DM2583 Big Data in Media Technology 7.5 credits

Big data i medieteknik

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

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

Establishment

Course syllabus for DM2583 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

Degree of Bachelor or the equivalent. SF1604 Linear Algebra, SF1625 One variable calculus, SF1626 Multivariable analysis, SF1901 Probability and Statistics or the equivalent. Basic knowledge in Matlab or Python.

Language of instruction

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

Intended learning outcomes

After the course, the students should be able to

â€¢ account for basic methods, technologies and tools in big data analysis,

â€¢ give examples of how big data analysis can be applied on our permanently growing betray of data by searching interesting patterns in data, and how one makes them foreseeable through modelling and visualization techniques,

â€¢ explain how one can study the consumers' media use and purchase behaviour with big data analysis,

â€¢ account for recommendations system engineering in relation to the customers' trust, knowledge, loyalty and other social aspects of them,

â€¢ create value in the media branch of trade through big data analysis,

â€¢ use scientific big data technologies, tools and methods to solve practical problems in media technology,

â€¢ design the most important stages in big data work from collecting, preparing and modelling data to evaluation and dissemination of results

â€¢ explain important machine learning concepts such as feature extraction, cross validation, generalisation, over fitting, prediction and the curse of dimensionality,

â€¢ account for how commonly occurring data modelling methods work, what are their applications, and describe their assumptions and limitations,

â€¢ apply common data modelling frameworks, technologies and tools within a broad spectrum of media application areas,

â€¢ apply and evaluate results that derive from use of common data modelling frameworks, by means of Matlab or Python,

â€¢ use tools and visualization techniques to evaluate models, identify patterns and data functions.

Course contents

â€¢ Basic methods: pattern recognition, machine learning, data analysis, data visualization, network analysis, and commonly used toolboxes for data mining and visualization of big data.

â€¢ Case studies (seminar): students study selected cases and use course methods for analysis and data visualization.

â€¢ Small student projects: the students use big data methods for, e.g., studying consumer media use and purchase behaviours. Will be presented as a short research report.

Examination

- LIT1 - Literature, 2.5 credits, grading scale: P, F
- PRO1 - Project, 5.0 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.

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.