

MALITUP MACHINE LEARNING IN THEORY AND PRACTICE

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INTRODUCTION

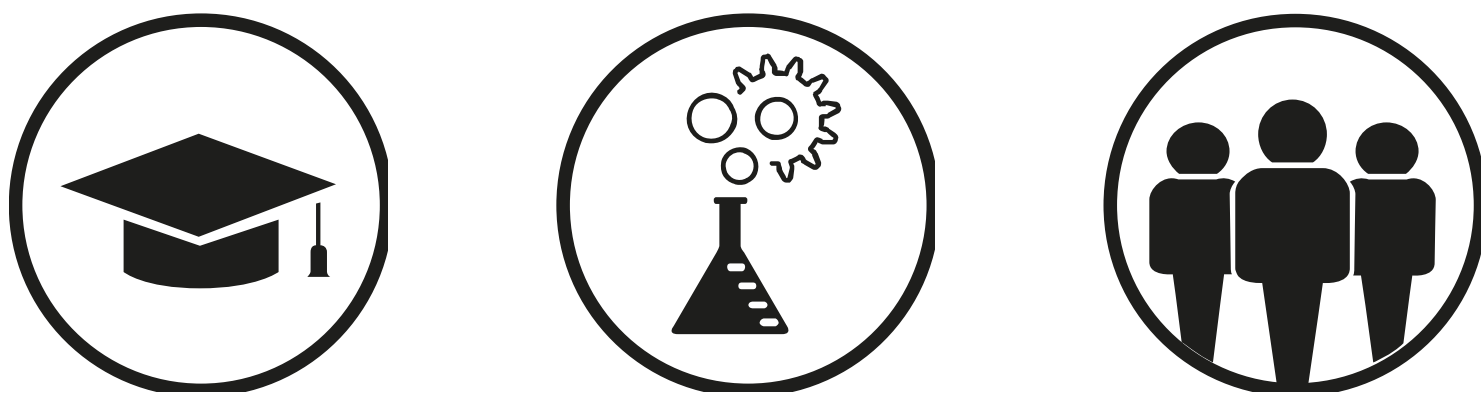
Increasing digitalization, rapid developments in machine learning and exponentially growing **accumulation of data** lead to new jobs in the areas of data science. In the field of (maritime) logistics, **digitalization is becoming increasingly important**, resulting in an ever-increasing demand for trained personnel in the field of machine learning.

OBJECTIVE

The Institutes of Maritime Logistics and Software Technology Systems and Fraunhofer CML set up a **training course** „Machine Learning in Logistics“ to provide

- Students a **Lecture on Machine Learning**
- **Project Studies** within maritime logistics
- **Employee Training** „Data Scientist in Logistics“

Lectures and Exercises



Basics of Machine Learning

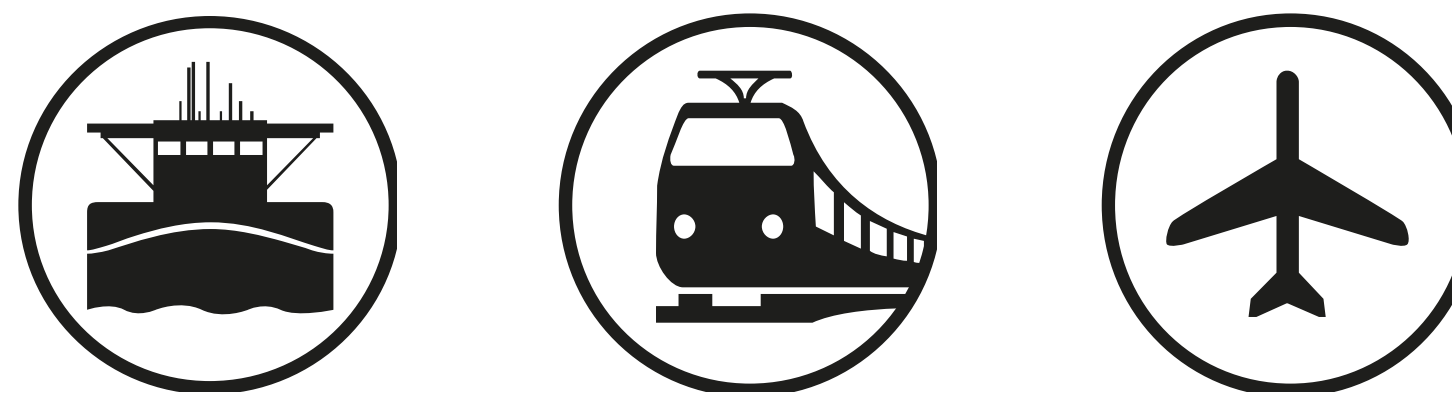
- Data Modelling
- Supervised Learning: Regression, Decision Trees, Bayesian Networks, Neural Networks, Support Vector Machines
- Unsupervised Learning: Clustering
- Validation

Digitalization in Transport and Logistics

- Project Structure Machine Learning
- Use Cases of Machine Learning in Logistics
- Temporal Data
- Movement Data
- Detection of Anomalies
- Feature Engineering and Image Recognition

Basic Level

Project Studies



Project Studies

- Provision of Adequate Data
- Presentation of the Results to the Partners
- Processing of Real Problems on Big Data

Topics

- Collision Avoidance at Sea
- Automatic Detection of Coastlines in Radar images
- Automated Planning of Shipping Routes based on Electronic Nautical Charts
- Prediction of Required Electric Energy for Transportation with Trains
- Determination of Aircraft Positions using Meta Data in Radio Communication

Advanced Level

Employee Training



Administration

- Duration: 4 days + exam

Prerequisites

- University degree and professional experience or
- Completion of Basic and Advanced Level

Content

- Compressed teaching of Basic and Advanced Level
- Adaption of *Data Scientist Specialized in Data Analytics* course by Fraunhofer Big Data alliance
- Practical application of machine learning to various topics of (maritime) logistics

Professional Level

BASIC CONDITIONS

- Funded by: Federal Ministry of Education and Research
- Project management: German Aerospace Center [DLR]
- Project duration: 2017 - 2019

ASSOCIATED PARTNERS



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