Statistical Learning, Machine Learning & Artificial Intelligence

Marco Zanotti

The course introduces the most important algorithmic and statistic 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 practical applications to help develop the necessary software skills.

Course Structure

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 tutorial with **R**. The focus will be on business-oriented libraries allowing to integrate statistical models into production-ready tools.

- 10 hours: practical lectures on the main contents

Contents

- Tidymodels Basics
- Tidymodels Features Engineering (Recipes)
- Tidymodels Modelling (Engines & Workflows)
- Tidymodels Hyperparameter Tuning (Tune)
- Ensemble Learning (Stacks)
- Automatic Machine Learning (H2O)
- Deep Neural Networks (Keras)
- Explainable AI (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 Neural Networks
- AutoML

Duration & Calendar

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

1. Day yyyy-mm-dd, 16.30 - 18.30
2. Day yyyy-mm-dd, 16.30 - 18.30
3. Day yyyy-mm-dd, 16.30 - 18.30
4. Day yyyy-mm-dd, 16.30 - 18.30
5. Day yyyy-mm-dd, 16.30 - 18.30

Lectures take place at ...

Requirements

- Lecture 0 - Tidyverse

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