Machine learning algorithms 2023

Martti Juhola

Lectures and exercises

Martti Juhola:

- advanced study course 5 ECTS, 12 lectures, 24 h

-lectures on Tuesdays at 10-12 from the 7th March to the 4th April, and on the 18th April, Pinni B1096

on Wednesdays at 10-12 from the 8th March to the 29th March, on the 12th and 19th April, Pinni B1096

Jyrki Rasku:

- weekly exercises on Thursdays at 17.00 from the 16th March to the 30th March, and on the 13th and 20th April, through Zoom (5 times)

To pass the course:

(1) at least 30% of weekly exercises have to be completed; additional scores can be obtained when one makes more of all weekly exercises than 30 %, additional scores [0,5] are given as follows: ≥30 %, 0; ≥41 %, 1; ≥52 %, 2; ≥63 %, 3; ≥74 %, 4; ≥85 %, 5 scores

(2) the examination is passed, when scores are obtained from [12,30]; exercise scores are added to the examination scores.

Remember enroll yourself on the examination at least 8 days earlier!

Examinations: at 17-20 on the 3rd May, 17th May and 14th June 2023

Literature:

Peter Flach: Machine Learning, The Art and Science of Algorithms that Make Sense of Data, Cambridge University Press, 2015

Stephen Marsland: Machine Learning, An Algorithmic Perspective, second edition, CRC Press, 2015

Krysztof J. Cios, Witold Pedrycz, Roman W. Swiniarski and Lukasz A. Kurgan: Data Mining, A Knowledge Discovery Approach, Springer, 2007

Ian H. Witten, Eibe Frank, Mark A. Hall: Data Mining, Practical Machine Learning Tools and Techniques (third edition), Morgan Kaufmann, 2011

Sergios Theodoridis and Konstantinos Koutroumbas: Pattern Recognition, second edition, Academic Press (Elsevier), 2003

Claude Sammut and Geoffrey I. Webb (Eds.) Encyclopedia of Machine Learning and Data Mining (second edition), Springer, 2017

Some journal articles.

Notes

The content of the current course considers several machine learning algorithms, but presents no ”overall collection” (if even possible) of methods. Some other methods are introduced in other courses. Preprocessing is not dealt with at all since it was seen in the course of *Data mining: Preprocessing and modelling*.

The lectures involve streaming and are recorded. See Panopto in the course webpage in Moodle:

https://moodle.tuni.fi/course/view.php?id=31292&lang

The weekly exercises are considered by means of Zoom.