

MACHINE LEARNING: SUPERVISED TECHNIQUES



Introductory Information

CONTACT

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SCHEDULE

Lecture: Wednesday, 3:30–5:00pm, starting October 3, 2018, lecture hall HS 5.

Exercises: Corresponding exercises on Supervised Techniques are given by Dr. Johannes Brandstetter (LVA-Nr. 365.076, 365.098)

Always check KUSSS for possible changes!

BOOKS FOR FURTHER READING

- [1] C. M. Bishop. *Neural Networks for Pattern Recognition*. Oxford University Press, 1995. ISBN 0-19-853864-2.
- [2] R. O. Duda, P. E. Hart, and D. G. Stork. *Pattern Classification*. Second edition. John Wiley & Sons, 2001. ISBN 0-471-05669-3.
- [3] T. Hastie, R. Tibshirani, and J. Friedman. *The Elements of Statistical Learning*. Springer, 2001. ISBN 0-387-95284-5.
- [4] K. P. Murphy. *Machine Learning: a Probabilistic Perspective*. MIT Press, 2012. ISBN 978-0-262-01802-9.
- [5] B. Schölkopf and A. J. Smola. *Learning With Kernels*. MIT Press, 2002. ISBN 0-262-19475-9.
- [6] V. N. Vapnik. *Statistical Learning Theory*. John Wiley & Sons, 1998. ISBN 0-471-03003-1.

EXAM (LECTURE)

- The course is graded on the basis of a written examination.
- The exam is divided into three parts of 30 minutes each.
- Register for exams in KUSSS!
- Exams are closed book; questions are asked in English, but can be answered in English or German.

MATHEMATICAL PRE-REQUISITES

- Basics of probability: (joint) distributions, expectation, variance, sample statistics
- Linear algebra: vectors and matrices
- Basics of calculus: (partial) derivatives, integrals
- Basics of optimization

OUTLINE

Unit 1: Overview of Machine Learning

Unit 2: Basics of Supervised Machine Learning

Unit 3: Support Vector Machines






Unit 4: Random Forests


Unit 5: Artificial Neural Networks

Unit 6: Feature Selection

MISCELLANEOUS

FORSCHUNG Jetzt abstimmen ✓

				
Holger Friehmelt Luftfahrttechniker	Sepp Hochreiter Informatiker	Ute Schäfer Biologin	Michael Stadler Energieforscher	Werner Telesko Kunsthistoriker

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