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ML

Prediction, pattern recognition, decision making etc.

Data: multivariate, Boolean / real / integer /

Unsupervised learning

unlabeled data — make sense of it (find structure)

- model fitting: Hypothesize data model.
Find best fit model. e.g. GMM, ICA
- clustering: Choose objective function to cluster data. K-means, K-median

Supervised learning

$(x, l(x))$ predict $l(x)$ on new x .

- Mistake bound model
- PAC model

Sample complexity
Lower bounds

Lower bounds

We will see online learning, one data point at a time
predictions made on the fly

Agnostic learning, model/data corrupted
find best-fit solution

Contemporary ML.

- Deep NN, SGD -

- Brain

- Transformers.] general learning devices.

Emphasis : Algorithmic techniques
Fundamental bounds.