

Advanced Machine Learning					
Course Code CIF61063	Student Workload 90 hours	Credits (according to ECTS) 4,5	Semester Semester 5/7	Frequency each odd-semester	Duration 16 meetings
1	Types of courses <i>Elective (Informatics Engineering level)</i>	contact hours 63 hours	independent study 27 hours	class size 40 students	
2	Prerequisites for participation Have completed Artificial Neural Network, Introduction to Machine Learning, and Statistics and Probability Theory course				
3	Learning outcomes <ul style="list-style-type: none"> • IF-ILO-3 <p>Graduates are able to develop professional careers in the field of computer science based on quality aspects, data-based decision making, be responsible, and make continuous improvements.</p>				
4	Subject aims <ul style="list-style-type: none"> • Students are able to describe and explain Big Data and Deep Learning and their characteristics • Students are able to recognize and apply one of the Deep Learning architectures: CNN, MLP, LSTM, or Autoencoder • Students are able to recognize and apply the RNN/LSTM architecture for time series data prediction • Students are able to identify important attributes in data sets using PCA and Autoencoder • Students are able to recognize classification using CNN or MLP along with the learning mechanism • Students are able to apply one of the time-series predictions or large-scale data set classification (image/NLP) according to the chosen topic 				
5	Teaching methods lectures, case study, class discussion, presentation				
6	Assessment methods assignment, mid-term examination, end-term examination, project evaluation, practical-skill assessment				
7	This module is used in the following degree programs as well <i>Informatics Engineering</i>				
8	Responsibility for module				
9	Other information				

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| | <ol style="list-style-type: none">1. Goodfellow, Ian, Yoshua Bengio, and Aaron Courville. "Deep learning book." MIT Press 521.7553 (2016): 800.2. Dong, Guozhu, and Huan Liu, eds. Feature engineering for machine learning and data analytics. CRC Press, 2018. |
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