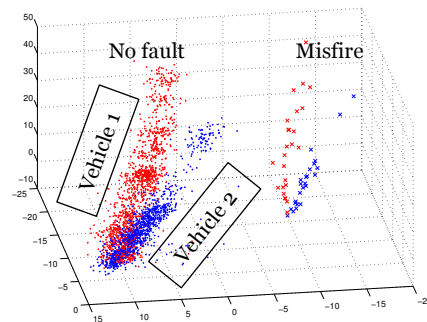


Master Thesis Proposal

Model-based Engine Misfire Data Simulation for Calibration of Machine Learning Classifiers

Engine misfire detection is an important part of the On-Board Diagnosis system in internal combustion engines to reduce emissions. Calibrating a misfire detection algorithm is time consuming and requires multiple tests and data collection from different vehicles to evaluate performance and assure robustness to vehicle-to-vehicle variations. Model-based simulation of vehicle-to-vehicle variations in measurement data can speed up calibration time and reduce development costs.



The objective in this master thesis project is to investigate how to apply model-based methods to simulate vehicle-to-vehicle variations in data. The simulated data will be used together with real engine misfire data collected from vehicle on the road to calibrate a misfire detection algorithm. The proposed method will be evaluated by analyzing the effect of vehicle-to-vehicle variations on misfire classification performance but also to validate that simulated data can be used for calibration.

We are looking for students who are interested in internal combustion engines and machine learning and model-based methods for calibration of data-driven classification.

If you are interested or have questions, please feel free to mail me:

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or come by my office in the vehicular systems corridor (B-building behind Café Java).