Time Series II

Course code: MLC_TISEA

The course is intended for people who want to deepen their knowledge and experience in the field of time series analysis. This is a follow-up course of Time Series, which focuses mainly on other time series domains and their specifics. We will particularly study sound data with a combination of recurrent and convolutional neural networks and the sentiment analysis task on textual data.

Who is the course for

The course is intended for people who want to deepen their knowledge and experience in the field of time series

analysis.

Required skills

- basic knowledge of programing in Python
- high school level of mathematics
- Knowledge of machine learning on the level of our course Time Series

Course outline

- Advanced feature preprocessing
- Classification/pattern detection in sound data
- Short-time Fourier transformation
- CNN for sound classification: spectrogram as an image
- LSTM &CNN combination
- Example: Speech detection using neural networks
- Time series prediction from textual features
- Data preprocessing
- Sentence &word tokenization
- Model-based vs. dictionary-based word embeddings
- Of-the-shelf pre-trained word-embeddings models
- Pre-training with auxiliary classification tasks
- Model combination &fine-tune training
- Example: Time series predictions using sentiment analysis of news data

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