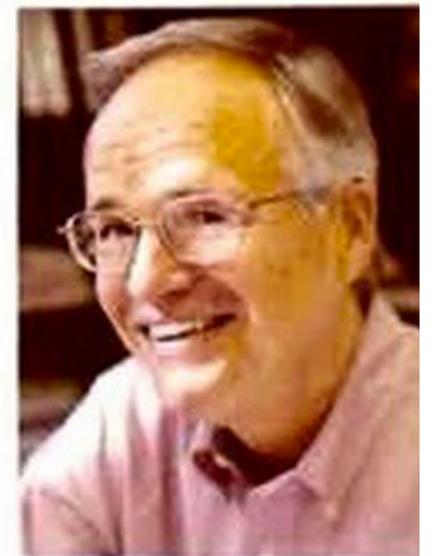
I thought that with 30 years of good science we could address those problems.

But I was wrong.
The top environmental problems are selfishness, greed and apathy...

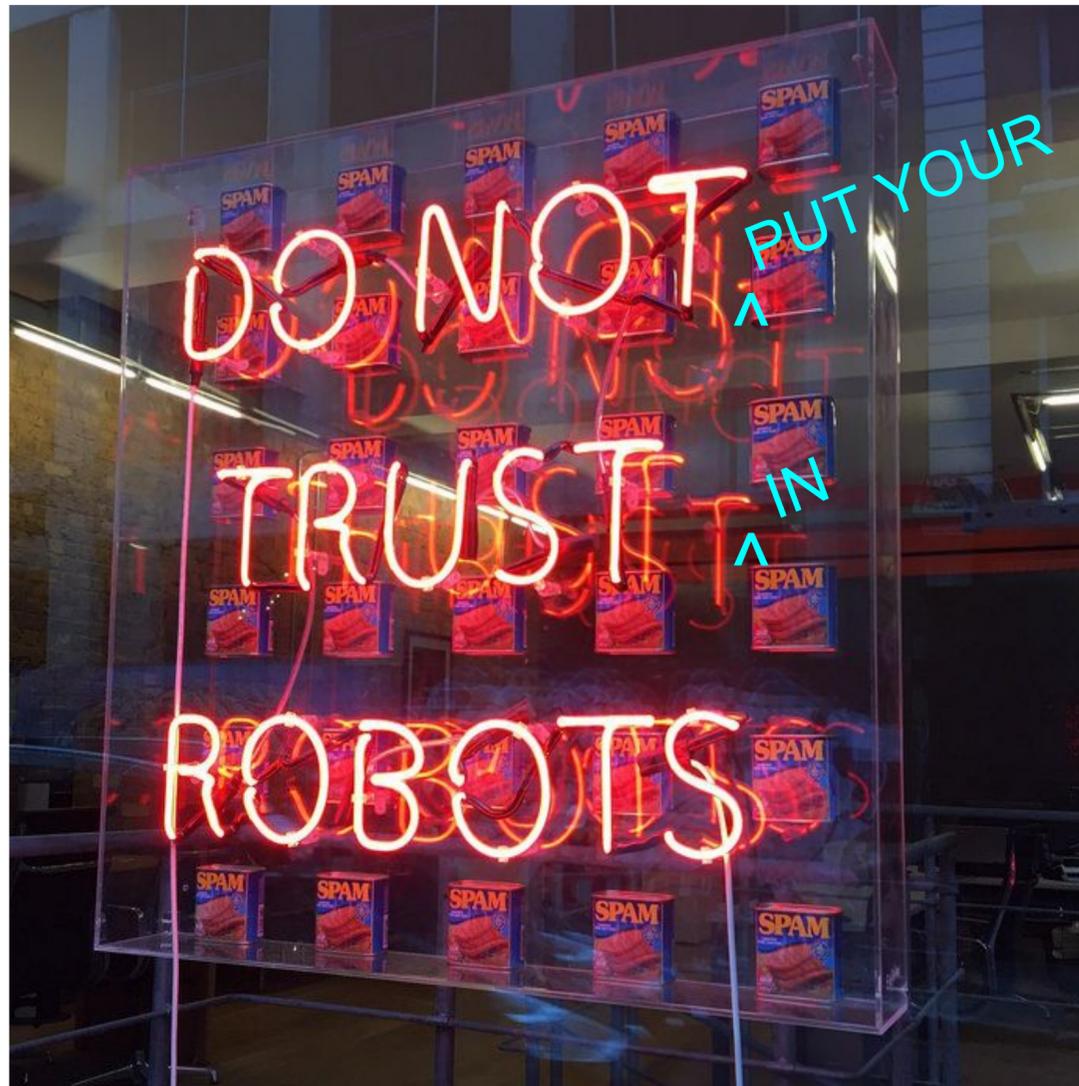
...and to deal with those we need a spiritual and cultural transformation

- and we scientists don’t know how to do that.”

Gus Speth, 2015



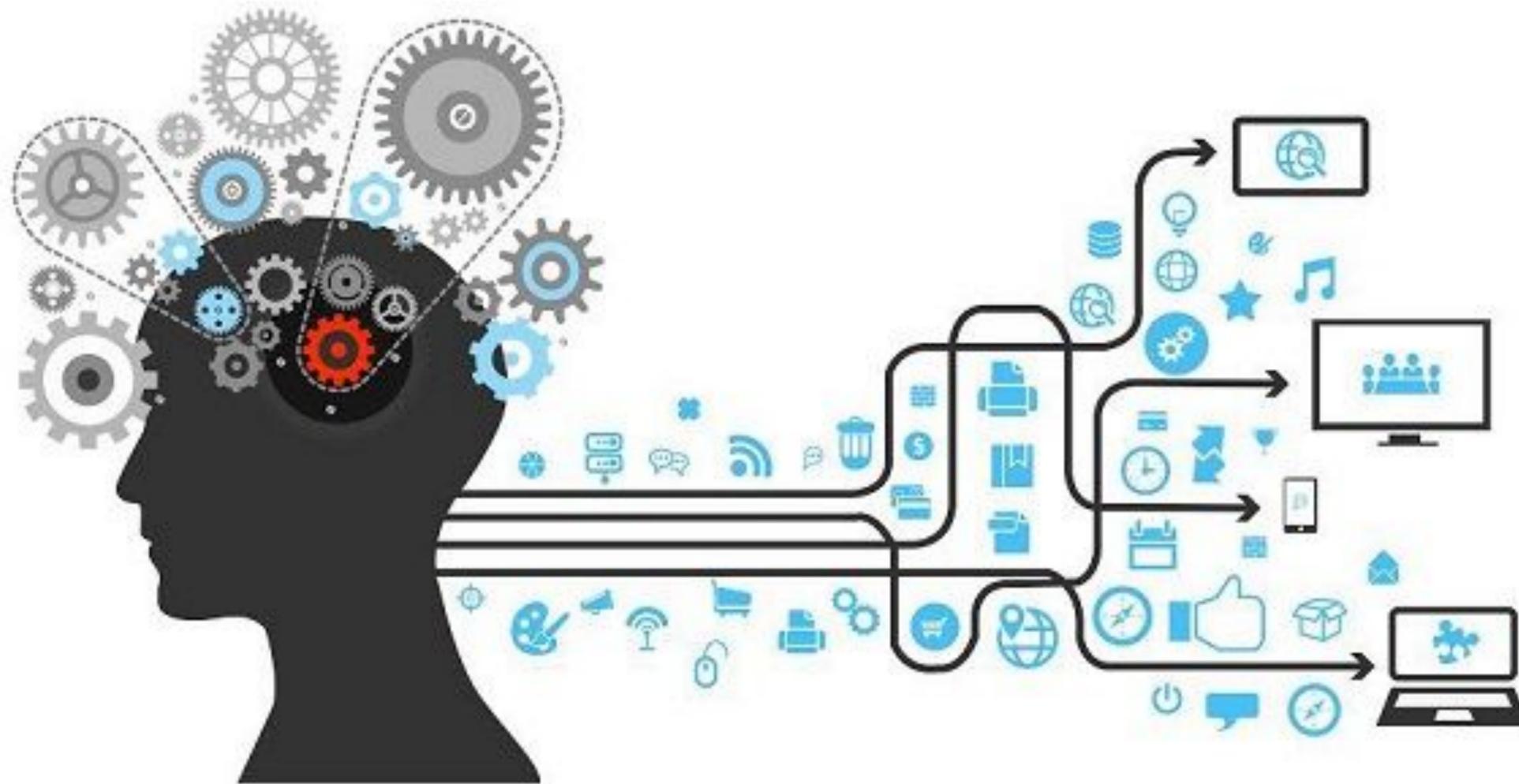
...and abdicating our responsibility for decision-making is probably not achievable...



due to *non-technical issues*:

- even defining the terms in the problem(s) is (are)...*problematic*
- and there's no consensus
- it's not obvious that there's an "optimal fixed point" in all human interactions
- accountability (see @j2bryson)

**Instead we are left with AI as a
“useful tool”**



BENEVOLENT USES OF AI

Benevolent.AI, #AIforGood, etc.

Save the Coral

Emma Kennedy et al.

“AI identifies heat-resistant coral reefs in Indonesia”, *The Guardian*, Aug 13 2018.



Stop Sex Trafficking

Digital Reasoning / THORN

“How a Franklin software company helped rescue 6,000 sex trafficking victims”
The Tennessean, Jul 6 2017



Cure Cancer

IBM Watson

“How the AI Project to Improve Cancer Treatment Went Wrong”, *Slate* Aug 18 2018



OOPS!

EVIL USES OF AI

“Too many worry about what AI—as if some independent entity—will do to us. Too few people worry what **power** will do **with** AI” - Zeynep Tufekci @zeynep

Empower Fascists

Kate Crawford

“AI & the Rise of Fascism”

“Classification is Power”

Tracking dissidents

Biased models

Neo-phrenology



Fake & Manipulate

Miles Brundage et al.

Targeted ads,
DeepFakes-style videos of
politicians.

...and several other types of
threats. See:

“The Malicious Use of Artificial
Intelligence”

Brundage et al, 2018.

<https://arxiv.org/pdf/1802.07228.pdf>

Scale Terror

Max Tegmark / FLI

“Slaughterbots” video of
AI-enabled autonomous
assassination drones



AI SERVING THE CHURCH



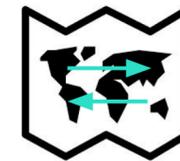
Translation

speeding dissemination into other (well known) languages



Evangelism

cvglobal.co's "Who is Jesus" chatbot [yesheis.com](https://www.yesheis.com) and others



Missions

Tracking trends, demographics, logistics



Textual Analysis

NLP tools rendering further studies of Biblical text



Biblical Archaeology

"How Artificial Intelligence Helped Find Lost Cities of Ancient Middle East", *Intel.com*, Mar 20 2018



Music

More highly repetitive praise choruses via Recurrent Neural Networks! ;-)

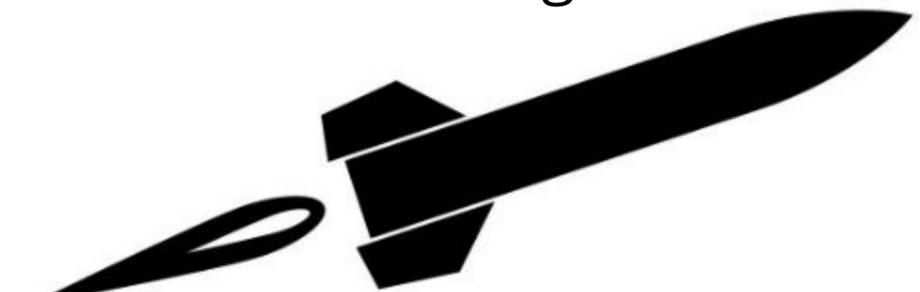
A Tool, But Not “Just a Tool”

“Calling the computer ‘just a tool,’ even as one asserted that tools shape thought, was a way of saying that a big deal was no big deal.”
(Sherry Turkle, in Simulation & Its Discontents)

Tools have “ends” / teleology / goals:

- “The medium is the message” (McLuhan)
- Successful tech. development tends to become self-serving (Ellul)
- “What does [an AI] ‘want’?” (Kahn)

“A heat-seeking missile
has a goal”



Future of Humanity Institute

Data-hungry algorithms make for data-hungry companies & governments



Current Conversations:

Accountability and Transparency

- EU's GDPR requires algorithmic decisions be "explainable" (Are human decisions explainable?)
- Human creators need to be held responsible for AIs & robots— AIs should not be "persons" (Bryson)
- Transparency — the ability of a naive observer to form an accurate model of a robot's capabilities, intentions and purpose (Wortham)
- But there's a (design) balance: can't overwhelm people with info (Theodorou)

IN CLOSING

- ✓ Optimism can be healthy
- ✓ Good to have realistic dreams (and nightmares -- @zynep)
- ✓ “We get to decide” what AI will be (Bryson)

How to get involved:

- Learn some code - help shape AI development
- Follow AI Ethics / Safety / Law / SysML people (e.g. on Twitter)
- In Nashville: Visit Christ Church’s “FutureTech” Meetings
- Read CoCreators new e-magazine: SuperPosition!



SuperPositionMagazine.com



Thanks!

Any questions?

You can find me at: @drscotthawley
scott.hawley@belmont.edu

Thanks to: Michael Burdett & Alister McGrath (Oxford); Tommy Kessler (Belmont);
Beth Singler (Faraday/Cambridge); Miles Brundage (FHI/OpenAI);
Joanna Bryson, Andreas Theodorou & Rob Wortham (U. of Bath); Belmont U.

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CREDITS

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