

Syllabus 2026; Prof. Alessandro Ramponi

 17 ^{July} Week 7:  Mar 26

Macro topics: Machine learning foundations, Supervised learning, Unsupervised learning, Applications



Theory

- Approaches to machine learning 
- Prediction
- Learning and inference
- Point least squares regression 
- Point non-least squares regression
- Point binary classification
- Least squares autoencoders
- Unsupervised learning: graphical models 
- Machine learning for hedging 
- Least squares regression
- Least absolute distance regression



Selected homework

- Discriminative versus generative prediction
- Supervised point prediction: mean regression
- Unsupervised autoencoders: k-means clustering
- Receiver operating characteristic (ROC)