

Please read the brochure on PS 643 carefully

A short history of AI, Data, and Policy.

Specifics on this course.

Should you take it?

Classroom expectations.

AI History and Concepts

Anupam Guha

What is intelligence and why do you care?

The Essence and the Function

- What we are not talking about: Consciousness
- What are we talking about?
 - Reasoning
 - Learning
 - Solving
 - Perceiving
 - Generating
- Narrow and General Intelligence

How does this create value?

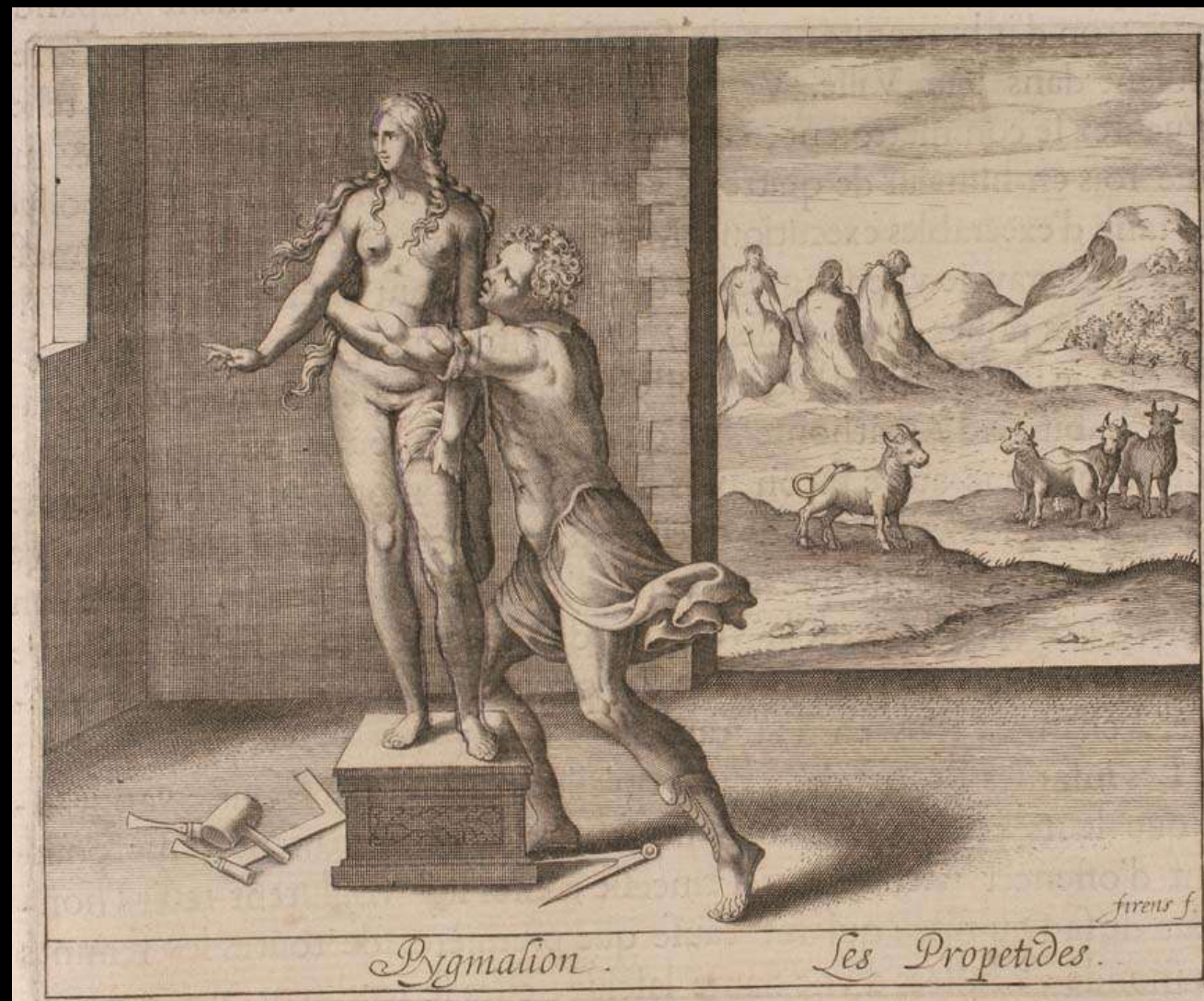
- Languages
- Vision
- Planning
- Logic
- Robotics
- Search and optimisation

What is Policy? Why AI Policy?

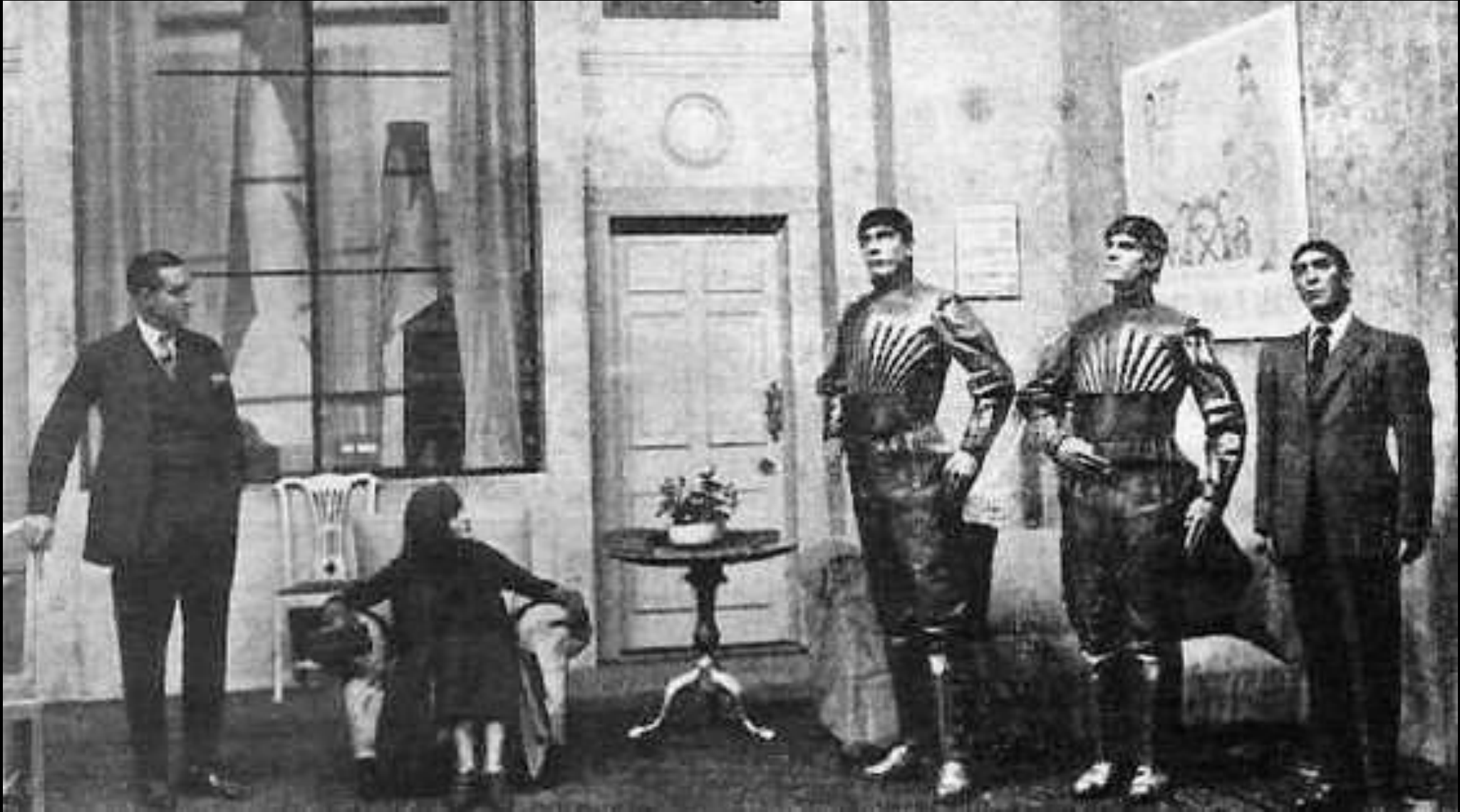
Agents

- Environment
- Action
- Goals
- Knowledge
- Observations
- Not all agents continuously learn
- Simple reflexive, model based, role based

A Brief History of Artificial Intelligence

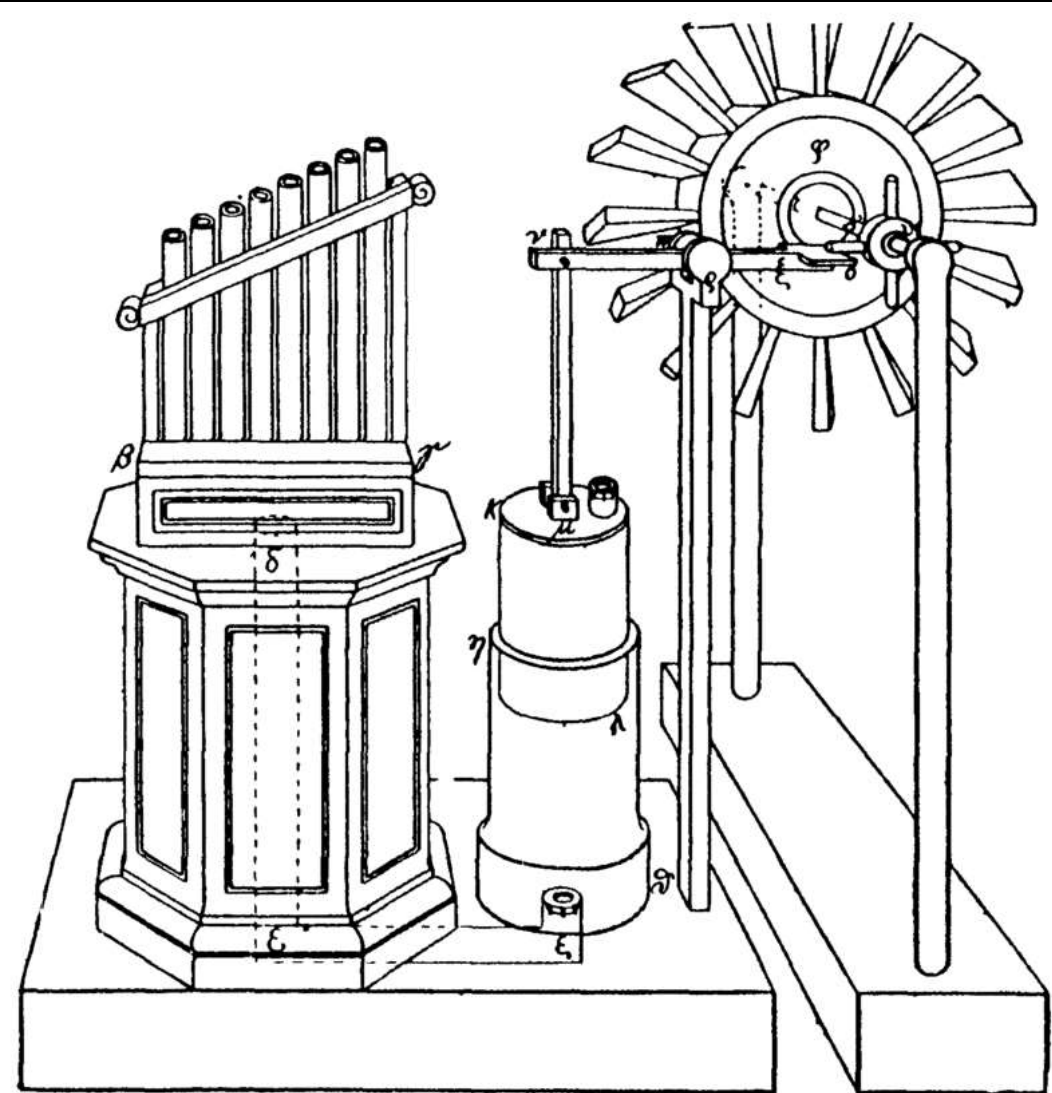


Imagination of AI

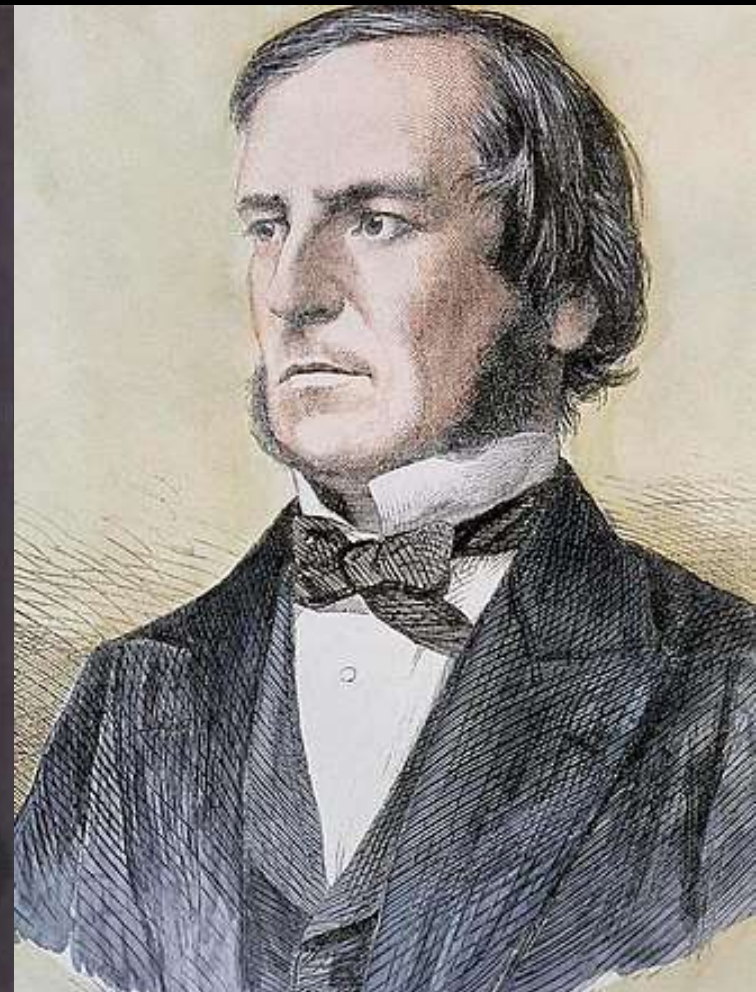
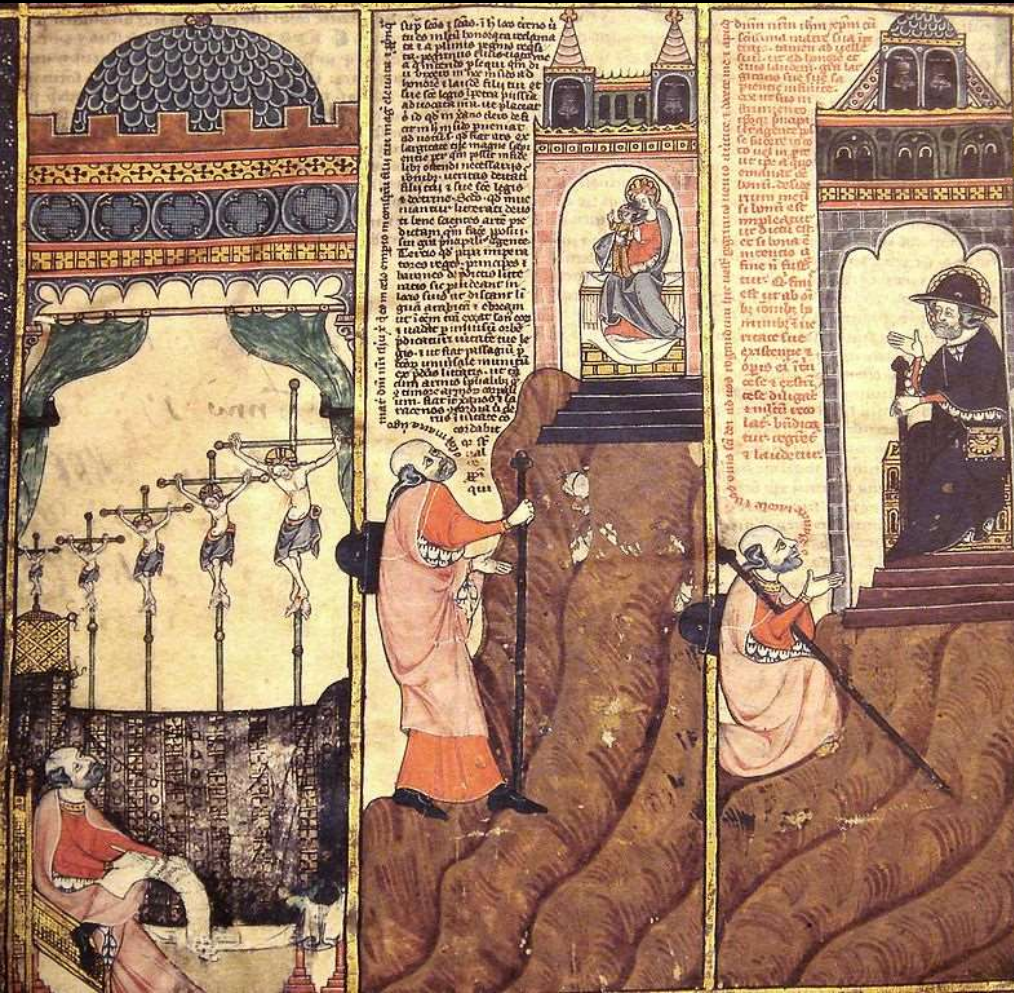


Samuel Butler's Darwin Among the Machines

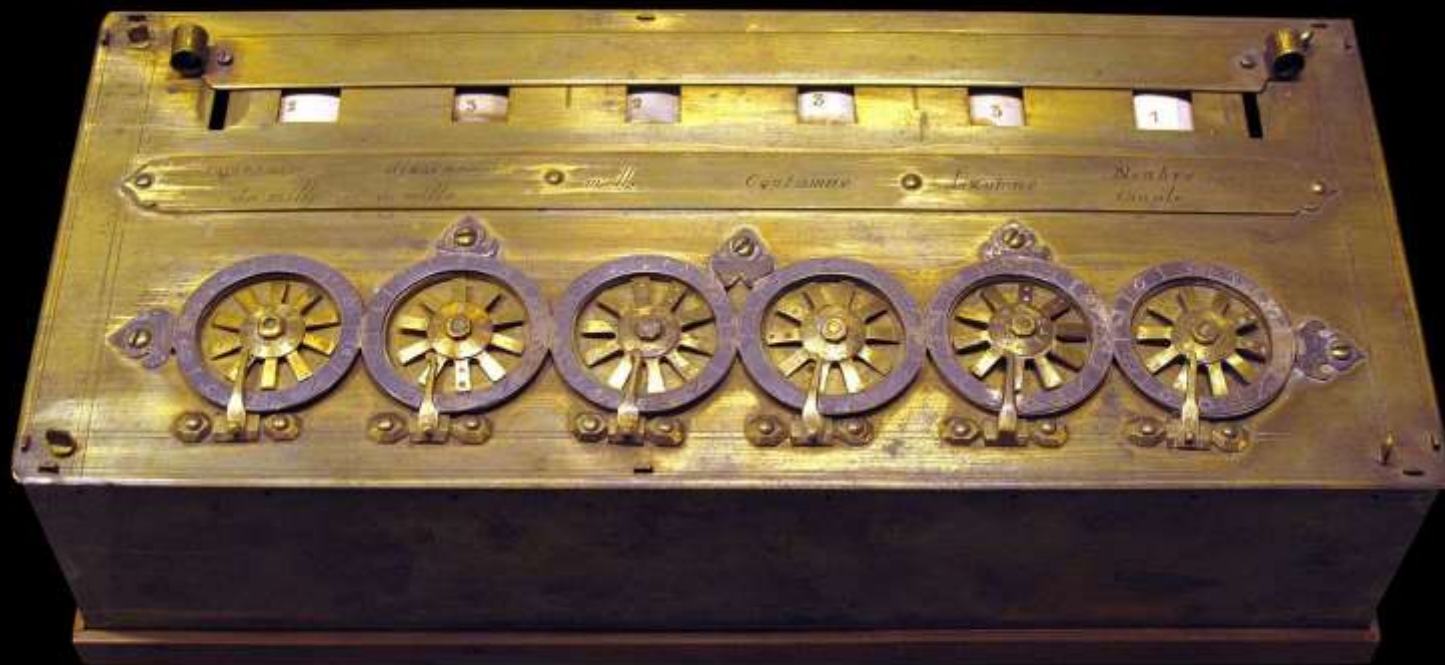
Historical Automata



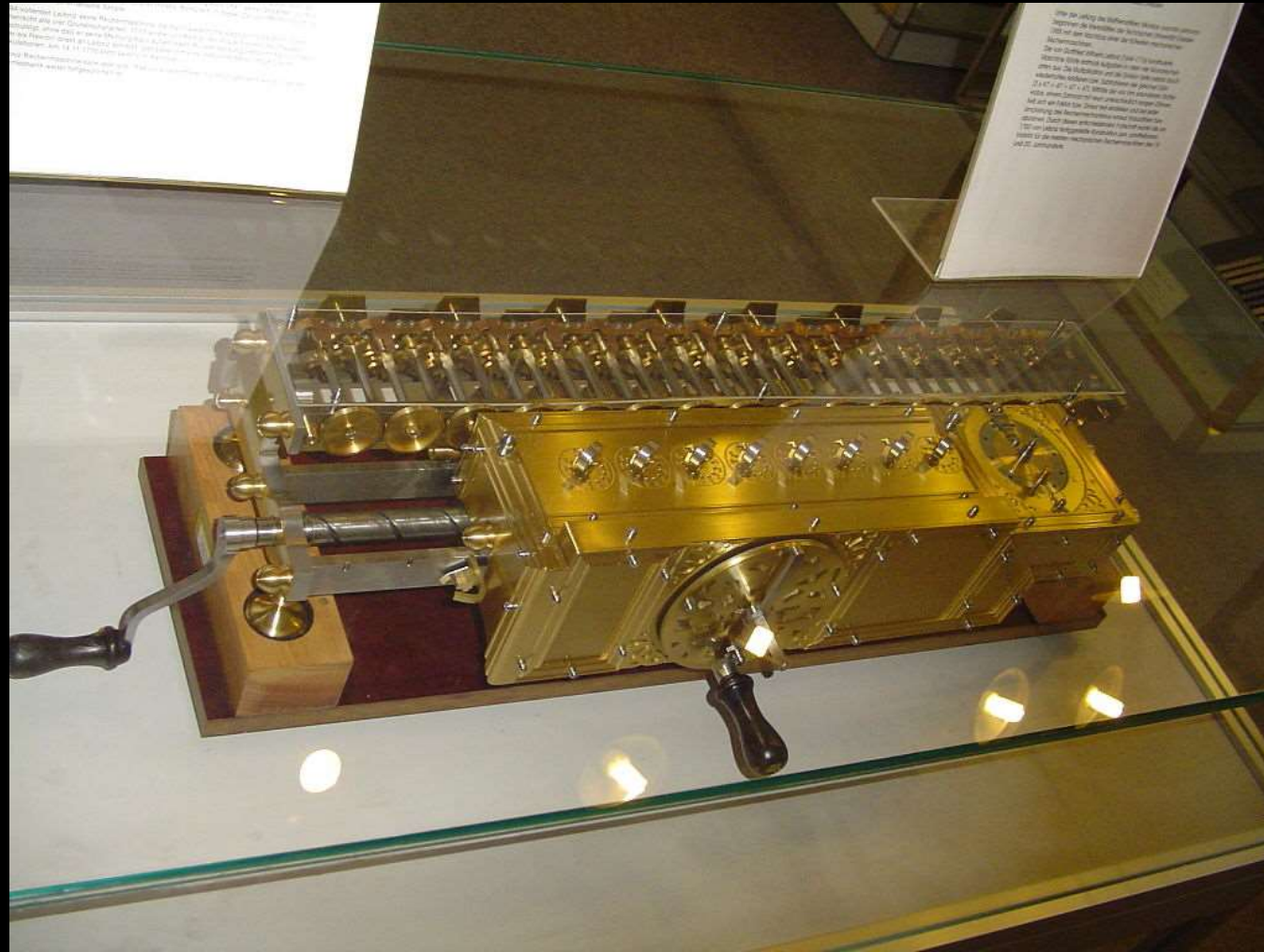
Formal Reasoning



1642 AD, Pascaline the first calculator



1672 AD, Leibnitz Stepped Reckoner



1774 AD, Philipp Matthäus Hahn



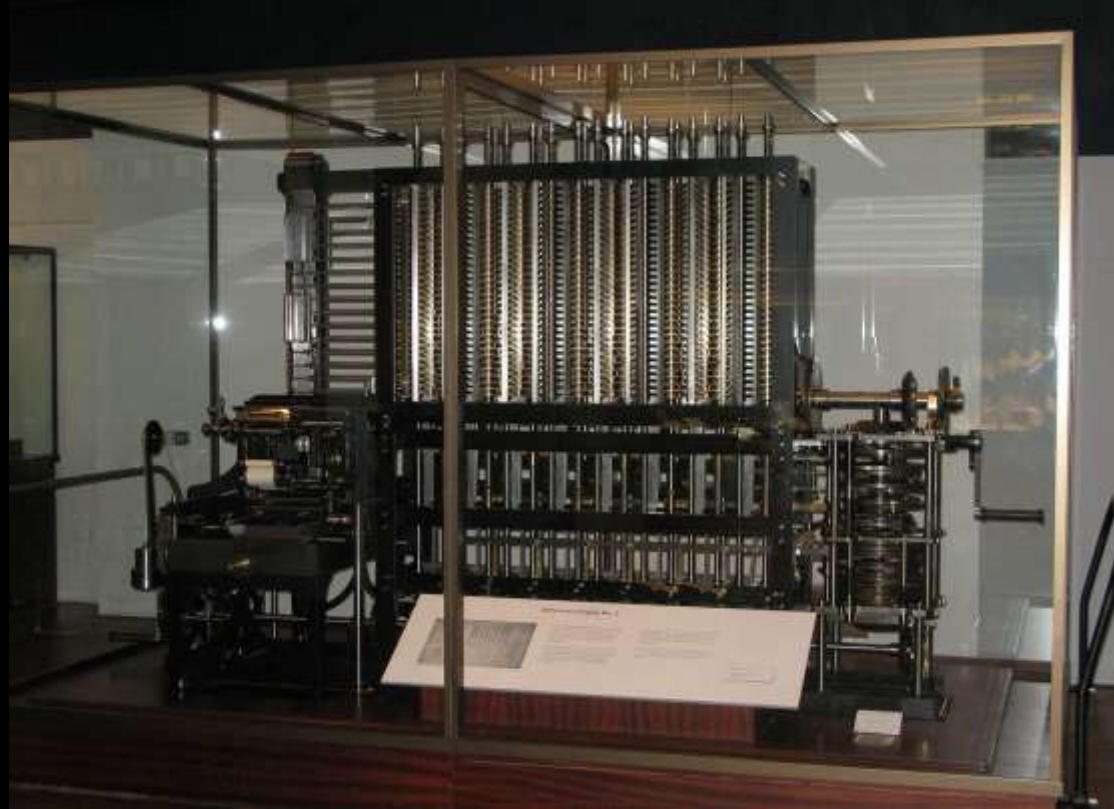
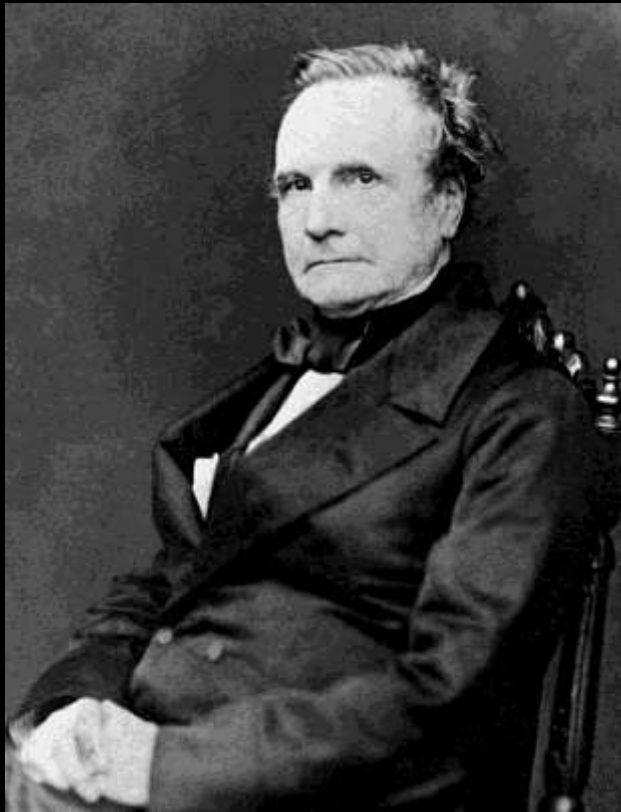
1804 AD, Joseph-Marie Jacquard



1820 AD, Charles Xavier Thomas de Colmar



Computer Science



Cybernetics to Neural Networks



Modern History

- 1951 Ferranti Mark 1
- 1954 AI Boom
- 1956 Dartmouth Workshop
- ELIZA
- 1974 First AI Winter
- 1980 Expert Systems Boom
- 1987 Bust
- 1993 – 2011 Victory of the Neats
- Since 2011 Deep Learning and Big Data

What is Machine Learning?

Algorithms that improve automatically through experience by using data

Data is unprocessed information

Information is data after processing

Training Data

Testing Data

Validation Data

Discussion

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