

Time Series

Course code: MLC_TISE

This course is focused on time series prediction problems. We will begin with examples of classical methods for modeling and prediction of time series and continue to more advanced methods based on machine learning. We will finish with a complex example of a training time series model on historical data using neural network and evaluate its performance in predicting the future.

Required skills

- basic knowledge of programming in Python
- high school level of mathematics
- Basics of machine learning on the level of our course Introduction to machine Learning

Course outline

- Introduction to the theory of time series modeling
- Classical methods for time series prediction (space & frequency domain, spectral analysis, autocorrelation, ARIMA models etc.)
- Hands-on example (pandas, basic characteristics, simple prediction)
- Machine learning for time series prediction (state-space methods, Hidden Markov Chain, Kalman filter, classical neural networks, recurrent networks, LSTM)
- Hands-on examples of machine learning methods (training set preparation for specific task and model, training process & evaluation)
- Complex example of time series prediction using recurrent neural network (temperature prediction from high-dimensional input data: training data set preparation, training process & validation, prediction with trained neural network)

GOPAS Praha
Kodaňská 1441/46
101 00 Praha 10
Tel.: +420 234 064 900-3
info@gopas.cz

GOPAS Brno
Nové sady 996/25
602 00 Brno
Tel.: +420 542 422 111
info@gopas.cz

GOPAS Bratislava
Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 248 282 701-2
info@gopas.sk

 **GOPAS**[®]
Copyright © 2020 GOPAS, a.s.,
All rights reserved