SYLLABUS

Machine Learning 7.5 credits D7028E

Maskininlärning

Course syllabus admitted: Autumn 2012 Sp 1 - Spring 2015 Sp 4

DECISION DATE
2012-03-14

Luleå University of Technology 971 87 Luleå, Sweden
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LULEÅ TEKNISKA UNIVERSITET

Machine Learning 7.5 credits D7028E

Maskininlärning

Second cycle, D7028E

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Datateknik	Computer Technology

Entry requirements

Courses of at least 90 credits at first cycle including the following knowledge/courses. The student should have knowledge about basic algorithms and data structures, and discrete mathematics, equivalent to the courses D0012E and M0009M.

Selection

The selection is based on 30-285 credits

Examiner

Jingsen Chen

Course Aim

The course covers the basic concepts, models and computation methods for computer programs that can improve with use.

After the course the student should be able to

- demonstrate knowledge of the disciplinary foundation and of proven experience in the design and analysis of learning algorithms and systems
- demonstrate in-depth knowledge of methods and theories in the field of machine learning
- demonstrate abilities to develop learning techniques and systems based on human needs as well as the society’s goals for economical, social and ecological factors for sustainable development
- demonstrate the ability to identify, formulate, design, and implement learning components and applications
- demonstrate the ability to critically evaluate and compare different learning models and learning algorithms for different problem setups and quality characteristics
- demonstrate the ability to model , predict and evaluate the events even with limited information

Contents

Topics covered include: basic methodology, paradigms for machine learning, learning methods of concept, decision trees and probability distributions, neural networks, evolutionary methods, instance-based learning, reinforcement learning, and methods for evaluating learning outcomes .

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures. During the course there could be homework assignments that render bonus points on the written exam that follows directly after the course has been given.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

Mandatory assignments and written exam

Literature. Valid from Autumn 2012 Sp 1

Stephen Marsland: Machine Learning: An Algorithmic Perspective, Chapman & Hall, 2009, ISBN: 1420067184 , 9781420067187.
Scientific articles (determined at every occasion that the course is given).

Course offered by

Department of Computer Science, Electrical and Space Engineering

Items/credits

No items/credits available

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Syllabus established

by Jonny Johansson, HUL SRT 2012-03-14