VSB TECHNICAL UNIVERSITY OF OSTRAVA | FACULTY OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE | DEPARTMENT OF COMPUTER SCIENCE

Fundamentals of Machine Learning

Course overview

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Course overview

Classification criterion

- Task on the Exercises (10-20 points, up to 5 points for finishing task (small implementation/analytical tasks) at the exercise or at home (1-2 hours of work).
- Exploration and clustering data analysis (20-45 points).
- Classification/Regression (15-35 points).
- **Overall** - Minimum from each task and at least 51 points together.
- BONUS: Finishing of the Elements.AI course (20 points) - deliver a link to the certificate to the teacher.

Requirements and expected knowledge

- Hands-on experience with Python and/or R language.
- Basic mathematical elements (numbers, vectors, matrices)
- Basic mathematical operations (sum, multiplication, division)
- A ”common sense”.

Recommended books

- FAUL, Anita C. A Concise Introduction to Machine Learning. Boca Raton, FL: CRC Press, 2020. ISBN 978-0-8153-8410-6.
- NEAPOLITAN, Richard E. a Xia JIANG. Artificial Intelligence: With an Introduction to Machine Learning. 2nd edition. Boca Raton, FL: CRC Press, 2018. ISBN 978-1-138-50238-3.
- WITTEN, Ian H., Eibe FRANK, Mark A. HALL a Christopher J. PAL. Data mining: Practical machine learning tools and techniques. 4th ed. Amsterdam: Morgan Kaufmann, 2017. ISBN 978-0-12-804291-5.

Recommended books

- BROWNLEE, Jason. Data Preparation for Machine Learning: Data Cleaning, Feature Selection, and Data Transforms in Python [online]. 2020.
- MOHRI, Mehryar, Afshin ROSTAMIZADEH a Ameet TALWALKAR. Foundations of machine learning. 2nd edition. Cambridge: MIT Press, 2012. Adaptive computation and machine learning series. ISBN 9780262018258.
- MÜLLER, Andreas Christian a Sarah GUIDO. Introduction to machine learning with Python: A guide for data scientists. Beijing: O'Reilly, 2016. ISBN 978-1-449-36941-5.

Recommended books

- MARSLAND, Stephen. MACHINE LEARNING: An Algorithmic Perspective. 2nd edition. Boca Raton, FL: CRC Press, 2015. ISBN 978-1-4665-8333-7.
- MUELLER, John a Luca MASSARON. Machine learning for dummies. Hoboken, NJ: John Wiley, 2016. ISBN 978-1-119-24551-3.
- SHALEV-SHWARTZ, Shai a Shai BEN-DAVID. Understanding Machine Learning: From Theory to Algorithms. New York, USA: Cambridge University Press, 2014. ISBN 978-1-107-05713-5.

Questions