

FODA 21

Lecture 1

Class Overview

Data

$$\{x_1, x_2, \dots, x_n\} \in \mathbb{R}^d$$

learn model \mathcal{M}

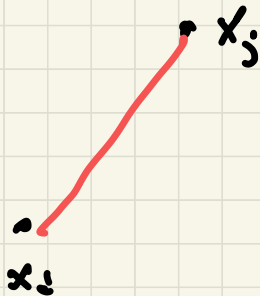
$$x_i \sim_{\text{id}} \mathcal{U} \text{ distribution}$$

person (joe)

$$x_i \in \begin{bmatrix} x_{i1} \\ x_{i2} \\ x_{i3} \\ \vdots \\ x_{id} \end{bmatrix}$$

↔ height
↔ weight
↔ age

$$D(x_i, x_j)$$



best model

Sum of Sq Errors

$$M^* = \arg \min_{M \in \mathcal{M}} \sum_{x_i \in X} (x_i - M)^2$$

space of model \rightarrow

$f(M)$

unsupervised learning
no labels

supervised
labels

clustering

classification

→ Set

Dim Reduction

regression

→ Value

↙ cross validation

Gradient Descent

