



Course title: Neural Networks
Department: F-3, Department of Computer Science
Course code: F32-NN
Erasmus subject code:
Number of contact hours: 45 hours
Course duration: 1 semester
ECTS credits: 6

Course description: Structure and functionality of a single artificial neuron. Perceptron and Widrow-Hoff training algorithms and other linear models. Architectures of neural networks and dependence between complexity of the solved problem and structural complexity of the network. Radial basis functions neural networks. Back propagation and other methods of learning. Classification and regression problems. Basic methods of regularization. Deep learning networks. Possibilities and limitations of many types of neural networks. Keras and TensorFlow libraries. Image recognition with deep neural networks.

Literature:

1. Ian Goodfellow and Yoshua Bengio and Aaron Courville, Deep Learning, MIT Press
2. Giancarlo Zaccane, Deep Learning with TensorFlow: Explore neural networks with Python
3. Bharath Ramsundar, TensorFlow for Deep Learning: From Linear Regression to Reinforcement Learning

Course type: Lectures and computer laboratory

Assessment method: Projects and final test

Prerequisites: Basic algebra and calculus, basic Python programming

Primary target group: computer science students of the 3rd or 4th year

Lecturer: Michał Bereta, PhD Eng.

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Deadline for application: 15th of September