



Inteligência Artificial mito ou realidade?

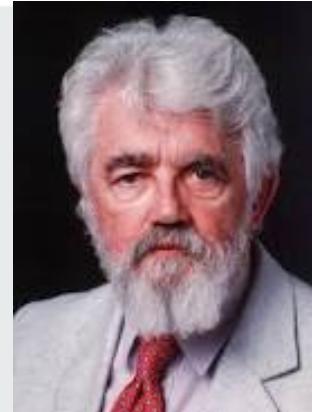
Cláudia Antunes

- Olá Siri!
- O que tenho para fazer hoje?
- Quando começa?
- Já estou atrasada. Onde é?
- Obrigada.
- Xau, Siri!





Inteligência Artificial

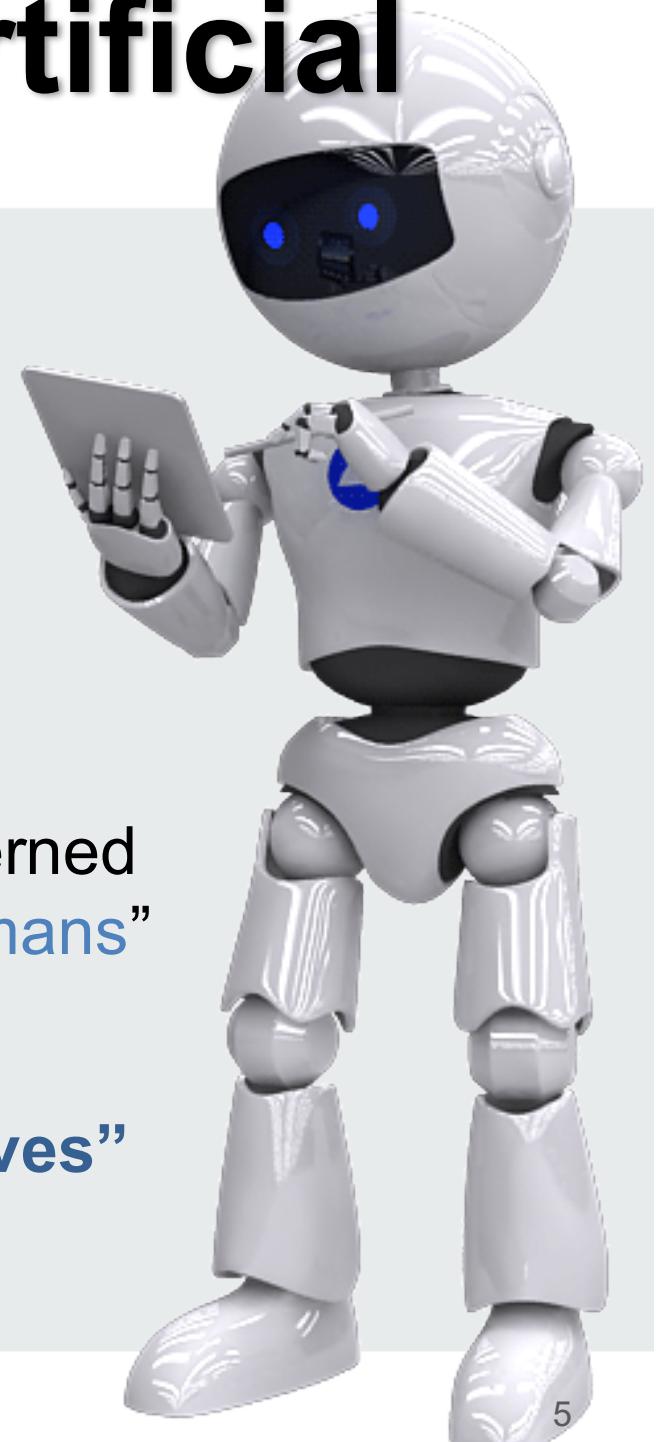


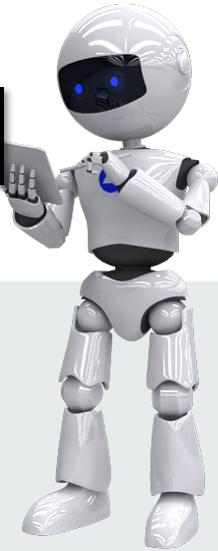
John McCarthy
(1956-2011)

“The science and engineering
of making intelligent machines”

“The branch of computer science concerned
with making computers behave like humans”

“Our Attempt To Build Models Of Ourselves”





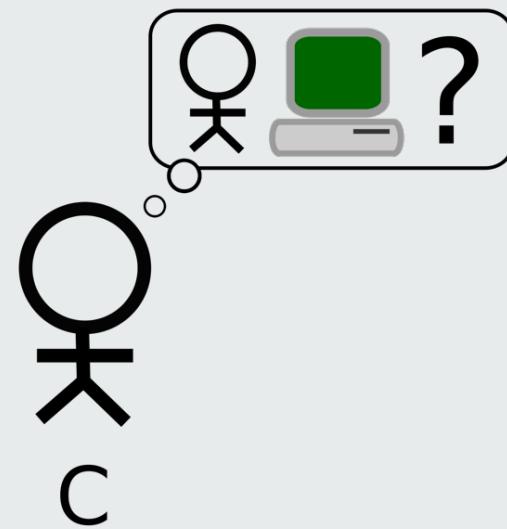
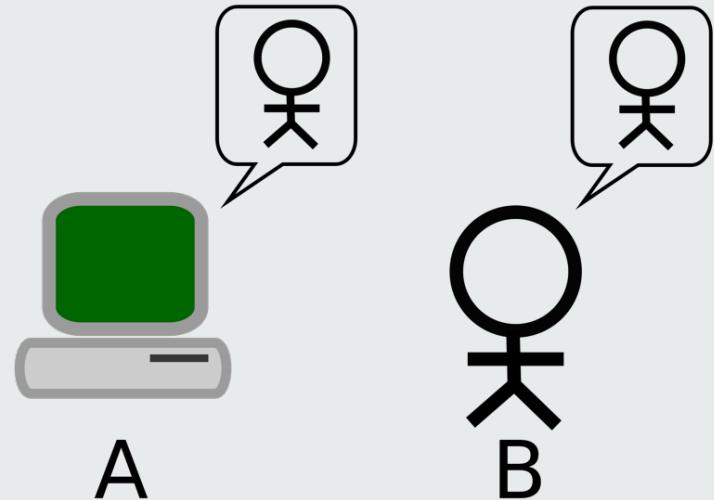
Sistemas que
agem
racionalmente

Sistemas que
agem como
o Homem

Sistemas que
pensam
racionalmente

Sistemas que
pensam
como o
Homem

Teste de Turing

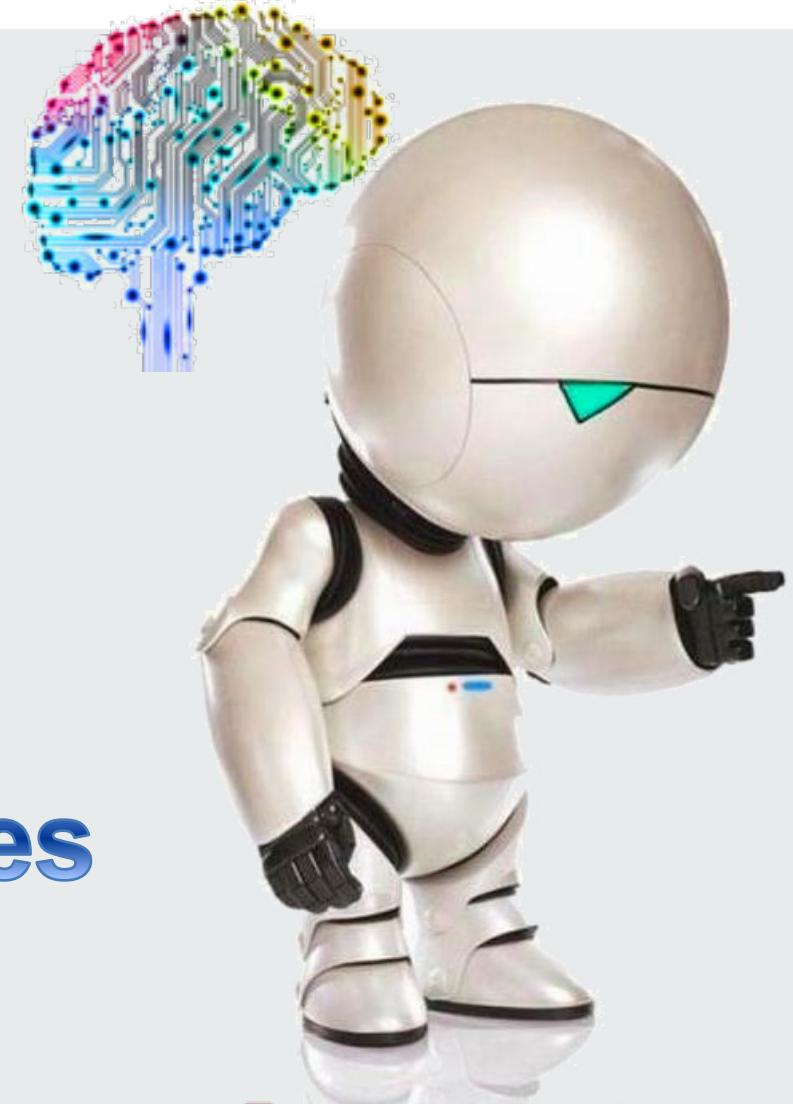


- Dois agentes (A, B), um humano e um computador
- Um humano (C) com os quais dialogam
- A e B podem dizer a verdade ou mentir
- C deve identificar qual o humano e qual o computador

Capacidades

A
gir

Aprender
Falar / Ouvir
Raciocinar
Planejar
Procurar soluções
Sentir

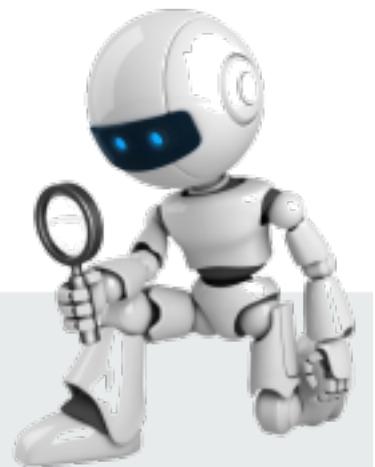


Agente

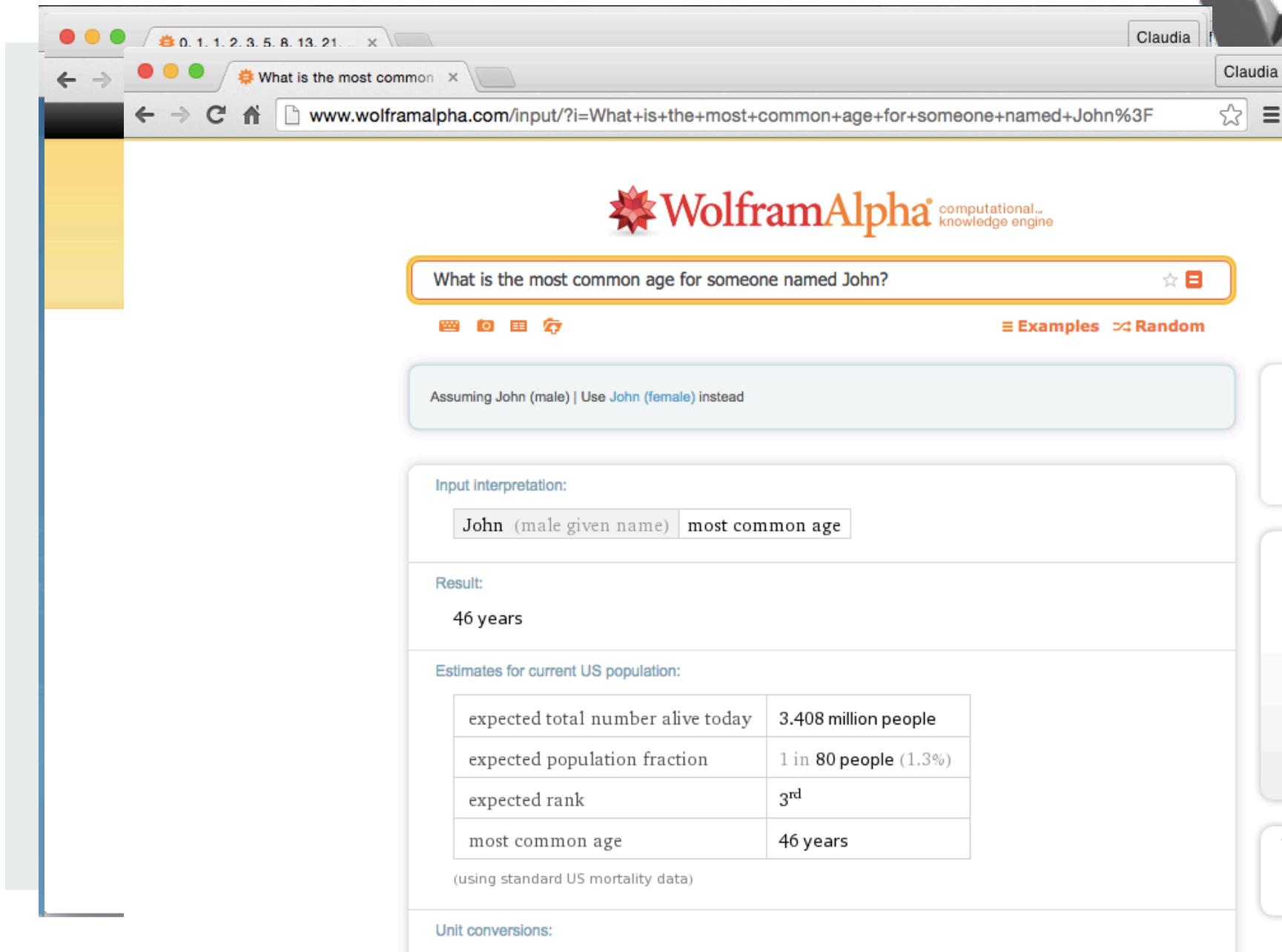
Procura



Deep Blue (IBM) 1996



Raciocínio



What is the most common age for someone named John?

Assuming John (male) | Use [John \(female\)](#) instead

Input interpretation:

John (male given name) most common age

Result:

46 years

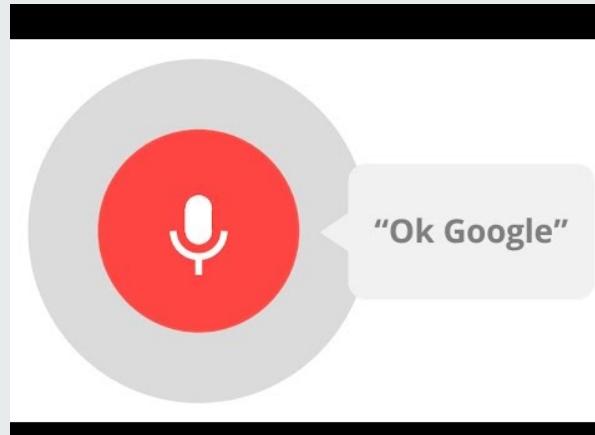
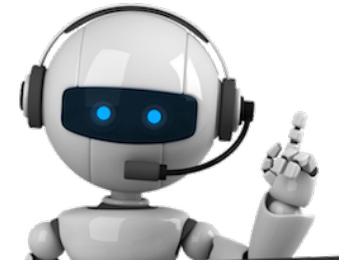
Estimates for current US population:

expected total number alive today	3.408 million people
expected population fraction	1 in 80 people (1.3%)
expected rank	3 rd
most common age	46 years

(using standard US mortality data)

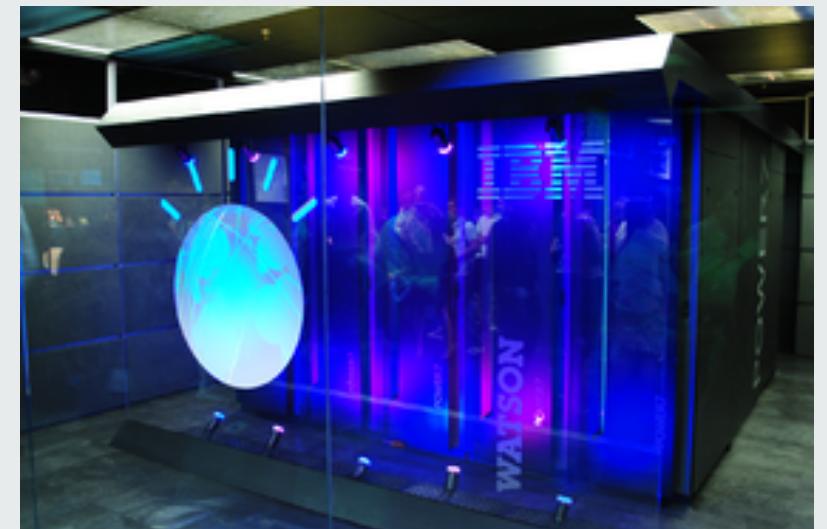
Unit conversions:

Língua Natural



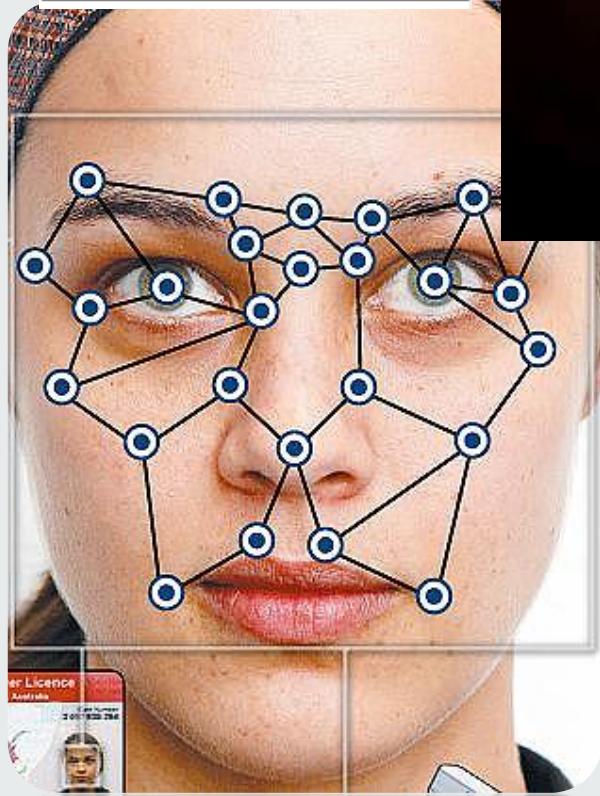
M - Facebook

Inteligência Artificial by Cláudia Antunes



Watson (IBM) – Jeopardy! 2011₁₁

Aprendizagem



Aprendizagem



- by [Google DeepMind](#) (2015)
- O algoritmo usa árvores de procura de Monte Carlo para escolher a melhor jogada,
- Conhecimento previamente adquirido por Aprendizagem Automática – [deep learning](#)
- Treino extensivo com humanos e outras instâncias do programa



Planeamento



Teste

Ashley Madison Data Reveals That Majority of Women on the Site Were Fake

CELEBRITY NEWS AUG. 27, 2015 AT 9:20AM BY ESTHER LEE



















































































































































































































































































































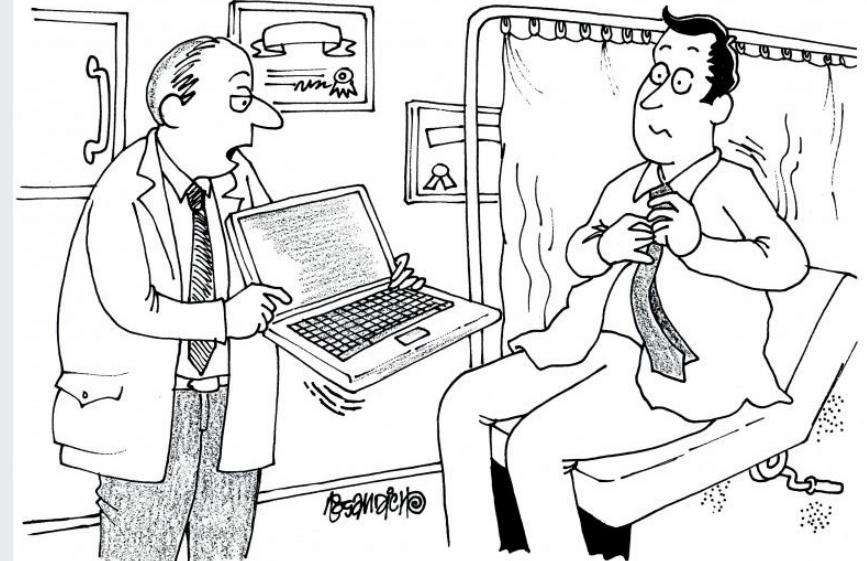
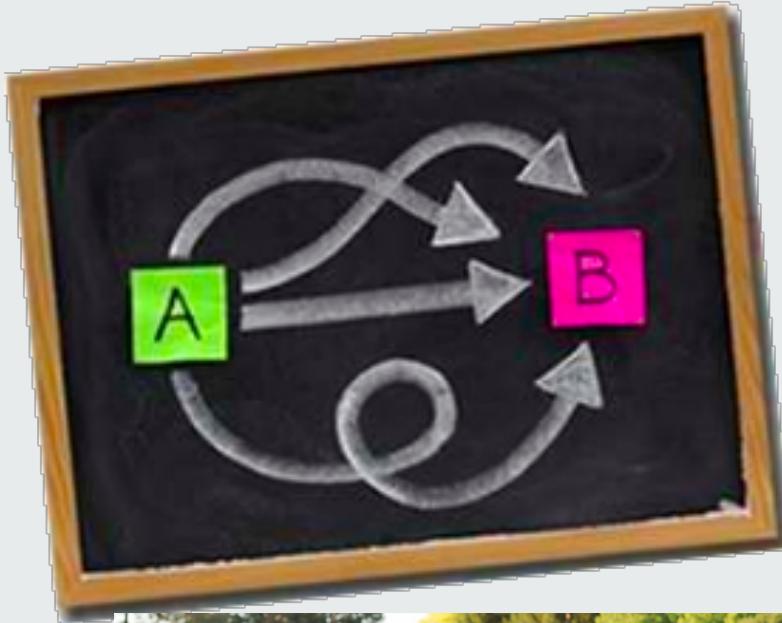
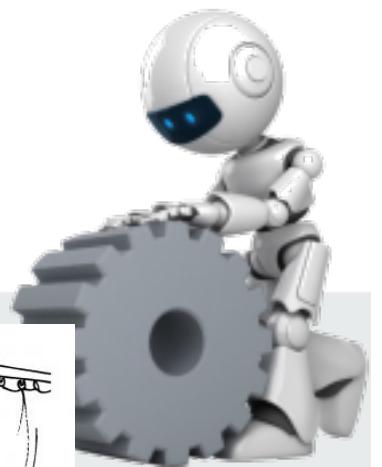








Aplicações



Google Car

Aplicação paradigmática



Google Car



Google Car



- Objetivo
 - Ir do lugar A para o lugar B
- Tarefa
 - Perceber
 - “Onde estou?”
 - “O que está à minha volta?”
 - “O que vão fazer os objetos à minha volta?”
 - Planear
 - Adaptar comportamento

Avanços Tecnológicos



- Capacidade de perceber comandos
- Capacidade de classificar os objetos
- Capacidade de prever comportamentos
- Capacidade de interpretar os dados e tomar decisões
- Capacidade de planear ações

Inteligência Artificial

Onde estou?



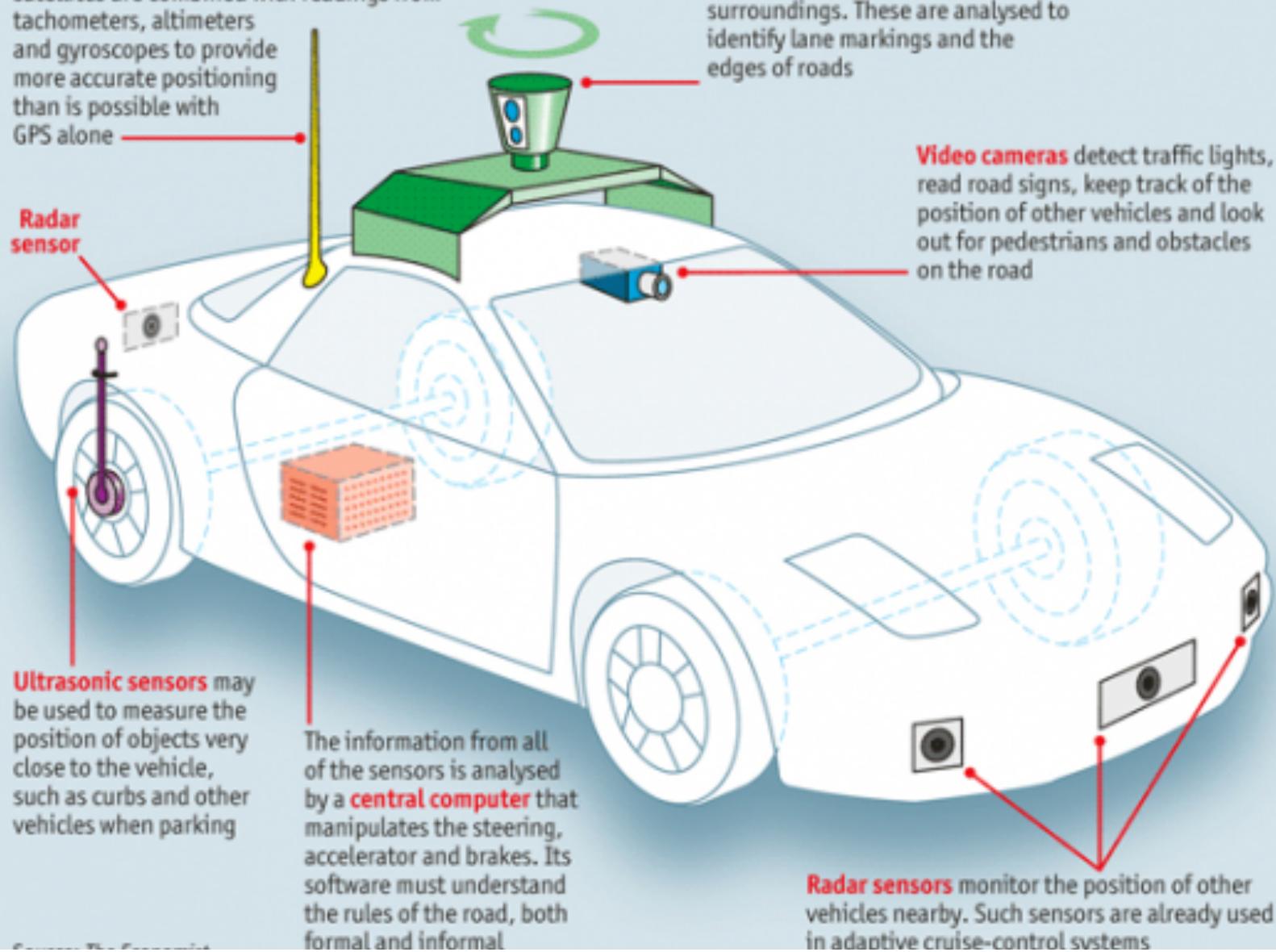
Signals from **GPS (global positioning system)** satellites are combined with readings from tachometers, altimeters and gyroscopes to provide more accurate positioning than is possible with GPS alone

Radar sensor

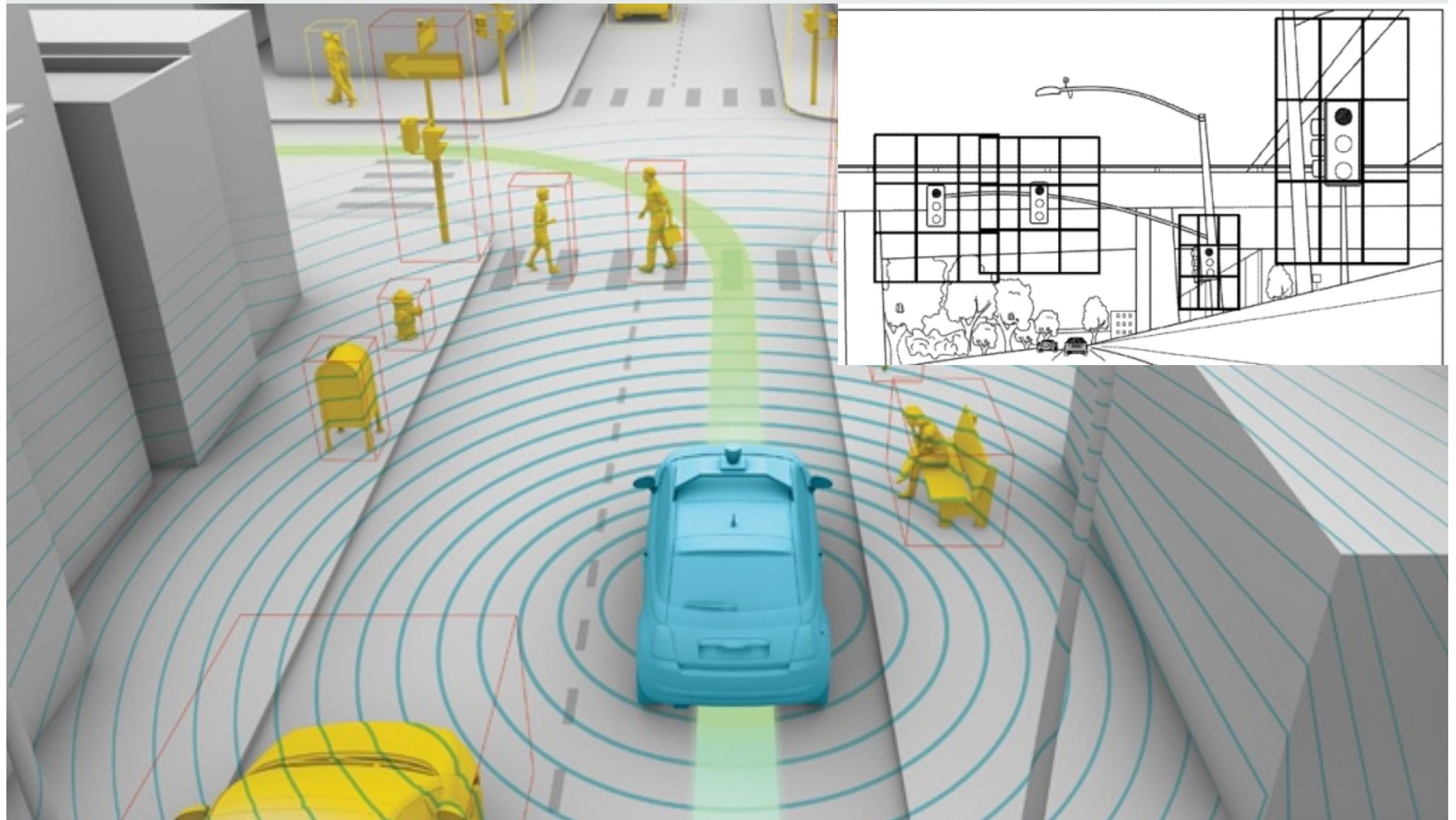
Ultrasonic sensors may be used to measure the position of objects very close to the vehicle, such as curbs and other vehicles when parking

Lidar (light detection and ranging) sensors bounce pulses of light off the surroundings. These are analysed to identify lane markings and the edges of roads

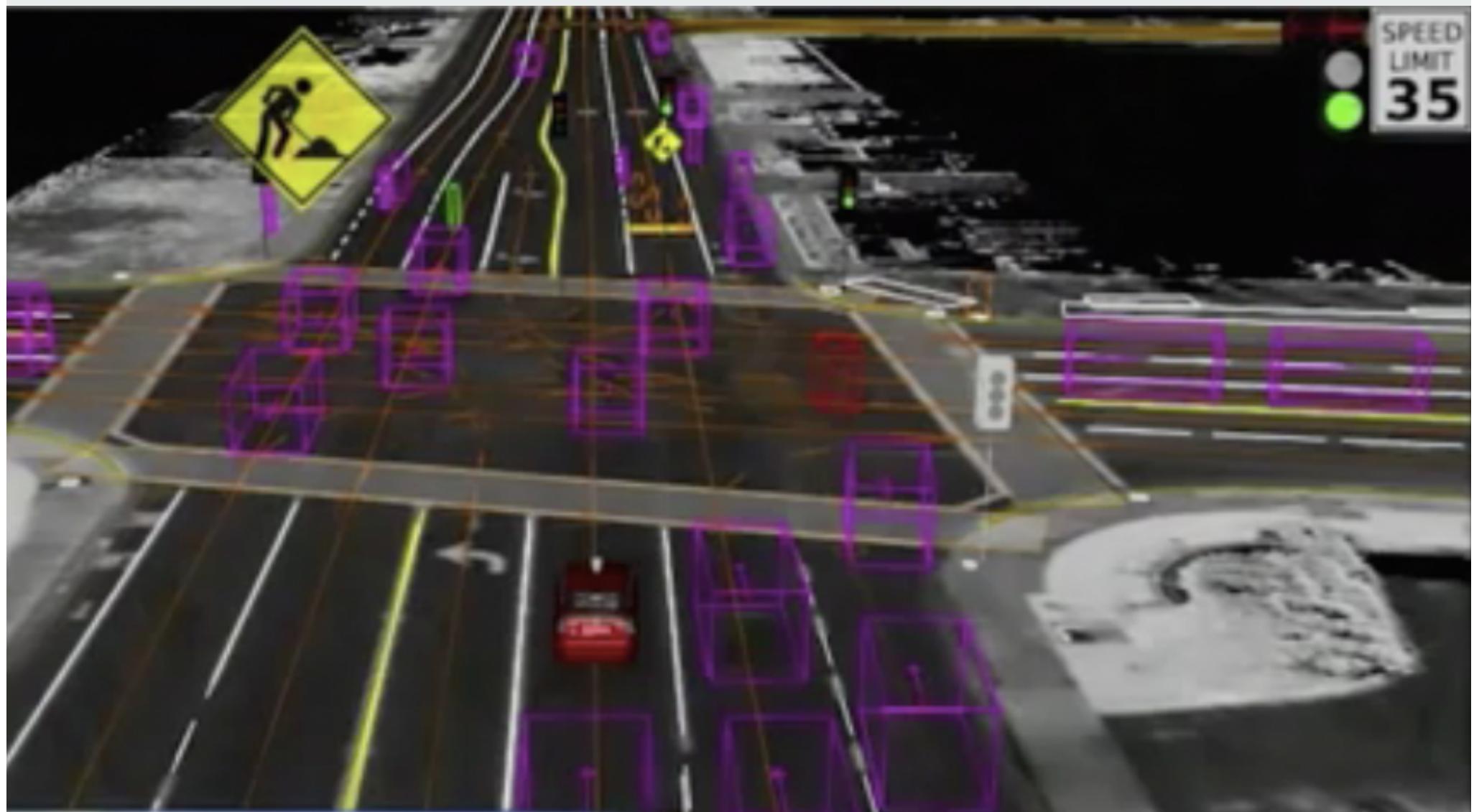
Video cameras detect traffic lights, read road signs, keep track of the position of other vehicles and look out for pedestrians and obstacles on the road



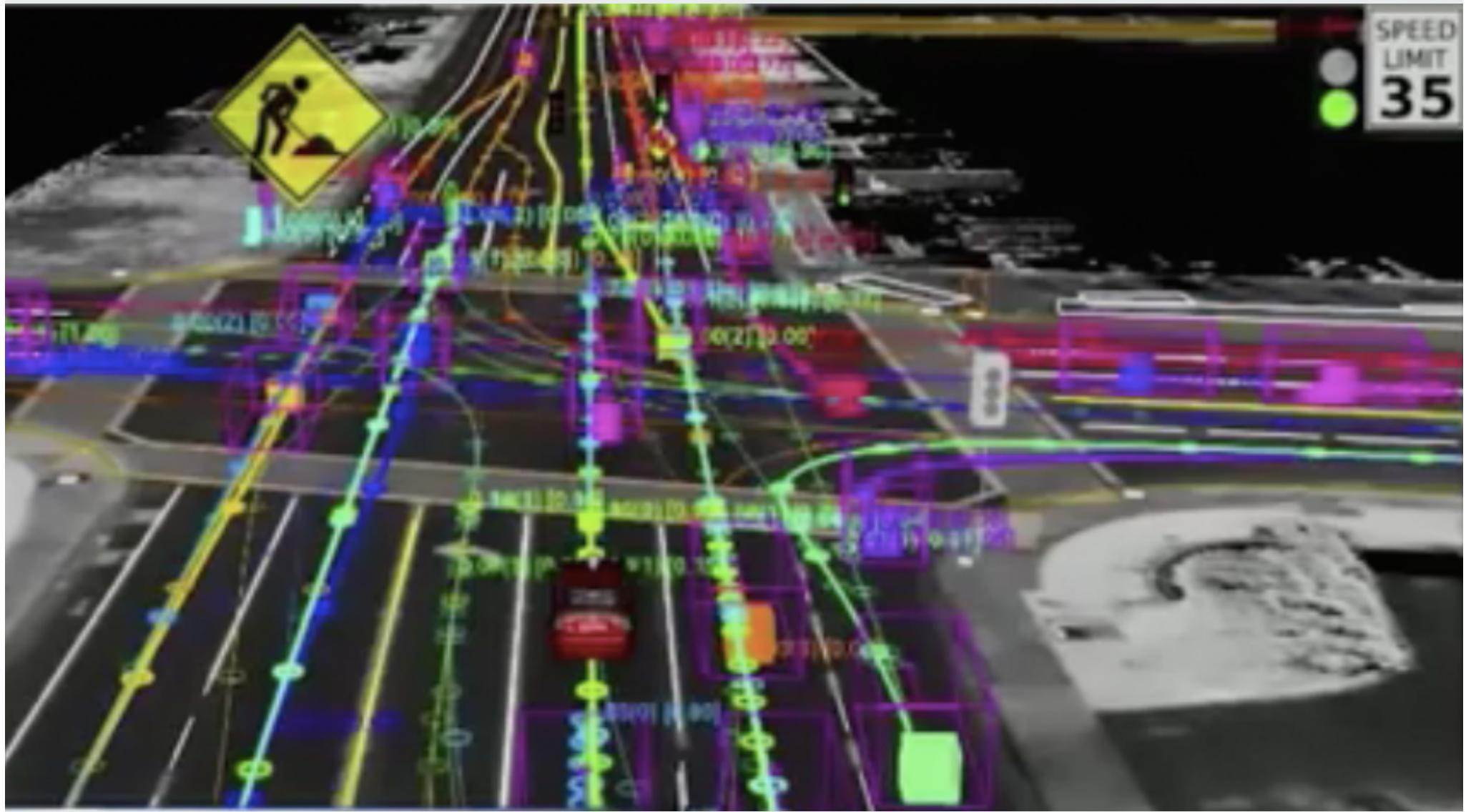
Modelo do mundo



O que está à volta?



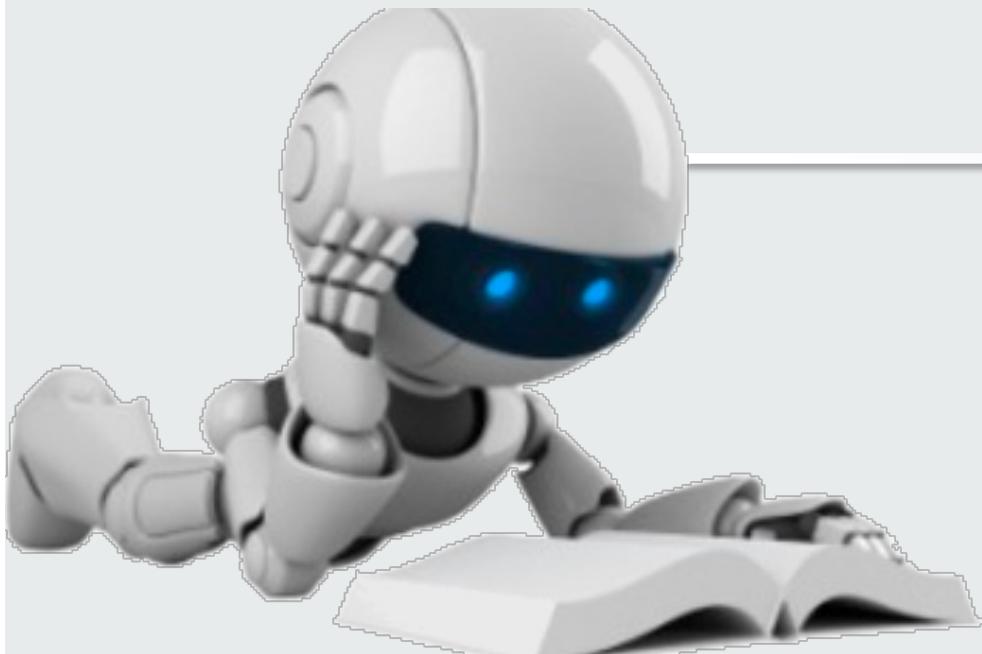
O que vão fazer?



O que fazer?



Aprendizagem



O que é Aprendizagem?



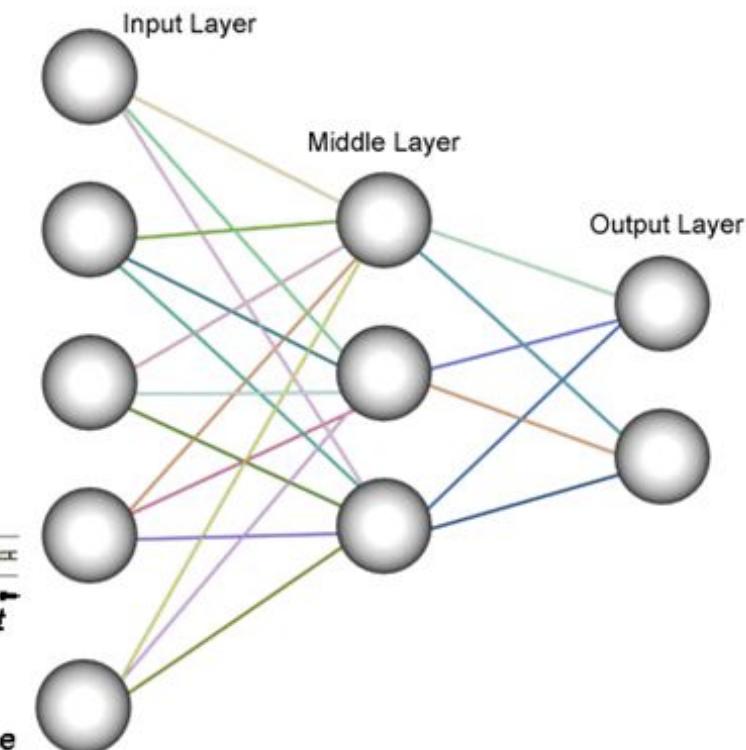
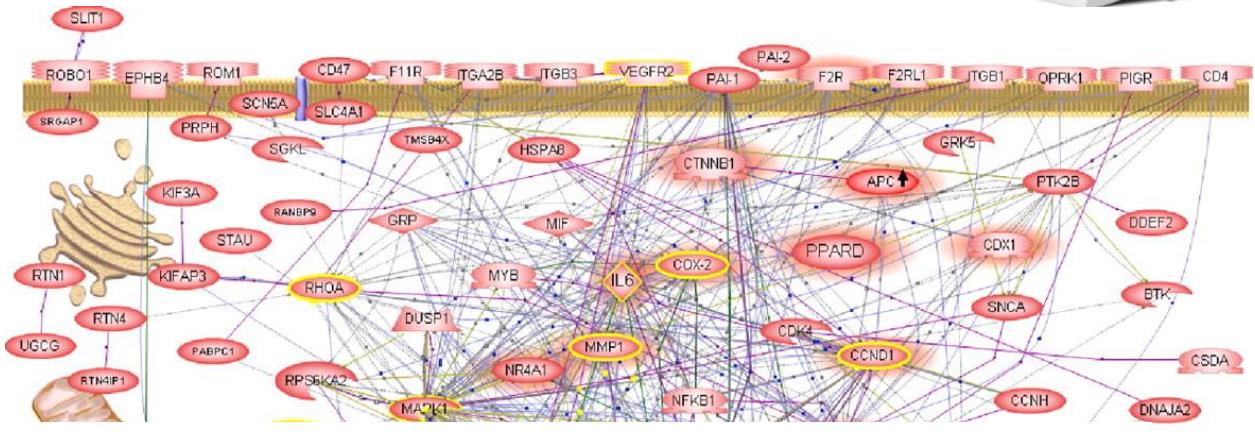
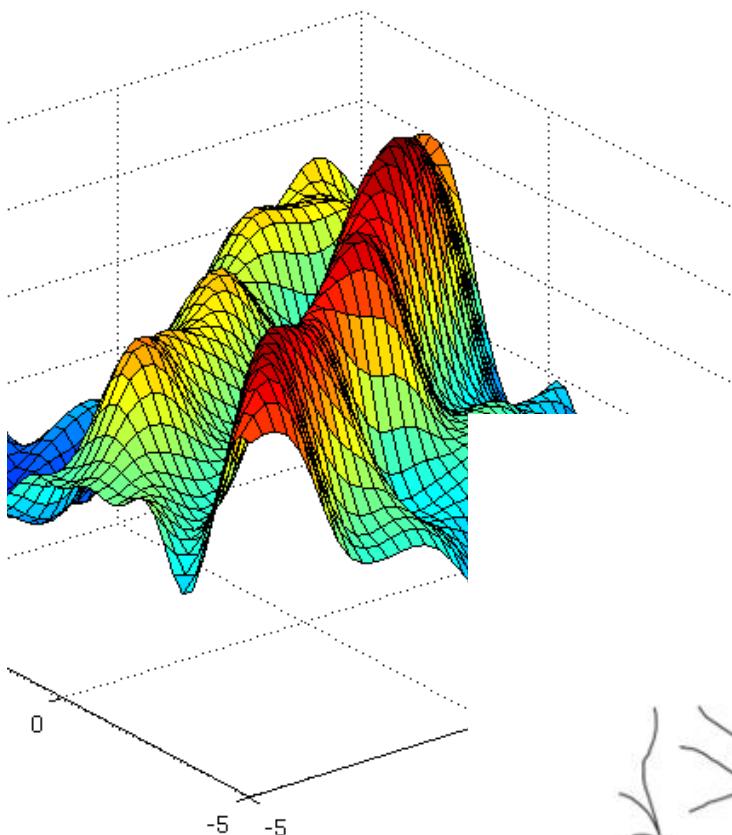
Machine Learning is the science of getting computers to learn, without being explicitly programmed

Learning can be described as the modification of behavior as a result of experience

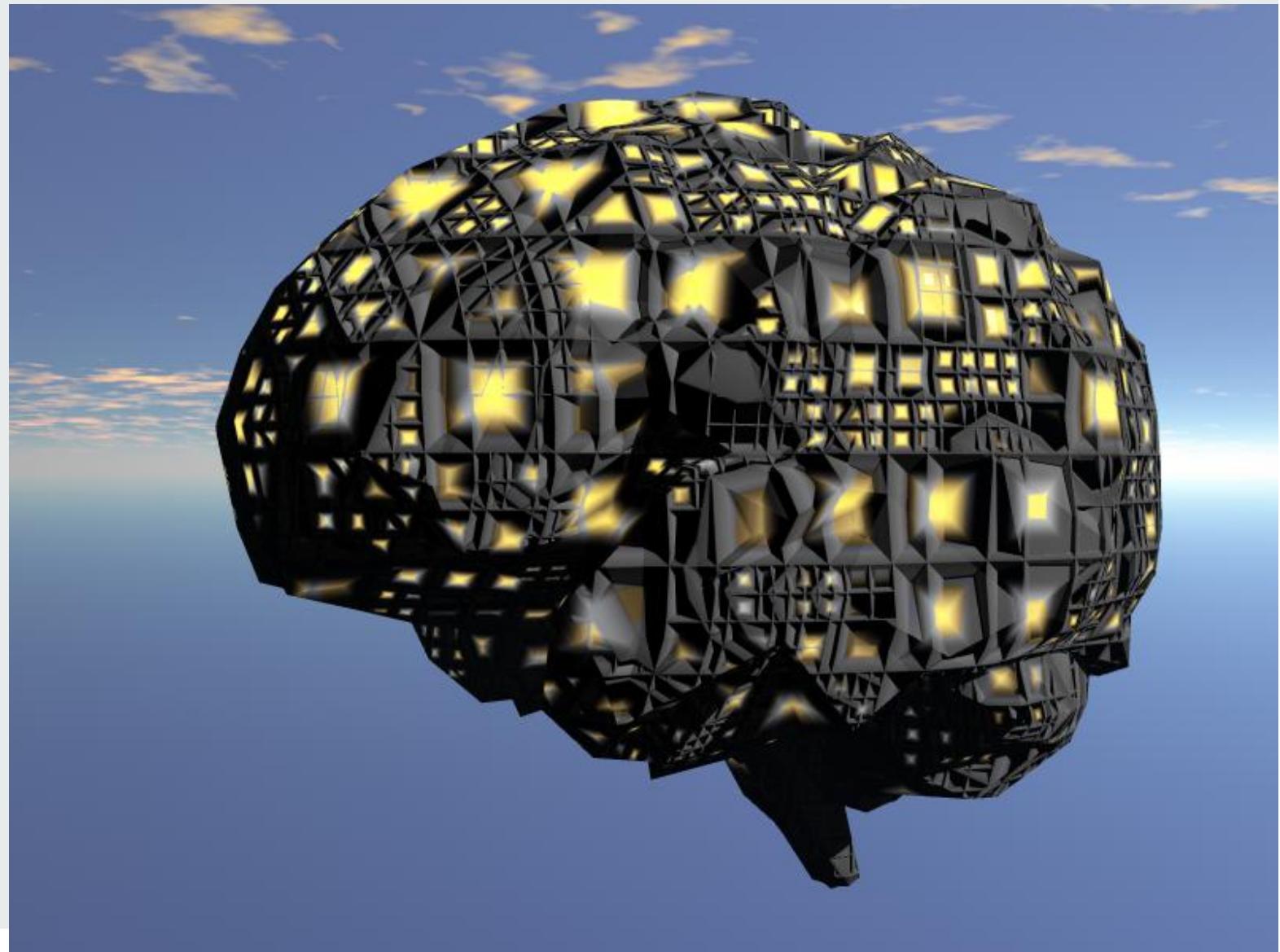
Como aprender?



Modelos



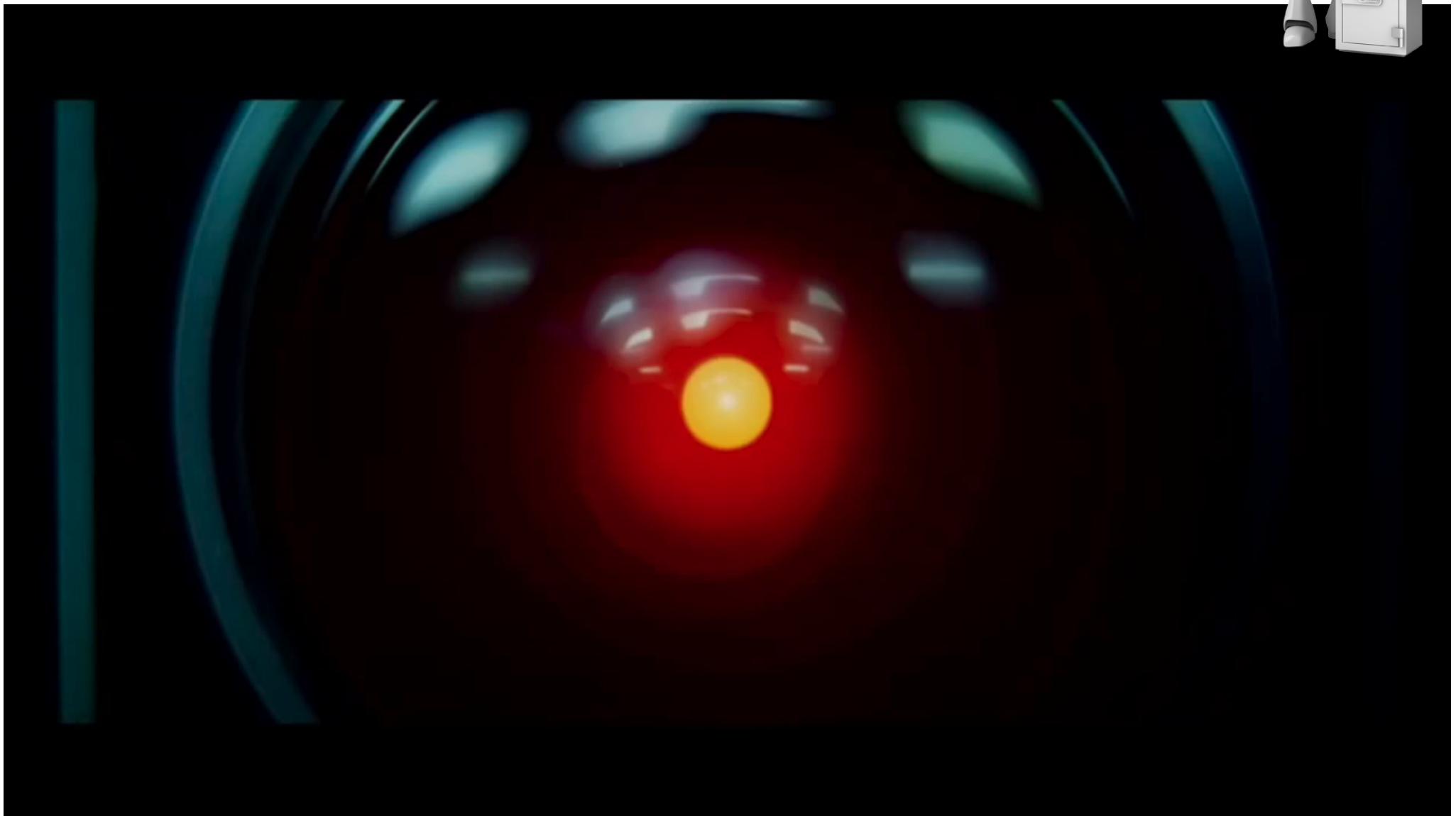
Deep Learning and Google Brain





Questões Éticas

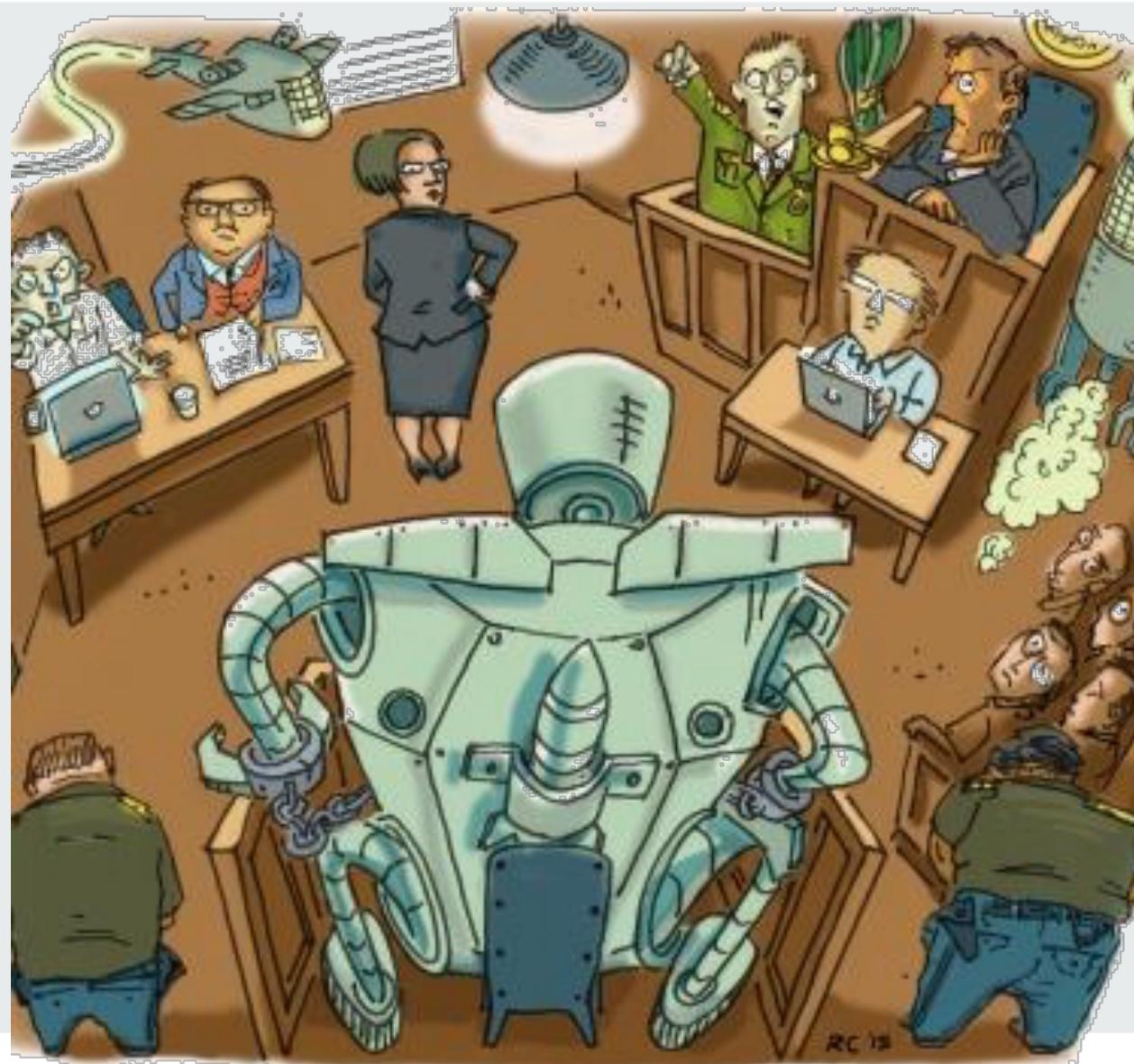
Questões Éticas



Questões Éticas



Questões Éticas



Questões Éticas



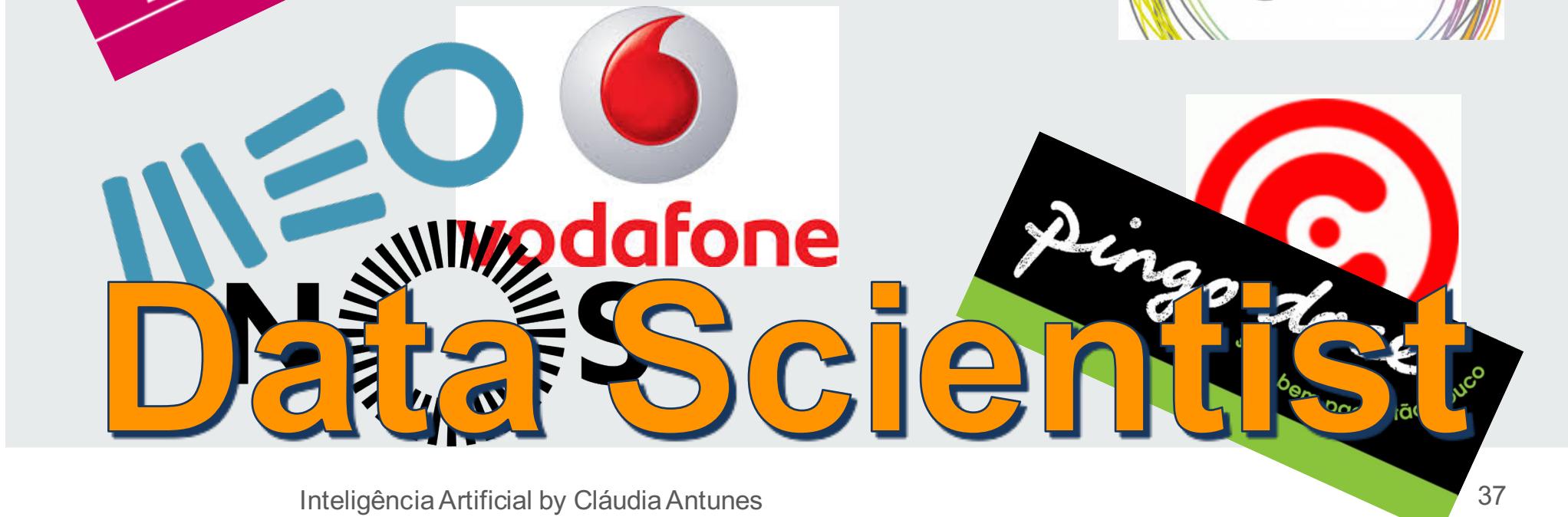
Inteligência Artificial em Portugal





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Inteligência Artificial

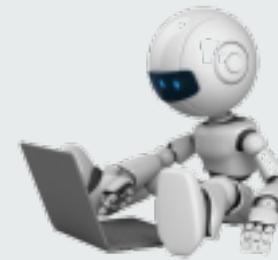
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Disciplinas



**Lógica para Programação
Inteligência Artificial**



**Aprendizagem e Decisão Inteligente
Sistemas de Apoio à Decisão**

**Inteligência Artificial para Jogos
Representação do Conhecimento e Raciocínio**



Língua Natural

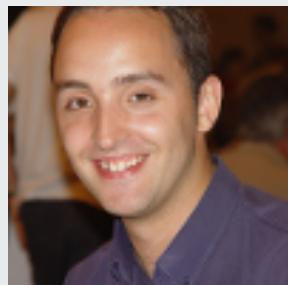


Procura e Planeamento

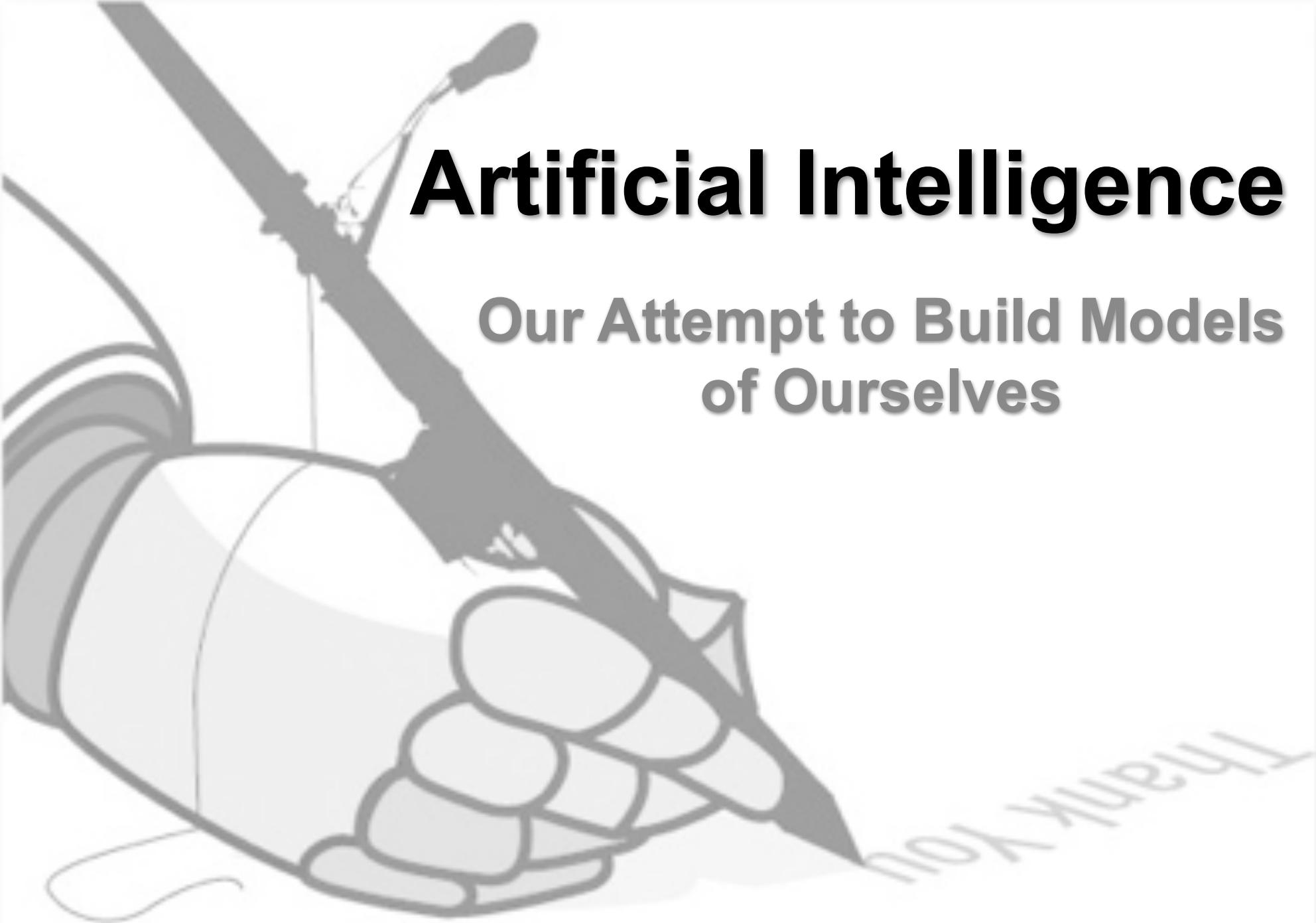


**Agentes Autónomos e Sistemas Multi-Agente
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Professores







Artificial Intelligence

**Our Attempt to Build Models
of Ourselves**