

Bachelor thesis, master thesis, project thesis

Evaluation of driving trajectories using DTW algorithms

Most vehicles in intralogistics are driven manually, as human drivers are superior to automated systems in many respects from today's perspective. In order to harness human capabilities for automated systems, human driving behavior is to be simulated in a logistics environment and used to generate synthetic data sets. Based on this, an automated forklift is to be enabled via imitation learning to autonomously execute driving movements based on the implicit knowledge of experienced drivers.

Your tasks

The aim of your master's thesis is to analyze and subsequently evaluate the differences between human expert driving trajectories and driving trajectories generated by an imitation learning model. The Dynamic Time Warping (DTW) algorithm will be used for the analysis. This algorithm is traditionally used to efficiently find similarities in signals that differ in speed, such as speech recognition.

These work packages are part of your thesis:

- Literature research on the application of DTW for trajectory evaluation
- Establishment of suitable evaluation criteria
- Software implementation of the DTW algorithm (Python)
- Analysis of given driving trajectories using the implemented DTW algorithm
- Evaluation of the differences between the trajectories based on the criteria.
- Assessment of the suitability of DTW for evaluating driving trajectories

Your profile

You are studying one of the following subjects:

- Computer science
- Data science
- Mechanical engineering
- Mechatronics
- Electrical engineering
- or similar

It would be ideal if you also:

- Have good written and spoken German skills
- Have programming skills in Python and data analysis (e.g., NumPy, pandas, matplotlib)
- Have experience with ROS/ROS2, Git, and Linux (Ubuntu)

Are you interested in data analysis, robotics, and artificial intelligence? Do you enjoy learning new topics on your own? Then we look forward to receiving your application!

We offer

- Independent work
- close supervision
- Well-equipped workplaces
- Long-term cooperation, if applicable

Bitte sende deine aussagekräftige Bewerbung in einer einzigen PDF-Datei an jobs@iph-hannover.de.

Die Bewerbung muss Anschreiben, Lebenslauf sowie Prüfungsleistungen des Studiums / Zeugnisse enthalten.

Contact



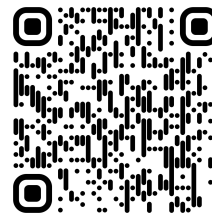
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