Statistical Learning

Marco Zanotti

2021-2022

Statistical Learning is part of the Machine Learning, Statistical Learning, Deep Learning & Artificial Intelligence course.
The course introduces students to the most important algorithmical and statistical machine learning tools. The first part of the course focuses on the statistical foundations and on the methodological aspects. The second part is more hands-on, with laboratories to help students develop their software skills.

Course Structure

The **Statistical Learning** part of the course aims at teaching a methodological and practical overview to statistical learning methods. The emphasis is on the applications and state-of-the-art techniques are presented through hands-on labs with **R**.

- 10 hours: practical lectures on the main contents

Contents

- Tidymodels Basics
- Tidymodels Features Engineering (Recipes)
- Tidymodels Modelling (Engines & Workflows)
- Tidymodels Hyperparameter Tuning (Tune)
- Neural Networks with Keras
- Automatic Machine Learning with H2O
- Explainable AI with DALEX & LIME

Methods:
- Linear Regression, Logistic Regression, Ridge, LASSO, Elastic Net, MARS
- CART, Bagging, Random Forest, XGBoost, Cubist
- SVM, KNN, Naive Bayes
- Multi Layer Perceptron, Deep Neaural Networks
- AutoML

Duration & Calendar

The course is divided into 5 lectures (2 hours each).

1. Friday 2022-05-20, 16.30 - 18.30
2. Friday 2022-05-27, 16.30 - 18.30
3. Friday 2022-06-10, 16.30 - 18.30
4. Friday 2022-06-17, 16.30 - 18.30
5. Friday 2022-06-24, 16.30 - 18.30

Lectures take place at University of Milan, Via Conservatorio 7, and online.

Requirements

Requirements:

- Lecture 0 - Tidyverse

For more information about the course contact zanottimarco17@gmail.com or look at the Course Syllabus