Machine Learning and Data Mining

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Outline

Course material

Books

- Introduction to Statistical Learning with Python

`https://hastie.su.domains/ISLP/ISLP_website.pdf`

- Probabilistic machine learning: An introduction
  `https://probml.github.io/pml-book/book1.html`

Additional references

- Probabilistic machine learning: Advanced topics
  `https://probml.github.io/pml-book/book2.html`
- Machine learning in science and society (draft)

`https://github.com/olethrosdc/ml-society-science/blob/master/book.pdf`

Course github

- `https://github.com/olethrosdc/machine-learning-neuch`

Course structure

Class time

- Lectures with demos
- Lab practice
- Group work

Assessment

- Assignments (20%)
- Group project (40%)
- Exam (40%)

Communication

- ILIAS Forum for technical questions
- Email for personal questions
- Office hours Friday 13:15-14:00 (by appointment)

Course contents

Theory

- Estimation
- Learning and generalisation

Algorithms and Models

- Bayesian networks and Bayesian inference
- Neural networks and stochastic gradient descent

Social & Scientific Aspects

- Reproducibility
- Fairness
- Privacy