



## **Abschlussvortrag Masterarbeit Tharun Kommaddi**

„Detecting and Clustering Unknown Concurrent faults of Automotive Software Systems under Noisy Conditions based on Hardware-in-the-Loop Tests and Deep Learning Technique“

In recent years, Hardware-in-the-Loop (HIL) simulation has been introduced as a safe, flexible and reliable validation platform. However, during the test execution, large amounts of multivariate time series data are recorded by the HIL platform. Traditional data analysis methods used to analyze the recordings based on a human expert are not practical. Therefore, an intelligent method is required so that the deviation of system behavior can be detected and classified in an efficient manner.

Although data-driven fault diagnosis is superior to other approaches, existing methods for automatic detection and clustering of unknown faults encounter limitations in the presence of noisy data.

This study aims at developing and implementing an intelligent and robust model capable of detecting and clustering unknown faults based on deep learning methods. To demonstrate the applicability and robustness of the developed model, recordings of digital test drives as well as real-time simulation data of different scenarios are used.

Betreuer der Arbeit: Prof. Dr. Andreas Rausch, PD Dr. Christoph Knieke

Datum: Donnerstag, 21. September 2023, 10:00 Uhr

Ort: Online-Meeting über BBB

Link: <https://webconf.tu-clausthal.de/rooms/sim-uc9-rvy/join>