Machine Learning

Chiave x Moodle : MLearn23

Diapositive materiale: degli anni passati

~ 6 cose in laboratorio
more 3 homeworks 0/3 pts (not mandatory)
↳ 2 weeks ↳ in turns

Exam: 30 mins multiple choice question (fail/pass) } same day -> no split
1.5/2 hrs questions and exercises
↳ Possible oral exam

Grade: 2ª part grade + Homeworks

23/01/26
13/02/26
02/06/26
10/09/26

"Understanding machine learning" -> free to download

python (scikit-learn, numpy, ...)

jupiter lab (through Anaconda)

Homework 0 fabio.vandin@unipd.it

Formal Model

A learner (us/machine) has access to:

- Domain set $x \in X$: set of all possible objects to make predictions about
  - x: instance (vector of features)
  - X: instance space
- Label set Y
- Training data $S = ((x_1, y_1), \dots, (x_m, y_m))$ as the input
  - finite
  - Called <u>training set</u>
- Output: $h : X \to Y$
  - prediction rule / predictor / hypothesis / classifier
- Data generation model: instances generated and labeled according to a function
  - probability distribution that generates the instances (not known)
  - labeling function $f : X \to Y$ (not known)
  - label y_i for each instance x_i
  - each point in the training set
- Measure of success: error of a classifier = probability it doesn't predict well