

Supervised Learning in Machine Learning

Data Science and A.I. Lecture Series

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PostNetwork Academy

Outline of the Presentation

- Introduction to Supervised Learning

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- Features and Labels in a Dataset

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- Thank You

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Study Hours (x_1)	Sleep Hours (x_2)	Practice Tests (x_3)	Exam Score (y)
1	6	1	45
2	7	2	50
3	5	1	55
4	6	3	65
5	8	2	70
6	5	4	75
7	7	3	85
8	6	4	90
4	6	3	What

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- The model has learned a pattern from the data and makes predictions accordingly.

Mathematical Representation of Supervised Learning

- Given a set of N training examples:

$$\{(x_1, y_1), \dots, (x_N, y_N)\}$$

where x_i is the feature vector of the i -th example and y_i is its corresponding label.

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- The goal is to find the best function g that minimizes a loss function.

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- Common algorithms include Linear Regression, Decision Trees, and Neural Networks.
- It is used in email filtering, medical diagnosis, price prediction, and many more applications.

- Bernd Klein, Python and Machine Learning.

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- Giuseppe Bonaccorso, Machine Learning Algorithms.
- Uppsala University, Supervised Machine Learning Lecture Notes.

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