DD2434 Machine Learning, Advanced Course 7.5 credits

Maskininlärning, avancerad kurs

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for DD2434 valid from Autumn 2017

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

DD2431 Machine learning or the equivalent. SF1901 Probability Theory and statistics or the equivalent.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After successfully taking this course, a student should be able to:

- explain and justify several important machine learning methods,
- account for several types of methods and algorithms used in the field, implement them using the book, and extend and modify them,
- critically evaluate the methods' applicability in new contexts and construct new applications,
- follow research and development in the area.

Course contents

Fundamentals of the probabilistic approach

- Linear regression
- Kernels
- Gaussian processes
- Representation learning
- Graphical models
- Hidden Markov Models
- Expectation-Maximization
- Variational Inference

Disposition

12 lectures

5 exercises

Course literature

"Pattern recognition and Machine Learning", Christopher Bishop

Examination

- TEN1 - Exam, 3.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Labs, 4.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.