

## Student thesis



### Master Thesis

# Deep Learning based Pedestrian Intention Prediction

## Topic and Goal of the Thesis

Autonomous vehicles operate in an open environment together with other road users like cars, trucks, but also vulnerable road users like cyclists or pedestrians. While most road users navigate mainly in driving lanes, the behavior of pedestrians is much more difficult to predict. Sudden changes in movement can lead to a pedestrian entering the driving lane and interacting directly with the vehicle.

Therefore, the research field of pedestrian prediction deals with the prediction of pedestrian movements and addresses the specific relevance for the current driving state. Starting from social force models, deep learning methods such as LSTMs or GANs have been applied in the highly relevant field of pedestrian prediction in recent years.

The goal of this thesis is to conceptualize a pedestrian prediction model considering the current state of the art approaches. The chosen approach will then be implemented and trained but also integrated in the current software stack and tested both in simulation and on real-world data.

## Working Points

- Literature research on existing strategies for pedestrian prediction
- Identify suitable concept for own pedestrian prediction model
- Implementation and training of the proposed methodology
- Evaluation of proposed techniques on simulation and real-world data

## Requirements

- Good English or German language skills
- Reliability, commitment, and enjoyment of working independently
- Experience with Python (C++ and ROS)
- Experience with Deep Learning
- Experience with Git, Docker, and Unix

## Department

Automated Driving

## Contact



Christian Geller

☎ +49 241 80 25646

✉ christian.geller@  
ika.rwth-aachen.de

## Language

German or English

## Entry Date

Earliest possible date

## Prior knowledge

Python or C++

Deep Learning