

Artificial Intelligence: An introduction

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Información del profesor

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curso GITHUB

Course outline

- ▶ **Python and statistic introduction**
- ▶ **Machine Learning**
- ▶ **Planning and Search**

- ▶ **The course** is mainly based on the **coding of I.A concepts** and the **develop of small applications**
- ▶ **The course** is focus on the analysis and study of **I.A algorithms**

Python and statistic introduction



NumPy



pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



TensorFlow™



python™



machine learning in Python

Python and statistic introduction

- ▶ Some about Python
- ▶ Some about statistic
- ▶ Bayes introduction



Machine Learning

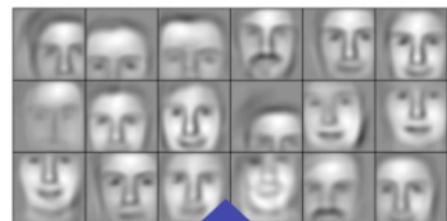
- ▶ Naive Bayes
- ▶ Classification trees
- ▶ Support vector machine
- ▶ non-supervised learning
- ▶ computer vision applications



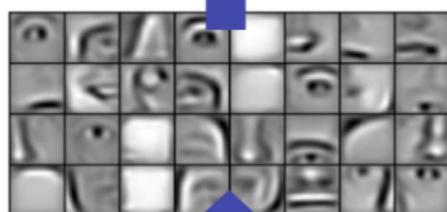
Big challenges

Now, algorithms can create new things . . . as abstract as the art! (Netflix 5:15. Bill Nye)

Big challenges



Layer 3



Layer 2



Layer 1



Big challenges



A L P H A G O

Big challenges



A L P H A G O

ImageNet Challenge

Big challenges

IMAGENET

IMAGENET Netflix 22.30. Bill Nye

- 1,000 object classes (categories).
- Images:
 - 1.2 M train
 - 100k test.



As support for decisions

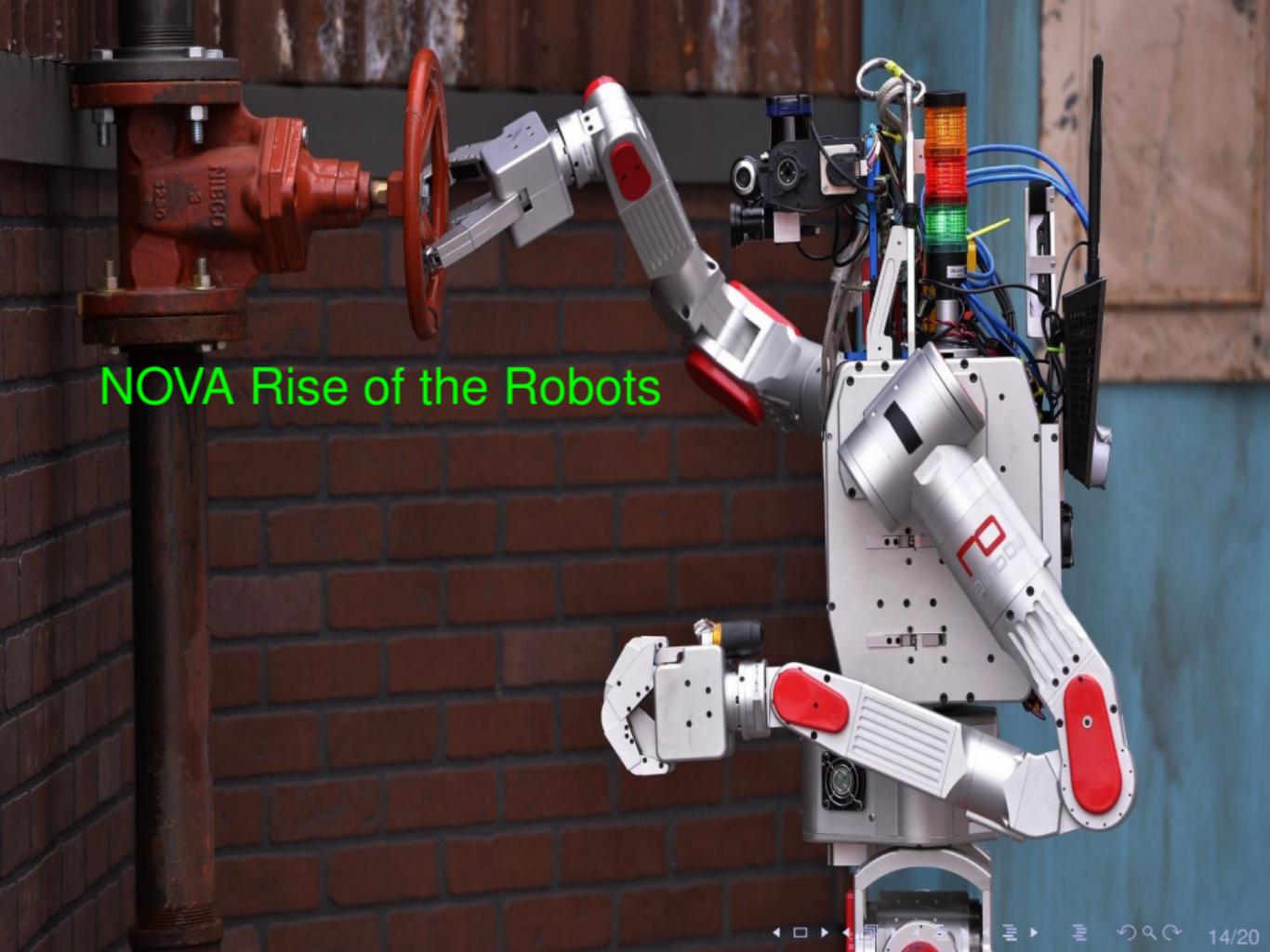
- ▶ Medicine
- ▶ Politics
- ▶ Laws



Planning and Search

- ▶ planning and searching
- ▶ genetic algorithms
- ▶ simulated annealing
- ▶ deep-learning
introduction(machine learning again)





NOVA Rise of the Robots

y ahora...Atlas. Google again



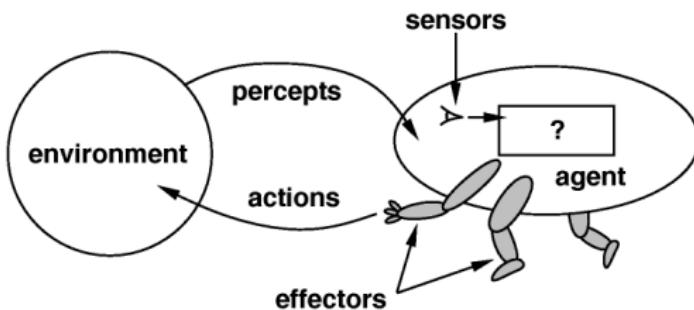
Boston Dynamics

DARPA



Intelligent agents

Basics of IA: intelligent agents



Autonomous entity which observes through sensors and acts upon an environment using actuators

Processing of perception

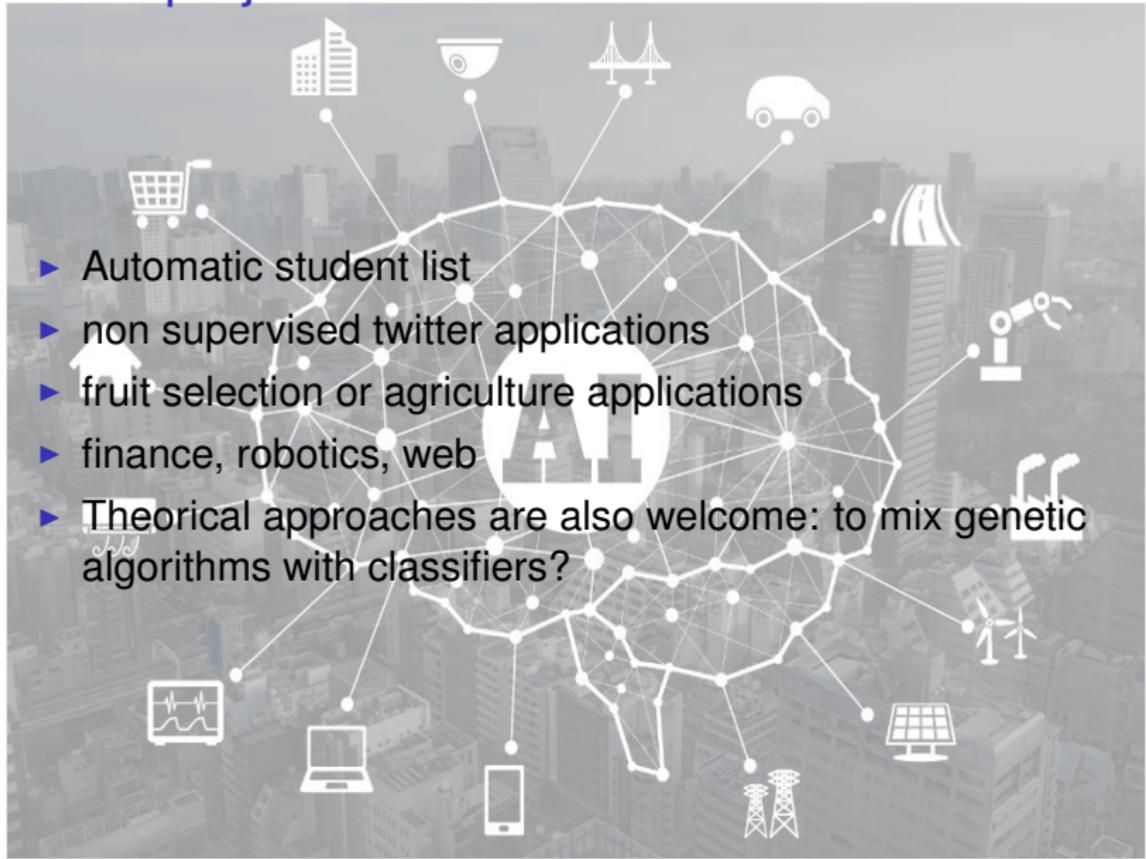
What is the function that maps from sensor to actuators?

Structure of the Course

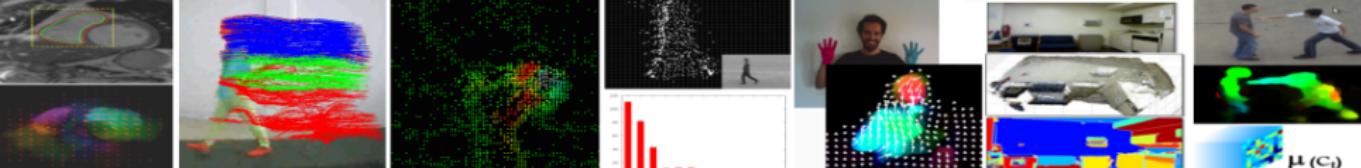
- ▶ 40% Talleres (Problemsets)
- ▶ 30% Parciales (Quizes)
- ▶ 30 % + [10% ,20 %, 30 %] Proyecto funcional IA
- ▶ +10 % Online courses (MOOC)

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Expected projects



- ▶ Automatic student list
- ▶ non supervised twitter applications
- ▶ fruit selection or agriculture applications
- ▶ finance, robotics, web
- ▶ Theoretical approaches are also welcome: to mix genetic algorithms with classifiers?



Thank you for your attention ...



... It's time to wake up