



Research Thesis / Forschungsarbeit / Studentarbeit

Title	Fault Detection for Autonomous Driving using Machine Learning
Description	<p>One key point in autonomous driving is the vehicle state control. However, sometimes sensors in a vehicle may fail. This can result in faults in the recorded data. In this case, a conventional model-based method cannot well detect or reconstruct the missing values. Therefore, one intuitive idea is to apply data-driven methods, such as deep learning, to these scenarios.</p> <p>The basic aim of this research is to develop a data-driven algorithm, e.g. a certain deep learning algorithm, to perform fault detection on time series signals. The second goal is to further improve this algorithm to perform fault reconstruction on given scenarios. The final goal is to study the possibility of combining model-based methods with data-driven methods.</p>
Prerequisites	<ul style="list-style-type: none">• Motivation in machine learning and deep learning• A highly independent and structured way of working• Proven / Advanced programming skills in Python• Knowledge in machine learning and deep learning is mandatory• Experience in scikit-learn, Keras and TensorFlow is beneficial• Knowledge in vehicle dynamics is beneficial but not mandatory
Begin	Now
Duration	3 months
Language	English
Supervisor	Patrick Schlachter & Yiwen Liao
Contact	If you are interested in this task, please send your current transcript and a short CV to yiwen.liao93@gmail.com for further information.

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