DD2447 Statistical Methods in Applied Computer Science 6.0 credits

Statistiska metoder i datalogin

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

Establishment

On 04/21/2020, the Head of the EECS School has decided to establish this official course syllabus to apply from autumn semester 2020, registration number: J-2020-0570.

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

For non-program students, 90 credits are required, of which 45 credits have to be within mathematics or information technology.

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to

- explain and justify several important methods for machine learning
- give an account of several types of methods and algorithms that are used in the field of sample-based inference methods
- implement several types of methods and algorithms that are used in the field based on a high-level description
- extend and modify the methods that the course deals with

in order to be able to make a degree project in sample-based inference methods.

Course contents

- Generative models.
- Bayesian inference.
- Probabilistic programming.
- Graphical models.
- Concealed Markov models with continuous states.
- Particle filters.
- Monte Carlo estimation.
- Sequential Monte Carlo.
- Markov Chain Monte Carlo.
- Clustering.
- The Dirichlet process.

Examination

- INL1 - Assignment, 6.0 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.

Other requirements for final grade

Written assignments and a project (INL1; 6 credits).

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.