

Machine Learning and Pervasive Computing

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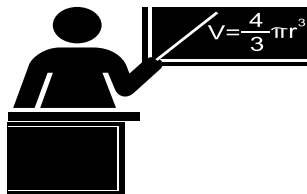
22.10.2014

Overview and Structure

- 22.10.2014 Organisation
- 22.10.3014 Introduction (Def.: Machine learning, Supervised/Unsupervised, Examples)
- 29.10.2014 Machine Learning Basics (Toolchain, Features, Metrics, Rule-based)
- 05.11.2014** A simple Supervised learning algorithm
- 12.11.2014 Excursion: Avoiding local optima with random search
- 19.11.2014 –
- 26.11.2014** Bayesian and decision-tree learner
- 03.12.2014 –
- 10.12.2014 Non-parametric methods
- 17.12.2014** Higher dimensional data (SVM, ANN, SOM)
- 07.01.2015 Classification (Single class, multi-class)
- 14.01.2015** Unsupervised learning
- 21.01.2015 Dimensionality reduction (Motivation, PCA)
- 28.01.2015** Anomaly detection
- 04.02.2015 Online learning and Recommender systems

Objectives

- Acquire detailed knowledge on selected tools and methods in Pervasive computing (focus on Machine Learning)
 - General principle
 - Algorithms and implementation
 - Various input data sources
- Practical experience of the lecture topics in hands-on projects



Requirements and lecture material

Requirements to successfully complete the lecture :

- Interest
- Ability to work self-employed but in teams
- Ask !!! when you do not understand something
 - In the lecture
 - In the exercise
 - Via Email

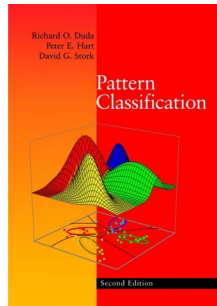
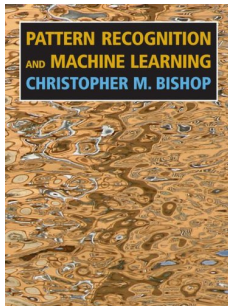
Material :

- [https://wiki.net.informatik.uni-goettingen.de/wiki/Machine_Learning_and_Pervasive_Computing_\(Winter_2014/2015\)](https://wiki.net.informatik.uni-goettingen.de/wiki/Machine_Learning_and_Pervasive_Computing_(Winter_2014/2015))
 - Lecture slides
 - Additional information



Literature

- C.M. Bishop: Pattern recognition and machine learning, Springer, 2007.
- R.O. Duda, P.E. Hart, D.G. Stork: Pattern Classification, Wiley, 2001.



Questions?

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