

Semillero de Investigación en Inteligencia Artificial

EAFIT's AI Student Group

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We should try adding some photos next time...

About

We are a “student organization” that wants to gather together students interested in the growing field of AI.

Speakers

Raul Ramos Pollan - March 14, Thursday.

Myths and Truths about Artificial Intelligence

And probably others...



What are we going to learn?

An overview of classical machine learning techniques.

- Supervised and unsupervised learning.
- How to understand how effective is our ML model
- Some applications
- And maybe an introduction to Deep Learning? (At least CNNs)

What previous knowledge should I have?

- Programming!!!!
- Linear Algebra
- Calculus
- Probability

How are we going to do it?

- Flipped classroom! (We are not lazy, I swear!)
- You watch the videos and we solve your questions!
Also we'll try to give you some practical exercises. We won't promise anything though.
- We'll also go quickly over the topics at the beginning of each session in order to spark questions and start the discussion.

Resources

- <https://www.coursera.org/learn/machine-learning>
- <https://www.cs.ubc.ca/~nando/340-2012/lectures.php>
- <http://www.cs.cmu.edu/~ninamf/courses/601sp15/lectures.shtml>
- <https://work.caltech.edu/telecourse.html>
- The Elements of Statistical Learning
- An Introduction to Statistical Learning with Applications in R (It also has a free course from Stanford)
- Google, StackOverflow, data science blogs, other courses and books, etc...

For those that already know ML

- If there are enough people that already know ML, we encourage you to start making projects! We'll try to help you as far as we can.
- We'll try to give an introduction to Deep Learning next semester. Wish us luck.

Session 0: Introduction to AI

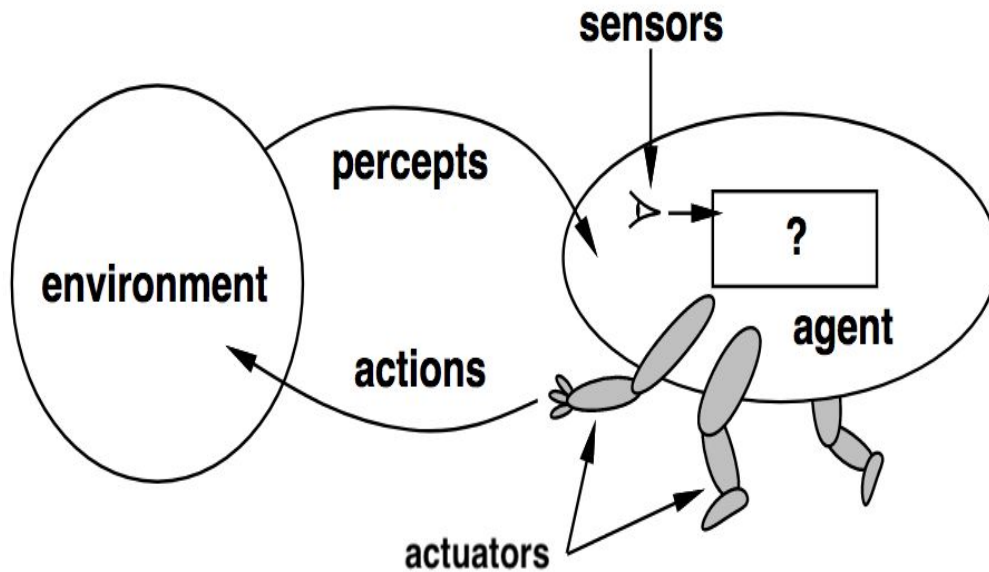
Mostly a very simplistic overview of the history of AI

What is AI? (some book examples)

- **According to Wikipedia:** AI is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans and other animals.
- “[The automation of] activities that we associate with human thinking, activities such as decision-making, problem solving, learning . . .” (**Bellman, 1978**)
- “The study of mental faculties through the use of computational models.” (**Charniak and McDermott, 1985**)
- “The study of how to make computers do things at which, at the moment, people are better.” (**Rich and Knight, 1991**)
- “Computational Intelligence is the study of the design of intelligent agents.” (**Poole et al., 1998**)

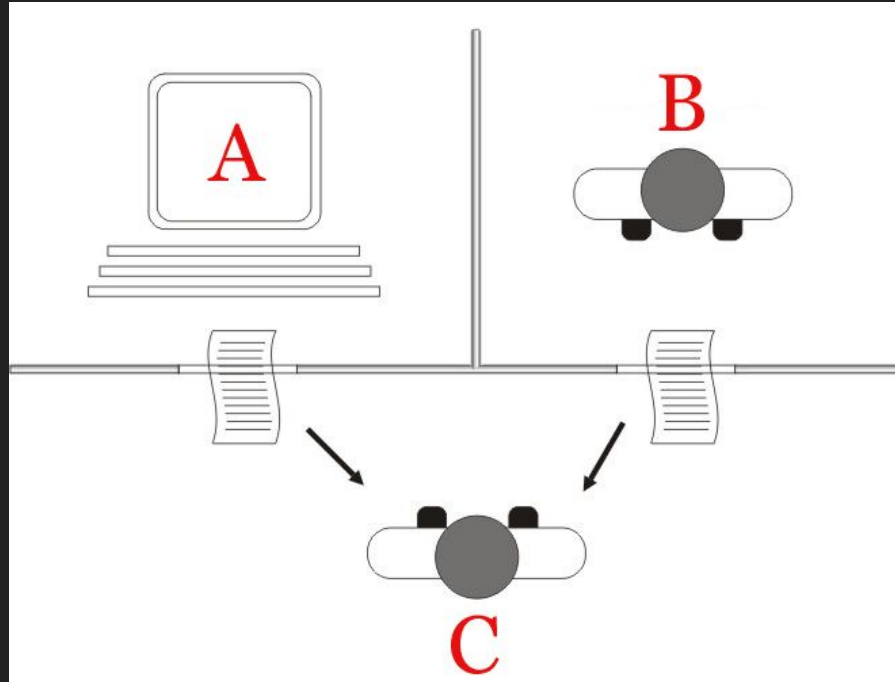
What is AI?

- The field that studies how to build **intelligent agents**.



How it began?

- The Turing test.



Knowledge-based systems

- AKA just a bunch of if-else statements. (Not totally right. It's actually more like a brute-force approach to AI)



The dead of Knowledge-based systems

- They don't really work that well.
- That's it.

What if we use statistics?

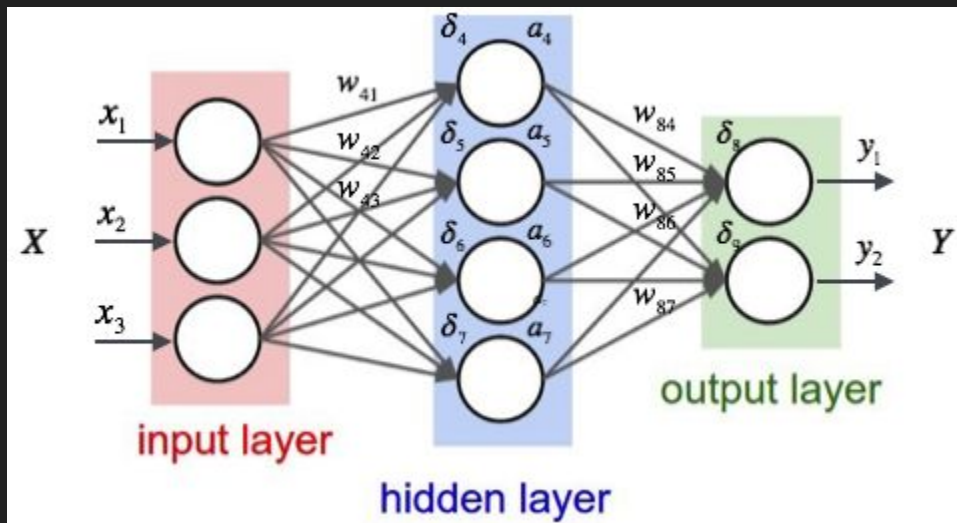
- We want an algorithm that can learn from data on it's own.
- The real world is not deterministic.
- Computers are starting to become amazingly fast.

Machine Learning is born!

2009	2019
$Y = \beta X + \epsilon$	$Y = \beta X + \epsilon$
STATISTICS	MACHINE LEARNING
	✖ 10 YEARS CHALLENGE

But it isn't enough...

- Did anyone tried replicating the brain?



Yes!

Kinda...

They made a mathematical model of a neuron.

They called it **the perceptron**.

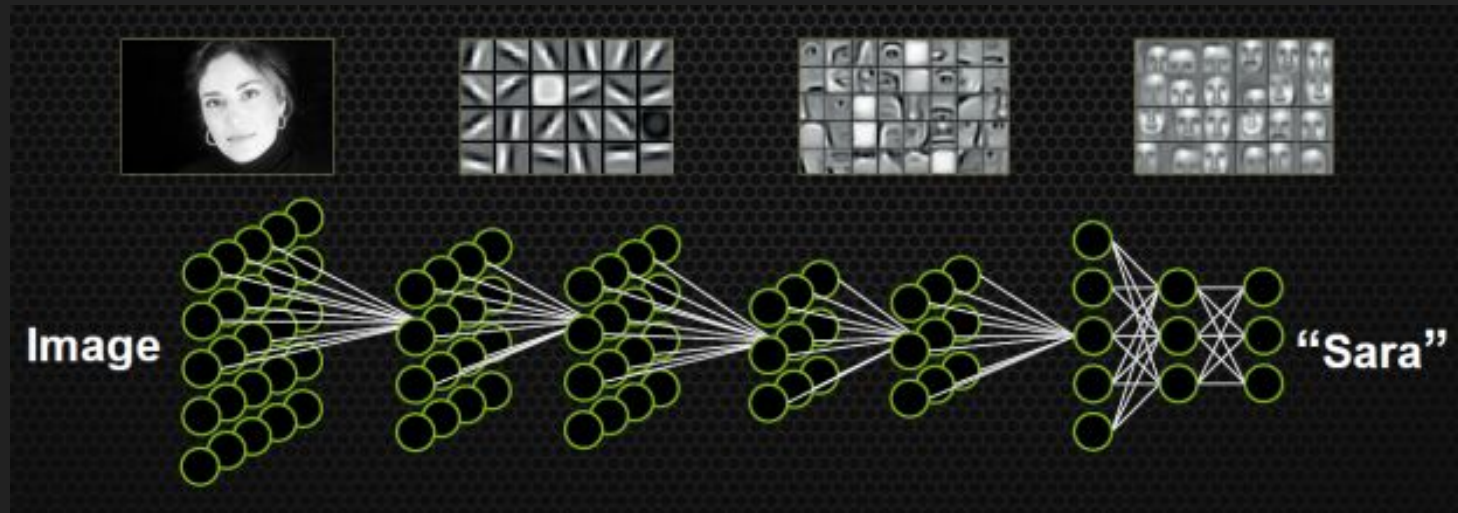
But it was missing something...

What if we use a bigger network?

Like the brain!



Deep Learning is born!



Some “solved” problems by AI

- Computer vision
- Speech recognition
- Language translation
- Playing games
- Robotics
- Some other less impressive examples that can still be considered AI.

A visual introduction to ML

- <http://www.r2d3.us/visual-intro-to-machine-learning-part-1/>

Any questions?

Before you leave

<https://goo.gl/forms/HhQQ2bfDqua1NKUm1>

