

A brief history of artificial intelligence and what it can teach us

2nd Workshop on Correctness and Reproducibility for Earth System Software

Anissa Zacharias | November 7, 2025

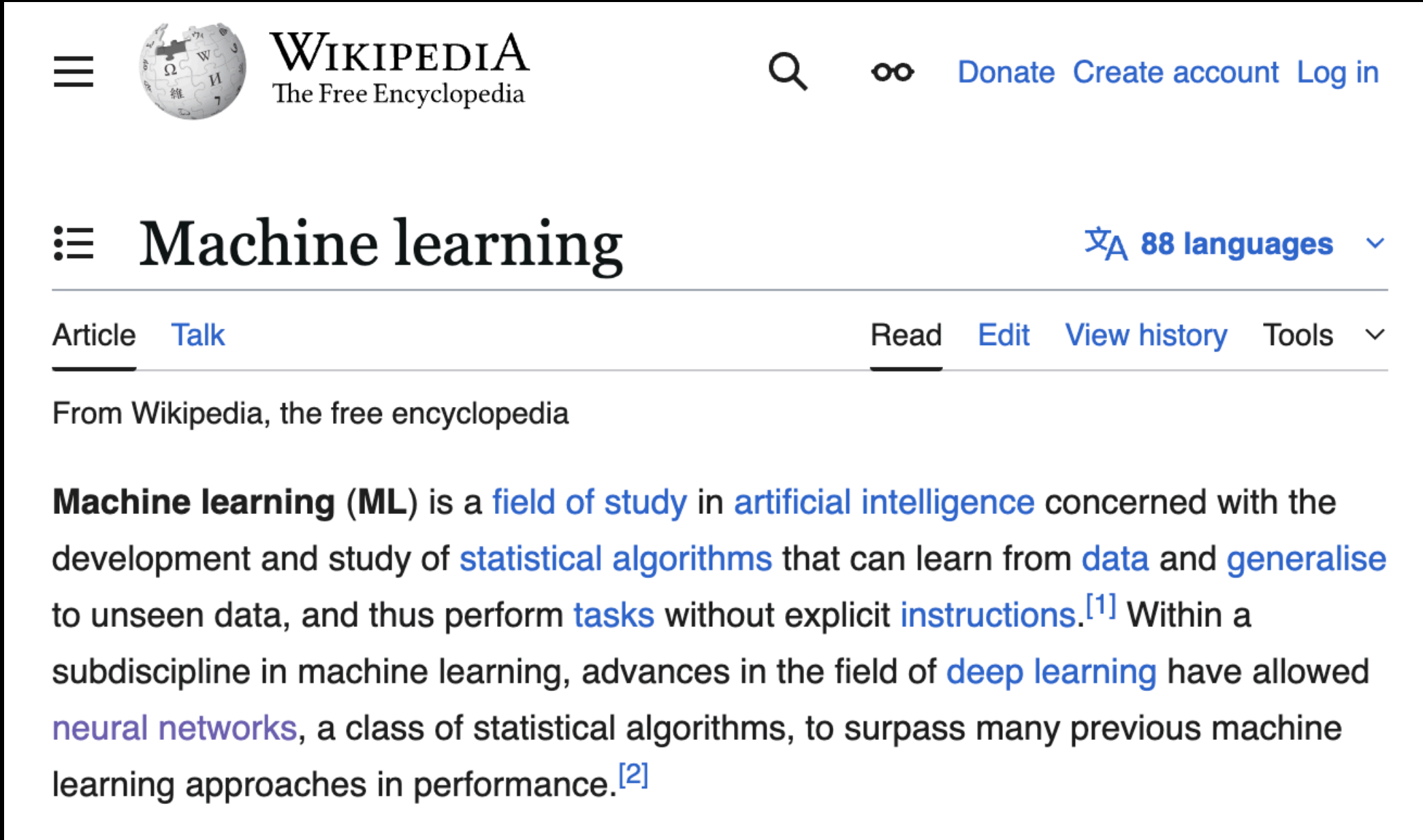
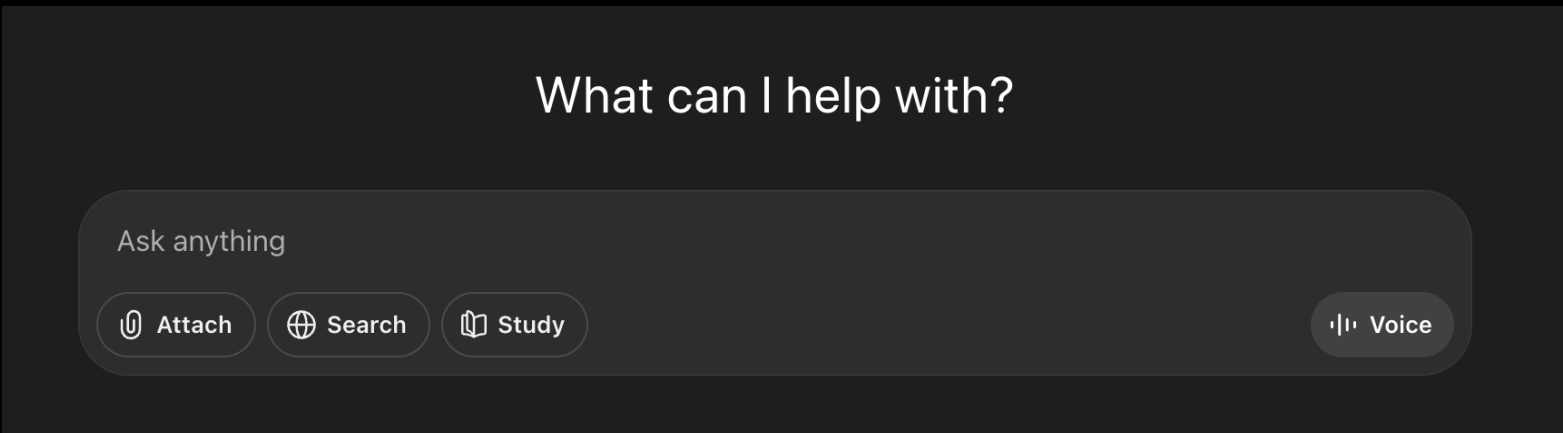
What this talk is not

- Comprehensive
- Exhaustive
- Un-opinionated
- Going to be concerned with anything else a philosophy professor would get excited about

What we're talking about when we talk about AI



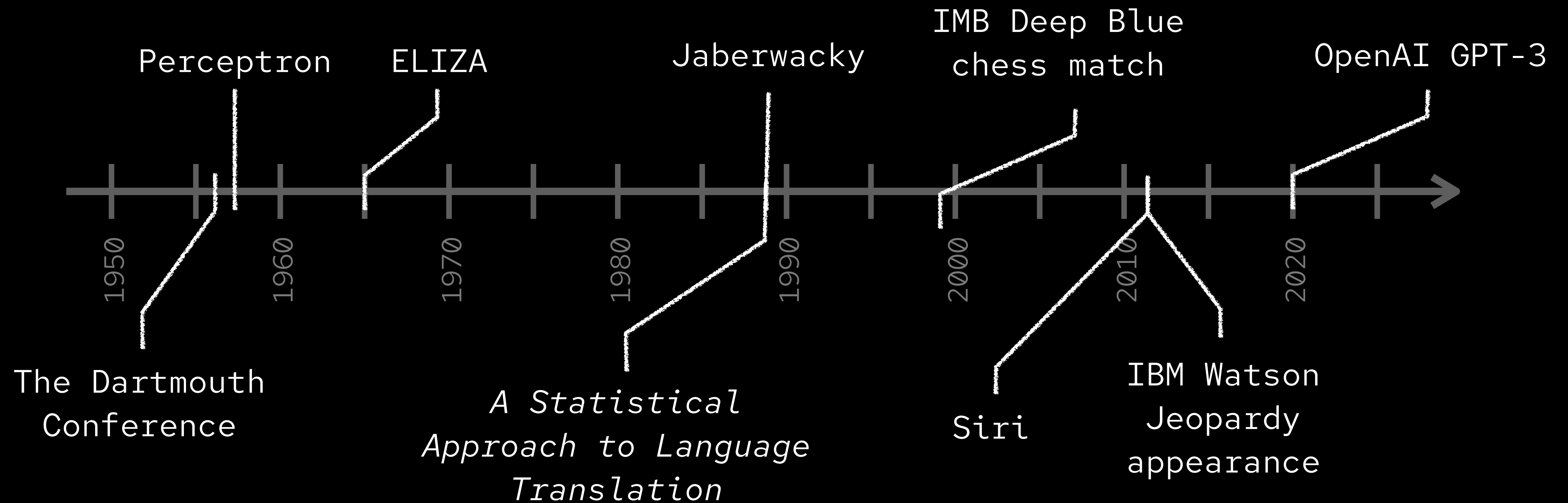
TensorFlow



products, generative AI, LLMs

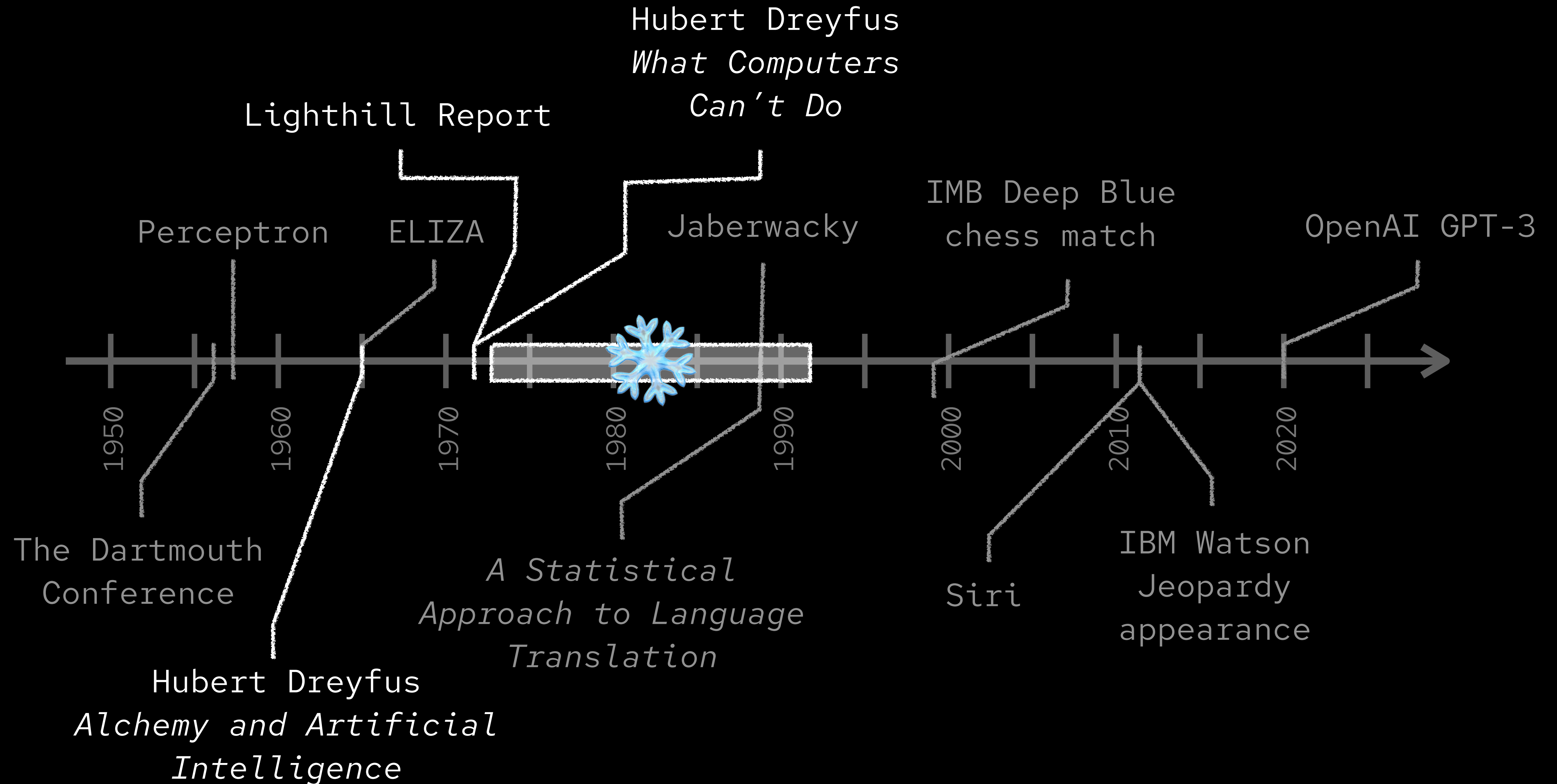
History of AI as a field

A non-exhaustive timeline



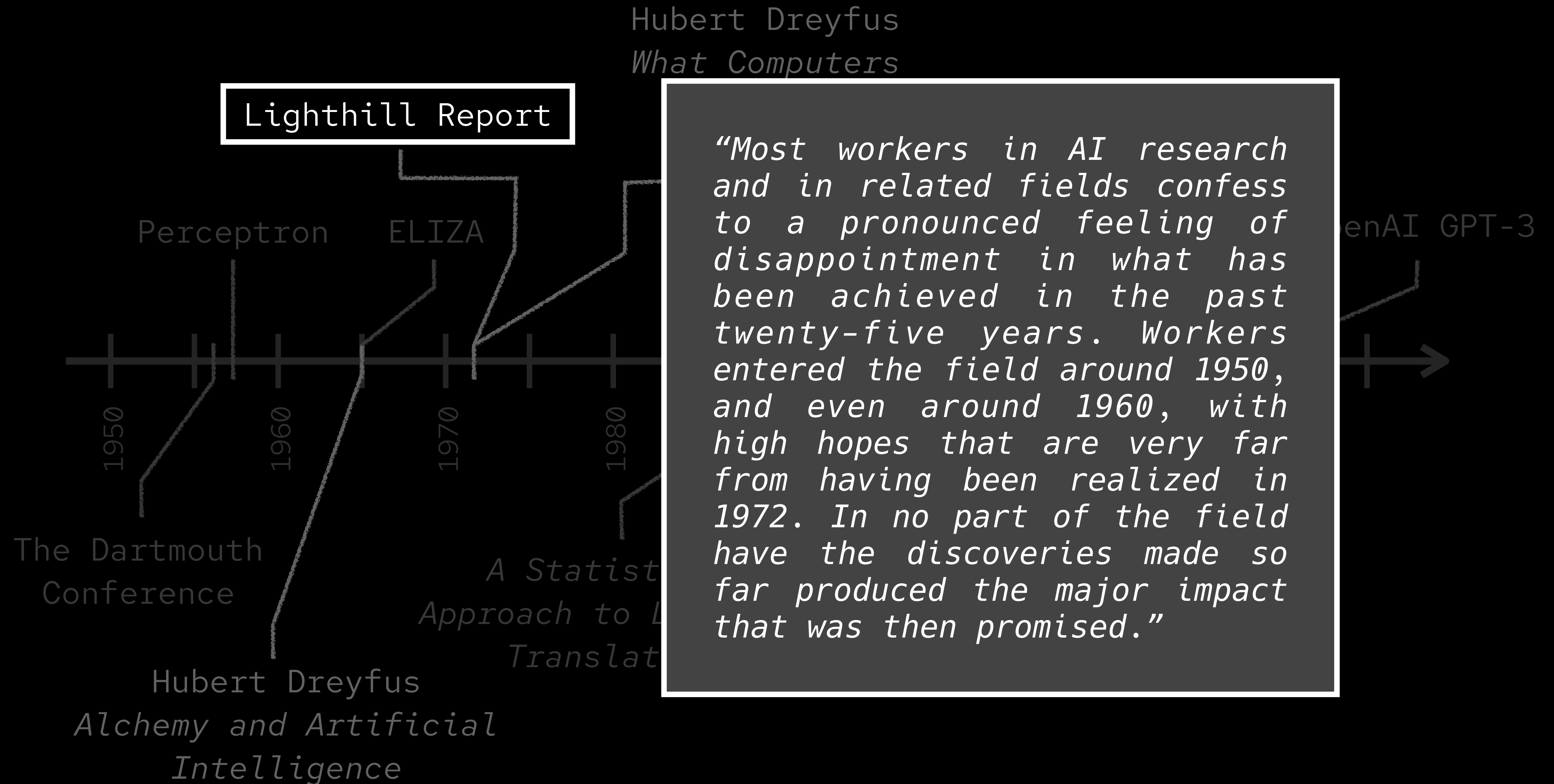
History of AI

significant criticism from the start



History of AI

significant criticism from the start



History of AI

significant criticism from the start

Hubert Dreyfus
*What Computers
Can't Do*

Lighthill Report

"It is the point of Dreyfus's book that human and artificial intelligence are in fact quite different—in particular, that human intelligence is unique. Not only that, but a great mis- understanding accounts for public confusion about thinking machines, a misunderstanding perpetrated by the unrealistic claims researchers in AI have been making, claims that thinking machines are already here, or at any rate, just around the corner."

— Pamela McCorduck, *Machines Who Think*

Hubert Dreyfus
*Alchemy and Artificial
Intelligence*

Percep

1950

The Dartmouth
Conference

*Approach to Language
Translation*

appearance

GPT-3

History of AI

significant criticism from the start

Hubert Dreyfus

What Computers

Can't Do

Lighthill Report

"No piece of equipment makes sense by itself ... What makes an object a chair is its function, and what makes possible its role as equipment for sitting is its place in a total practical context. This presupposes certain facts about human beings (fatigue, the ways the body bends), and a network of other culturally determined equipment (tables, floors, lamps), and skills (eating, writing, going to conferences, giving lectures, etc.)"

Hubert Dreyfus

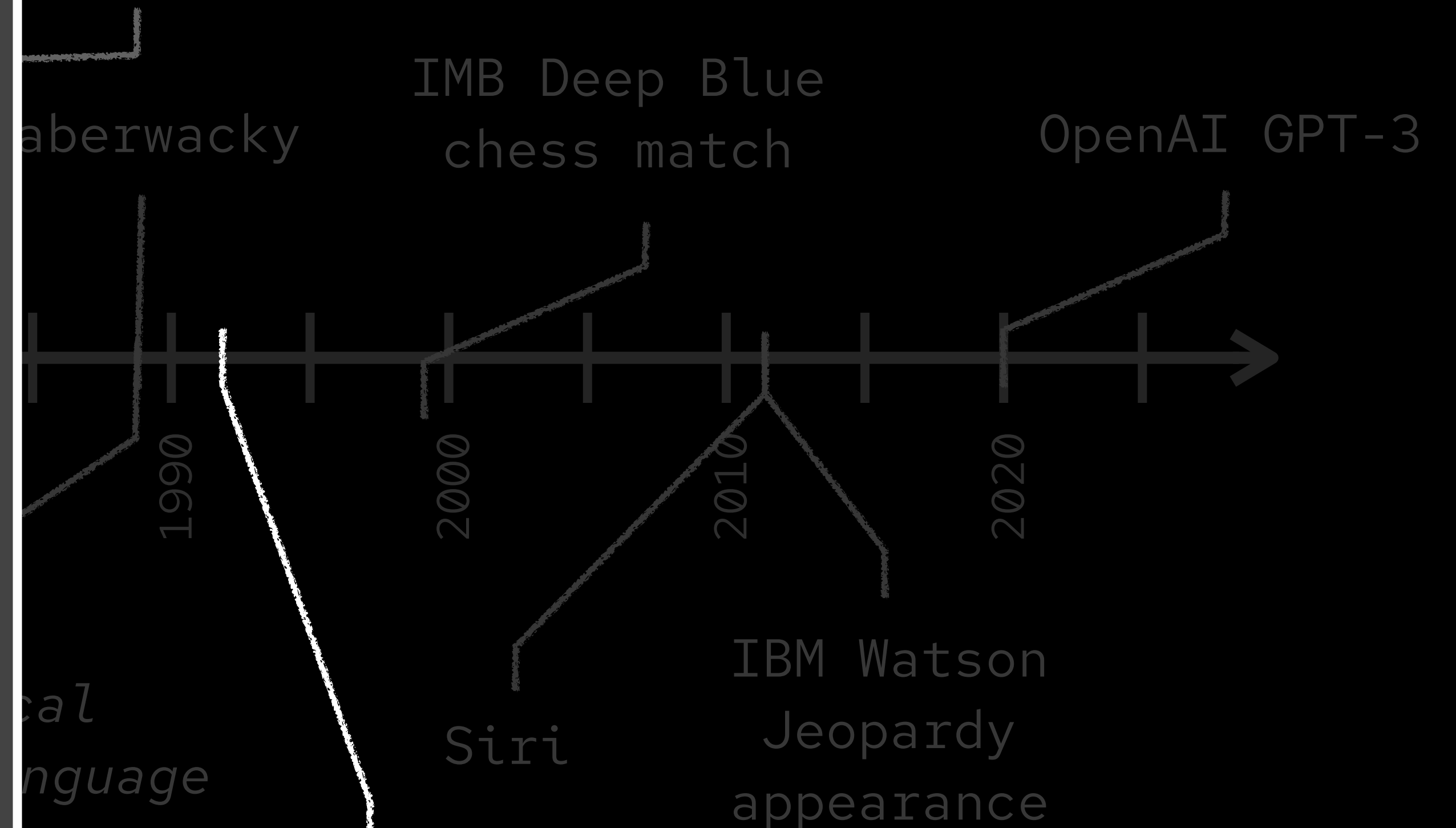
Alchemy and Artificial

Intelligence

Hubert Dreyfus

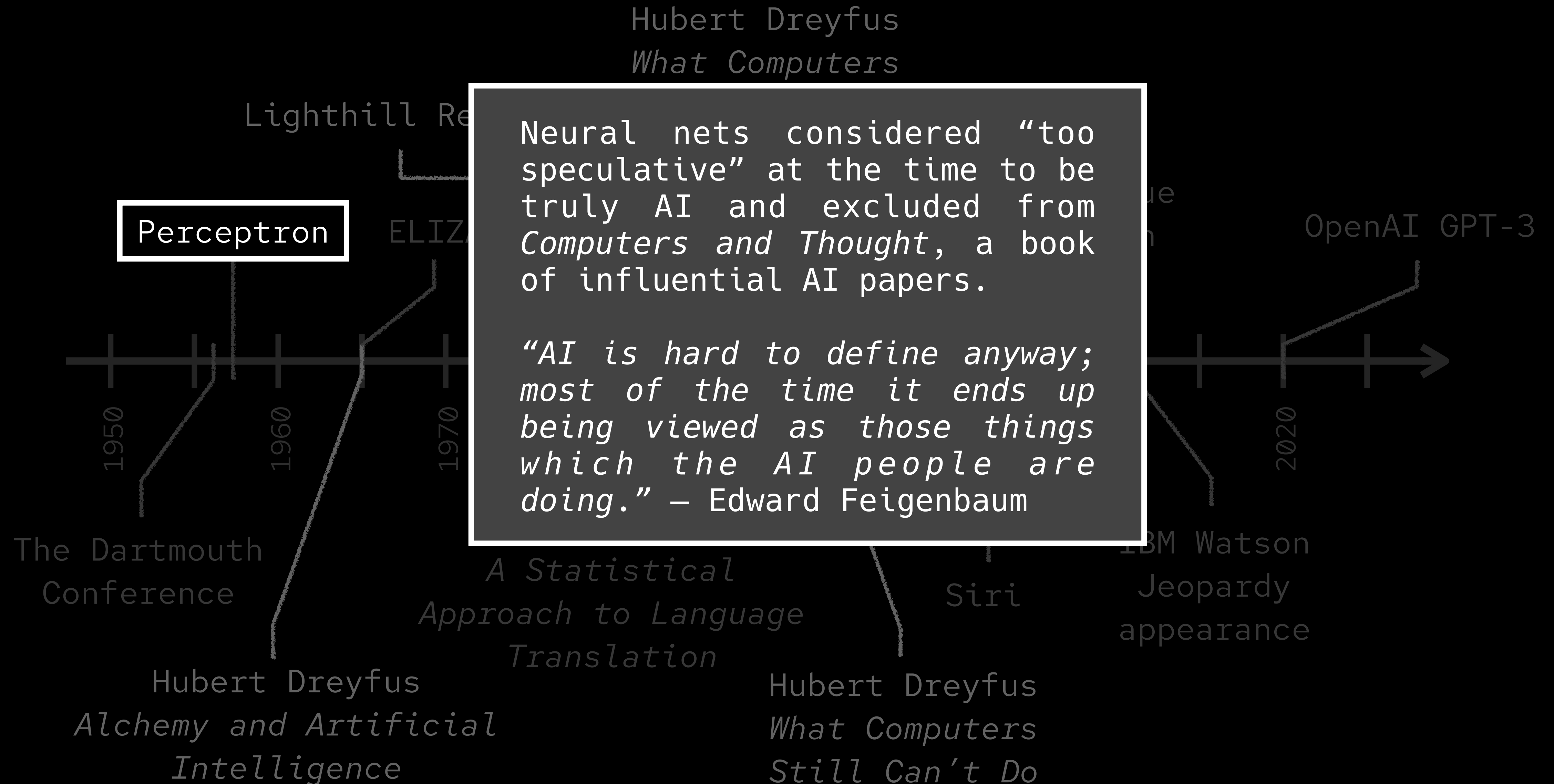
What Computers

Still Can't Do



History of AI

significant criticism from the start



Considerations for the AI of today

Considerations for the AI of today

What we mean when we talk about AI



PyTorch



TensorFlow



What can I help with?

Ask anything

Attach

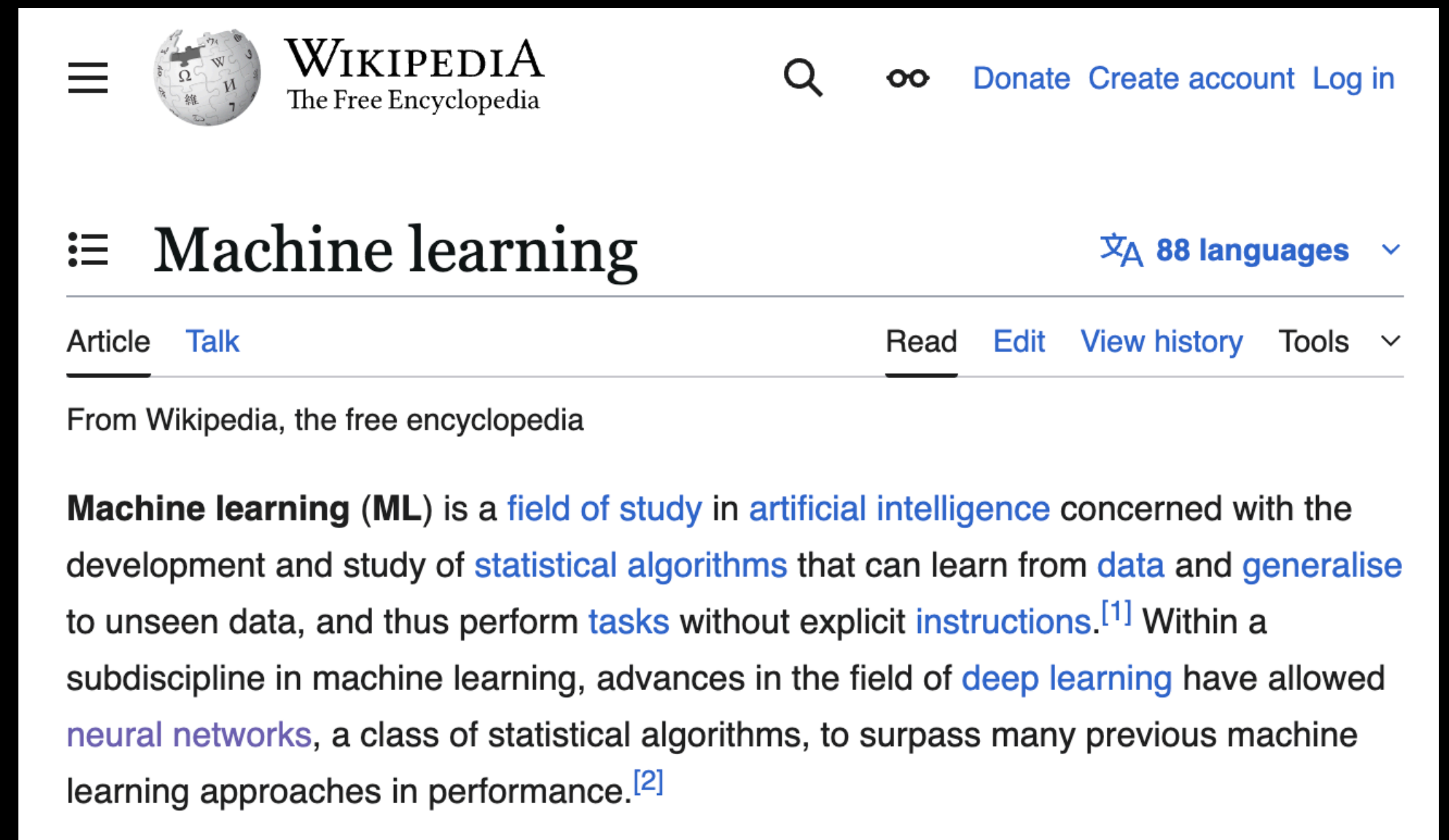
Search

Study

Voice



deepseek



products, generative AI, LLMs

Considerations for the AI of today

What we mean when we talk about AI

AGI



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Voice



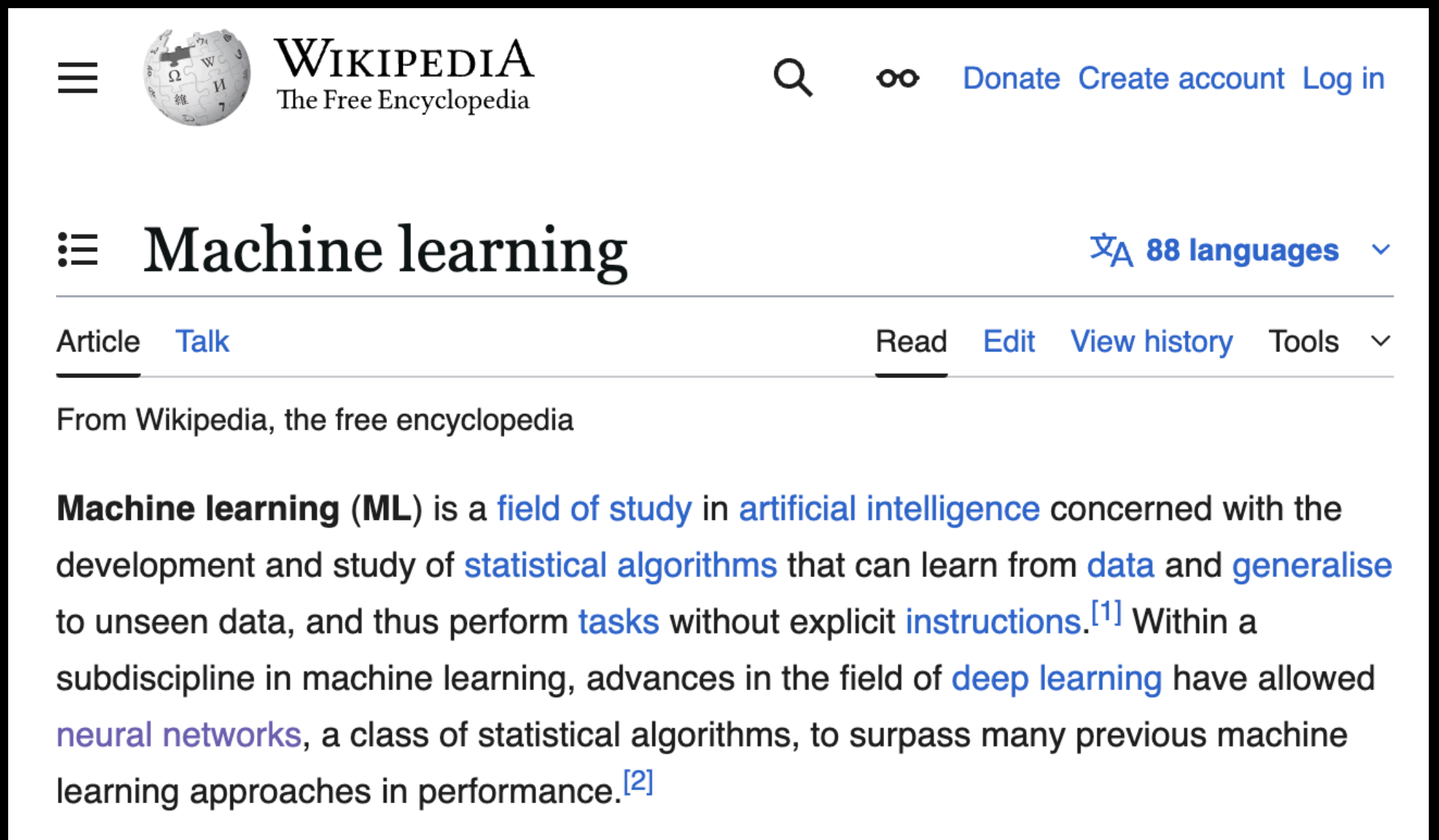
products, generative AI, LLMs



PyTorch



TensorFlow



machine learning, speech recognition,
classification models, etc

Considerations for the AI of today

What we mean when we talk about AI

AGI



hallucinations
thinking



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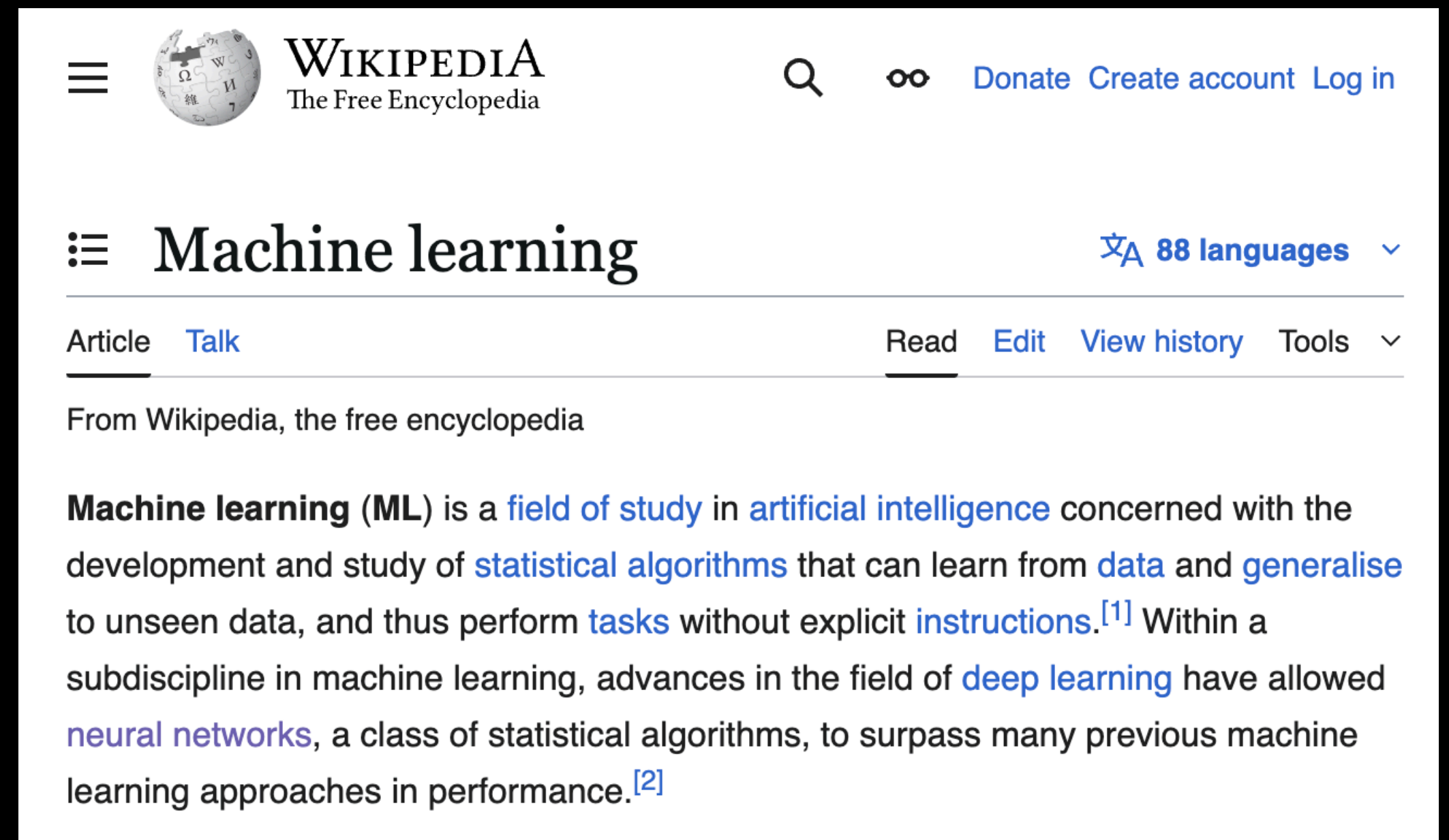
Voice



products, generative AI, LLMs



TensorFlow



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Considerations for the AI of today

Acknowledging limitations

Considerations for the AI of today

Acknowledging limitations

LLMs are not reproducible or verifiable

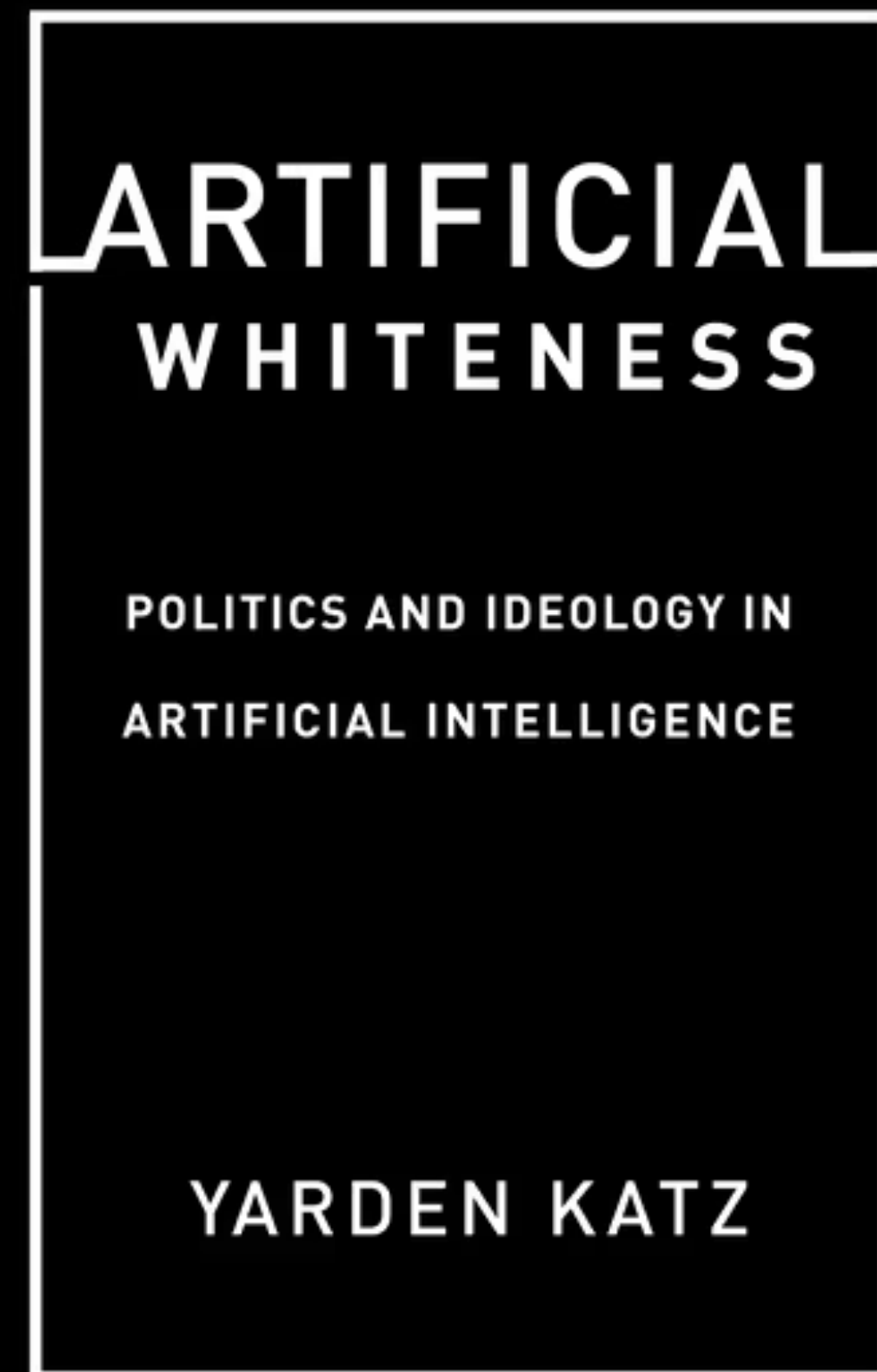
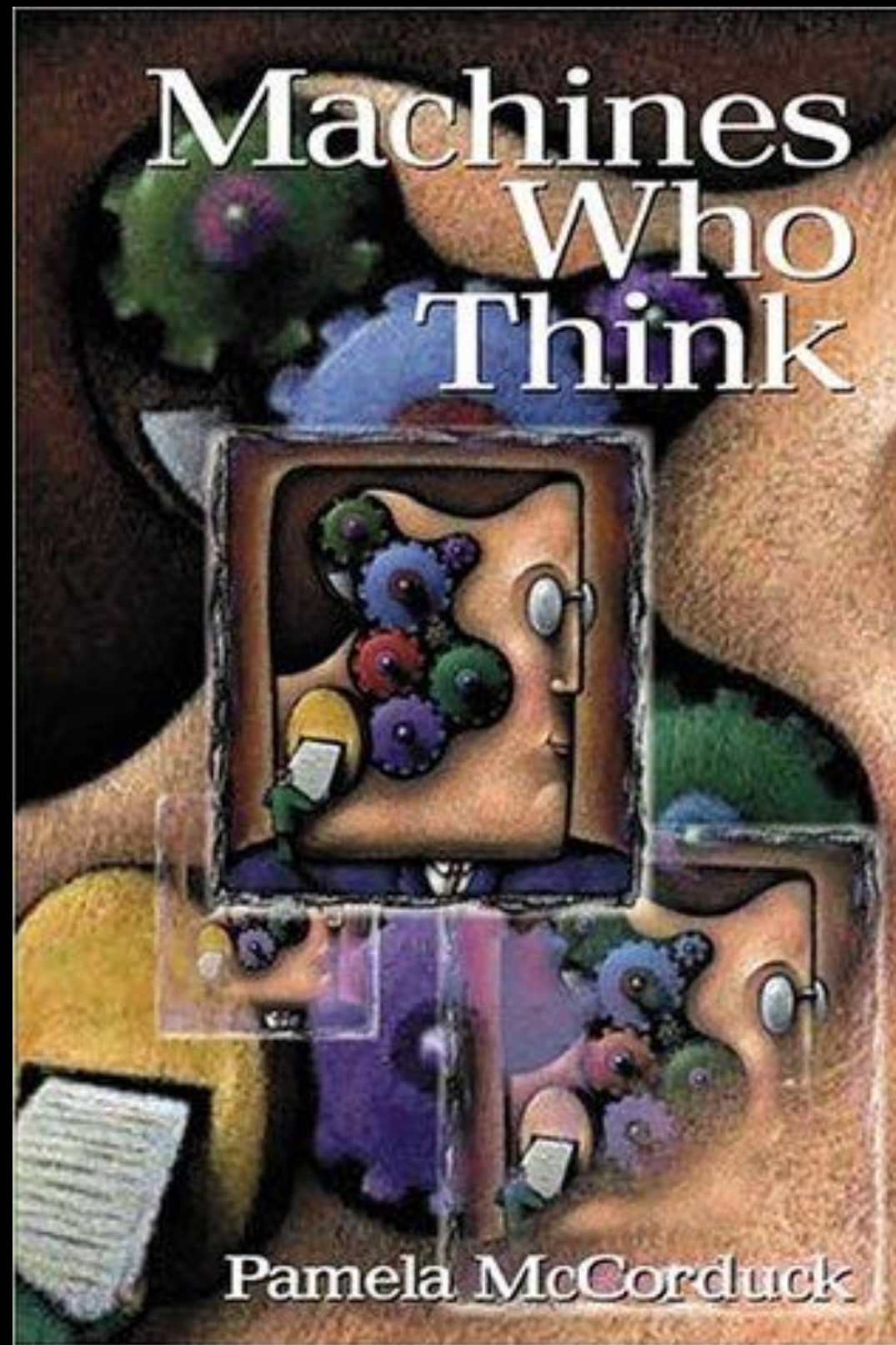
Considerations for the AI of today

Objectivity Bias

Considerations for the AI of today

Inevitability

Sources and Supplemental Reading



- IBM - The History of AI
- Lighthill Report
- Dreyfus - *Alchemy and Artificial Intelligence*
- Dreyfus - *What Computers Can't Do*