

Can machines think? "yes"

Artificial Intelligence: the synthesis and analysis of computational agents that act intelligently.

agent: entity that acts in an environment

act intelligently: - choose good / the best action to accomplish goal
- flexible to changing environment
- learn from experience

• Chris

• Dog / Mouse / Worm / Amoeba

• Ant. / Ant-hill / Orgs / Corporations

• Calculator / Thermostat / Rumba / Tesla Car

Computational: Behavior can be explained in terms of computation
i.e. Algorithm.

open question: Are all intelligent agents computational?

artificial ~~≠~~ fake

Goals A.I.

Scientific := understand the principles of intelligence.

Engineering := Build useful, intelligent artifacts.

"Historical Context"

Modern Philosophy (1800) . . . "

Hobbes: "thinking was symbolic reasoning"
Descartes, Pascal, Spinoza, Leibniz

Babbage; Ada ← first general purpose computer.

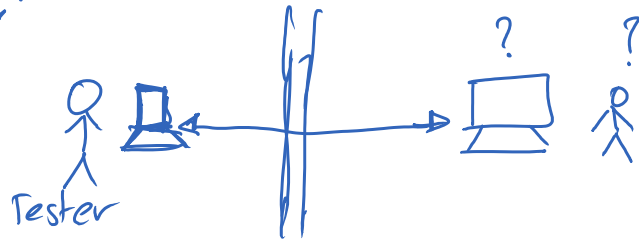
20th century = electronic computers

'40 '50 Turing: Turing Machine
Church: lambda Calculus.

Church-Turing Thesis:

Any effectively Computable function can be computed by a Turing Machine

Turing Test :-



- Checkers '59 by Samuel
- '61 Beating champions
- Wang '68 theorem prover
- SHRDLU '72 Processing Natural Language
Solving problems in a restricted Domain
- CHAT '80' chat and solve geography questions

Pop: Hal-9000, robots
First AI winter. ***

Perceptron by Rosenblatt
ANN by Minsky

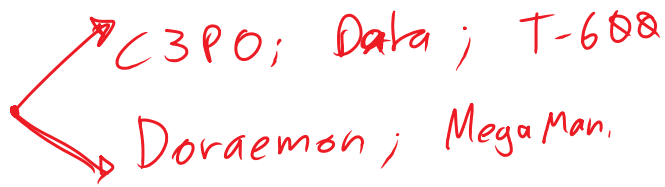
Expert systems (Late '80)

MYCIN :- Diagnose blood Diseases

XCON :- Configure hardware for computers

Hinton, Rumelhart :- "Back propagation" Character recog.
Voice Recog.

- Japan Sth Gen
- DARPA



#nd AI Winters

~~AI~~ = comp. intelligence ; Machine Learning

2000

Deep Blue '98 beat Kasparov.

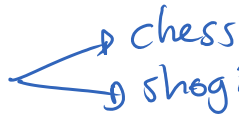
Watson '12 beats Jeopardy

Stanley '06 by Thru DARPA Challenge

MARVEN Mars Rover.

AlphaGO '17

AlphaZero '19



OpenAI-Five '18 Dota-2 5v5

