

Machine Learning

Syllabus Information

CS 3920 - Machine Learning

Associated Term: 2023/24 Academic Session

Learning Objectives:

The aim of the course is to acquaint the students with several key methods and techniques of machine learning. In particular, it will cover the following topics. Nearest neighbours for classification and regression; interesting distances. Conformal prediction and conformalizing nearest neighbours. Ridge regression and Lasso. Inductive conformal predictors and cross-conformal predictors. Support vector machines for classification and regression. Kernel trick and its applications to the algorithms covered so far. Practically useful kernels. Conformalized versions. Learning Outcomes: demonstrate knowledge of the theoretical background in machine learning methods have a basic understanding of the main advantages and limitations of various approaches to machine learning and specific machine-learning algorithms be able to implement basic versions of several machine-learning algorithms have a basic understanding of some ways to apply the ideas and algorithms of machine learning in industry, medicine and other fields

Required Materials: [Click here for the reading list system](#)

Technical Requirements: The total number of notional learning hours associated with the course are 150. **These will normally be broken down as follows:** 20 hour(s) of Lecture(s) across 10 week(s) 10 hour(s) of Laboratory across 10 week(s) 120 hours of Guided Independent Study **Formative Assessment:** Lab Sessions - oral feedback **Summative Assessment:** Written Assignment CW1 10% 10Hours Written Assignment CW2 15% 15 Hours Written exam 75% 2 Hours