Machine Learning Intro

in ~~30~~ 60 minutes

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Student Chapter

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Your questions and further discussion

Machine Learning

Subfield of computer science that gives computers the ability to learn without being explicitly programmed.

Arthur Samuel, 1959

A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P if its performance at tasks in T, as measured by P, improves with experience E.

Tom Mitchell, 1997

Applications

Natural Language Process

Analytics

Healthcare

Security

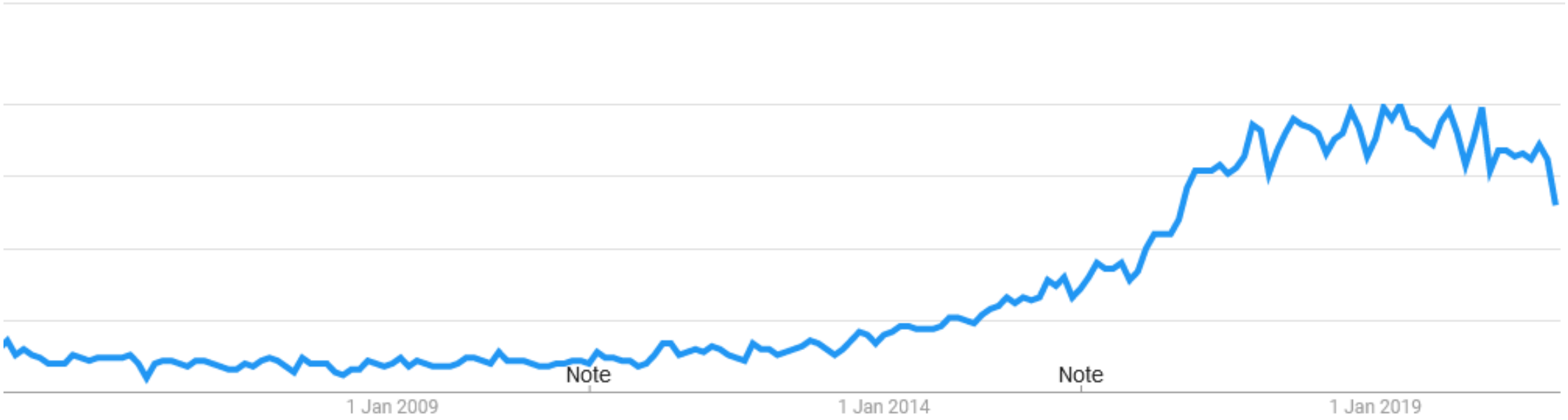
Finance

Image Recognition

Automotive

Recommendations

…soon everywhere

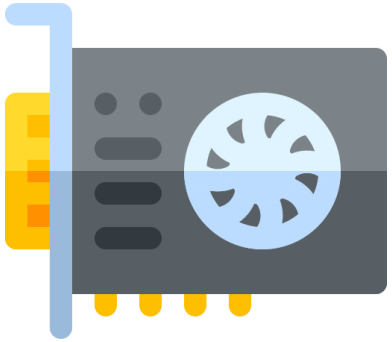


Google Trends: Machine Learning (2004 – Today)

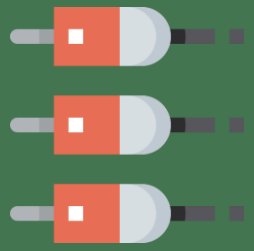
Why now?

Data Growth

Computing Power



Main types of Machine Learning



Supervised Learning

Input variables x, output variable y

Prediction

Unsupervised Learning

Input variables x

Learn more about the data

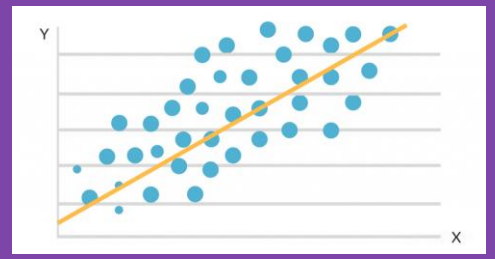
Reinforcement Learning

Agent acting in an environment so as to get a reward

Supervised Learning

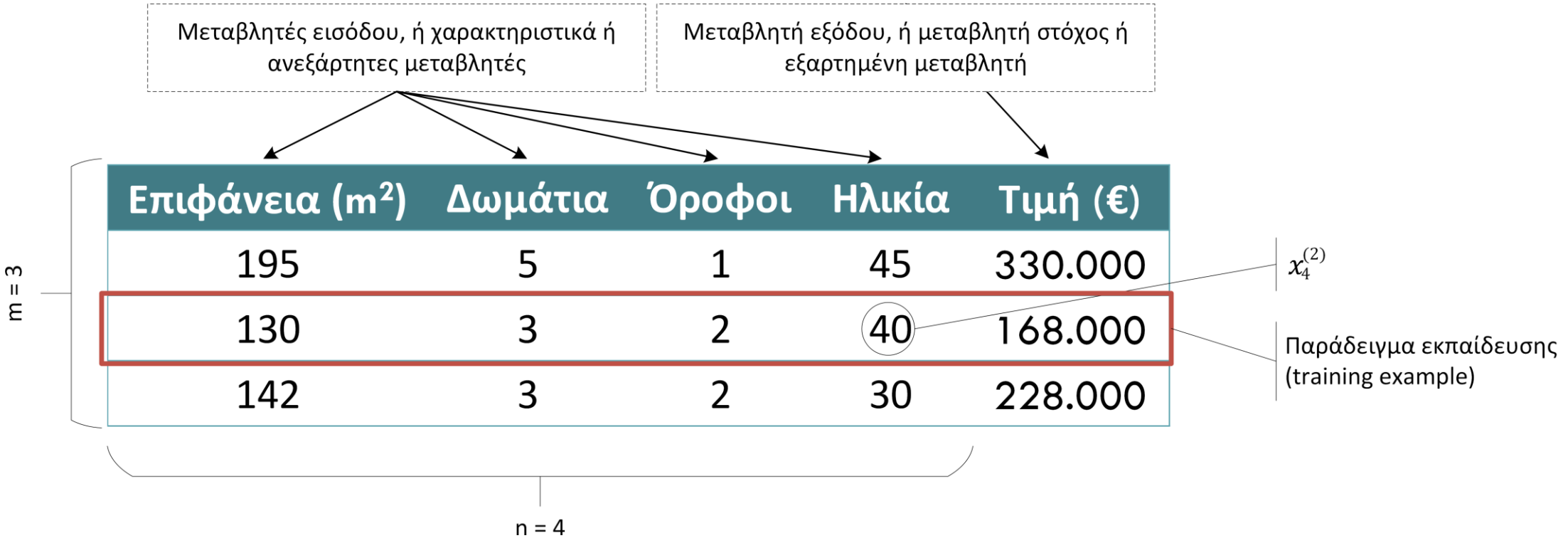
Classification

Discrete or categorical output variables



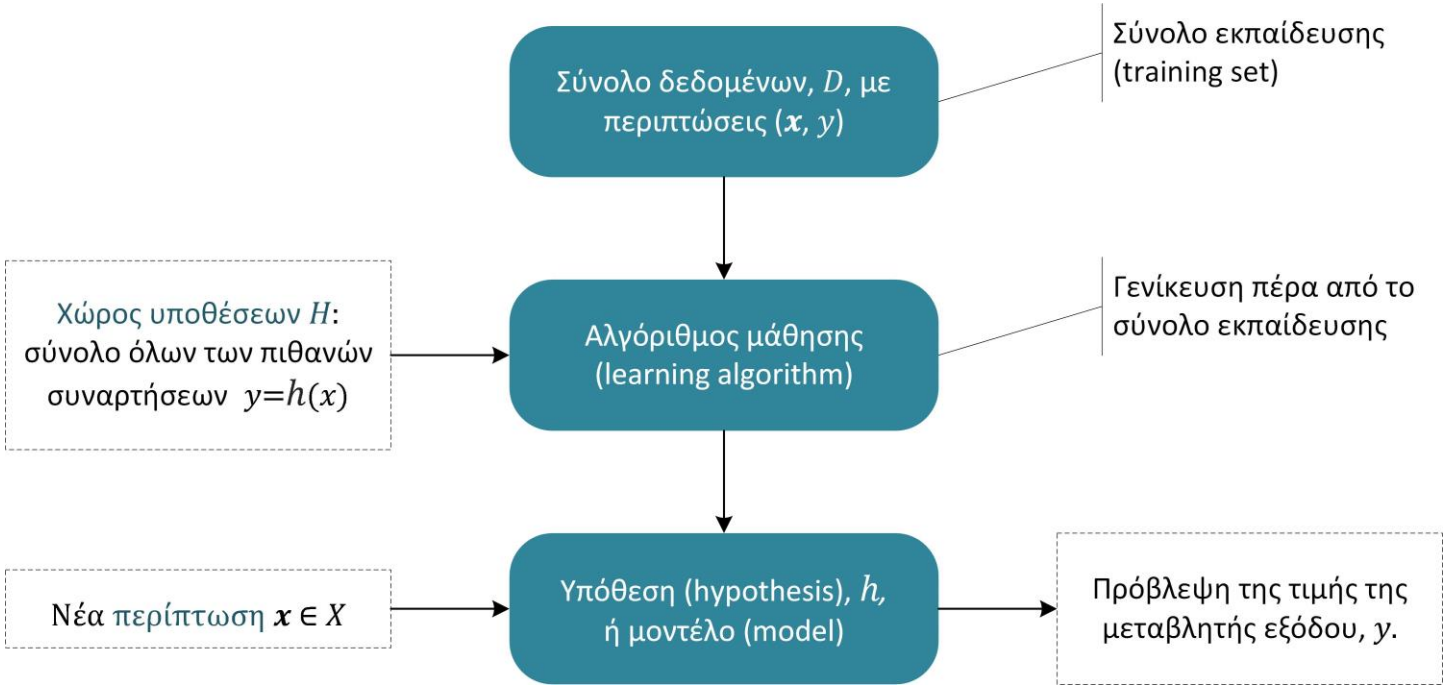
Regression

Numerical or continuous output variables


Μεταβλητές εισόδου, ή χαρακτηριστικά ή ανεξάρτητες μεταβλητές
Μεταβλητή εξόδου, ή μεταβλητή στόχος ή εξαρτημένη μεταβλητή
Επιφάνεια (m²)
Δωμάτια
Όροφοι
Ηλικία
Τιμή (€)
195
5
1
45
330.000
130
3
2
40
168.000
142
3
2
30
228.000
m = 3
n = 4
$x_4^{(2)}$
Παράδειγμα εκπαίδευσης (training example)

Notation

Learning Process



Our approach today

- An end to end example
- Simple and real
- Python – Google Colab – No Setup
- Regression Problem
- More than just using an algorithm

Visit ->

http://bit.ly/acmml

Questions?

Let’s discuss!

Thank you!

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