

# LAMBDA SCHOOL DATA SCIENCE GENERAL ARTIFICIAL INTELLIGENCE & THE FUTURE



**IN THE EARLY HISTORY  
OF COMPUTERS, THIS  
SEEMED LIKE AN EASIER  
QUESTION.  
INTELLIGENCE MEANT  
SOLVING TRICKY  
PROBLEMS - THINGS  
THAT TOOK TIME AND  
MENTAL EFFORT FOR A  
HUMAN TO FIGURE OUT.**

**TODAY, HOWEVER, THE  
GOAL LINE OF MACHINE  
INTELLIGENCE HAS  
MOVED.**



# TODAY'S AI GOALS ARE DRIVEN BY CHARACTERS IN POPULAR FICTION

Some examples include:

- Data (Star Trek)
- The Terminator
- Ava (Ex-Machina)
- Samantha (Her)
- Rachel (Blade Runner)
- Tars (Interstellar)
- Maschinenzwerg<sup>1</sup> (Metropolis)

Discussion: What do these characters have in common?

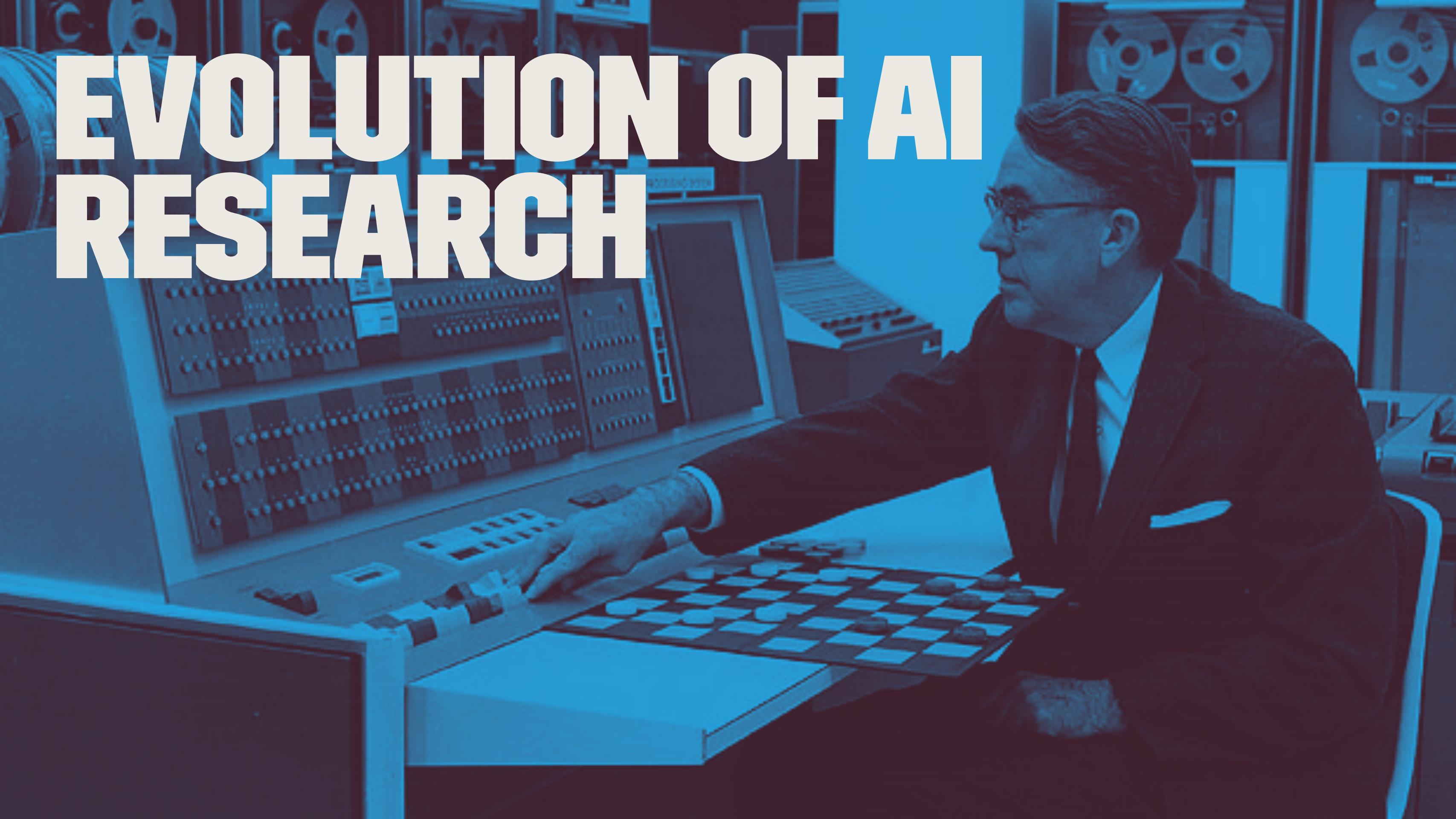
<sup>1</sup> The first AI in film appearing in 1927

EACH CHARACTER IS  
REMARKABLY HUMAN.



**WE ENVISION MACHINES  
EXACTLY LIKE OURSELVES -  
BEING CAPABLE OF SELF  
REFLECTION, EMOTION,  
VIOLENCE, AND CREATION.  
MACHINES THAT COULD IN  
ESSENCE REPLACE US.**

# EVOLUTION OF AI RESEARCH



# MACHINE LEARNING

“Field of study that gives computers the ability to learn without being explicitly programmed. ”

Arthur Samuel, 1959

# ARTIFICIAL INTELLIGENCE

“The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.”

English Oxford Living Dictionary

# AI OVER TIME

- » Pre 1950s: Limited achievements until electronic computation became possible during WWII
- » 1950s - 1960s: Golden Age of AI
- » 1970s: AI Winter
- » 1980s: Narrow AI Boom
- » 1990s: Neural Network Renaissance
- » 2000s: Cheap Computers
- » 2010s: Modern Neural Network Frameworks

# AI ACHIEVEMENTS IN GAMES

- » 1994: Checkers
- » 1997: Chess
- » 2006: Scrabble
- » 2011: Jeopardy!
- » 2016: Go<sup>2</sup>.
- » 2018+: StarCraft<sup>3</sup>.

<sup>2</sup> You should watch the Netflix documentary on DeepMind's AlphaGo and AlphaGoZero.

<sup>3</sup> Research into this game is ongoing by Facebook & OpenAI.



# THE HORIZONS OF GENERAL ARTIFICIAL INTELLIGENCE

1. Automation: Machine can completely tasks that requires lots of manual human labor.
2. Narrow Inference: Machines can make probabilistic inferences on well defined problems.
3. Generative: Machines can create data of their own accord with minimal input from a human.
4. Understanding: Machines can map the relationship between people, places, and things taking action according to their operating environment.

# MAJOR PLAYERS IN THE AGI ARMS RACE

- » Microsoft
- » OpenAI
- » Google & DeepMind
- » Facebook
- » IBM
- » Nvidia
- » Qualcomm

# ETHICS OF AI / AGI



# DISCUSSION

- » What are the threats that AI / AGI pose to our society?
- » How do we combat those threats?
- » Do the benefits of AI outweigh the potential risks or threats?

Discuss in small groups for 15 minutes. Each group will elect one person to give a report out at the end of the 15 minutes.

# AI HIPPOCRATIC OATH

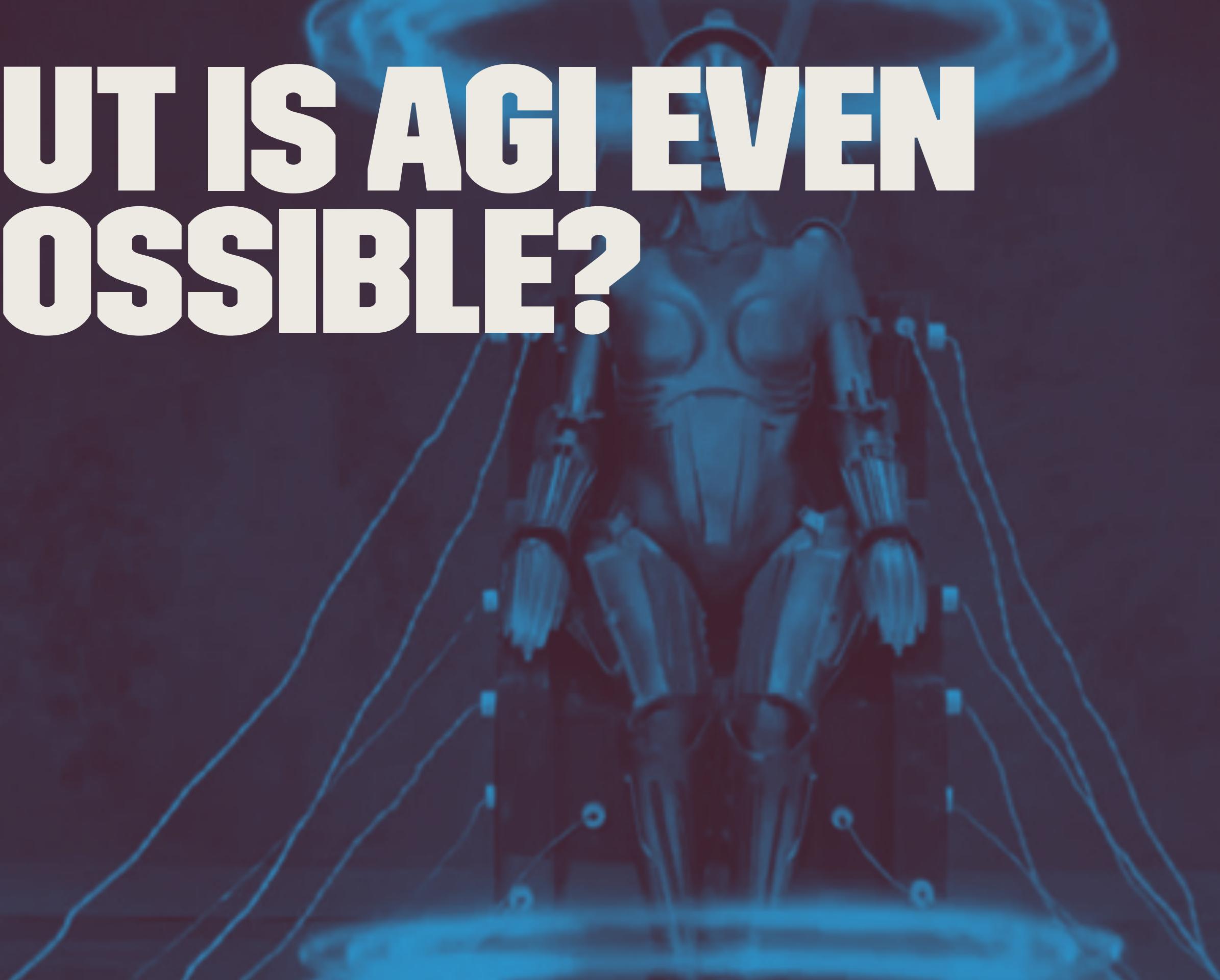
As AI practitioners, should we agree to a standard code of conduct that guides our actions in the research, creation, and use of AI?

Two executives at Microsoft believe we should.

Take 5 minutes to read the article (shared in Slack).



# BUT IS AGI EVEN POSSIBLE?



# THAT QUESTION HAS YET TO BE ANSWERED.

Many AI researchers do not believe it possible or even desirable.

You need to make your own decision on what is possible with AI and what we should do with AI.