Digital Twin of a Turbocharged Spark-Ignited Engine System for Control and Fault Diagnosis

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Research Website

Ulster University · VOLVO · LINKÖPING UNIVERSITY · MONASH University

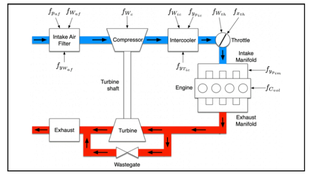
Physical Automotive Vehicle

volvocars.com

Understanding of Engine Dynamics

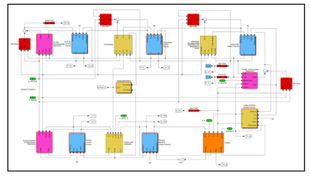
volvocars.com

Identifying Faults of Interest



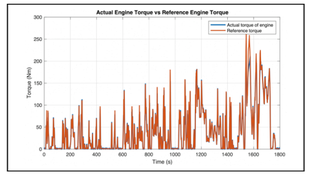
Ng *et al.*, *IEEE CSM*, 2020.

Modeling of Engine System



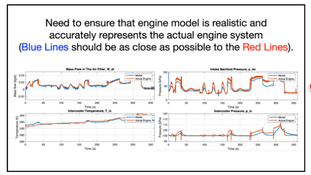
Ng *et al.*, *IEEE CSM*, 2020.

Controller Design

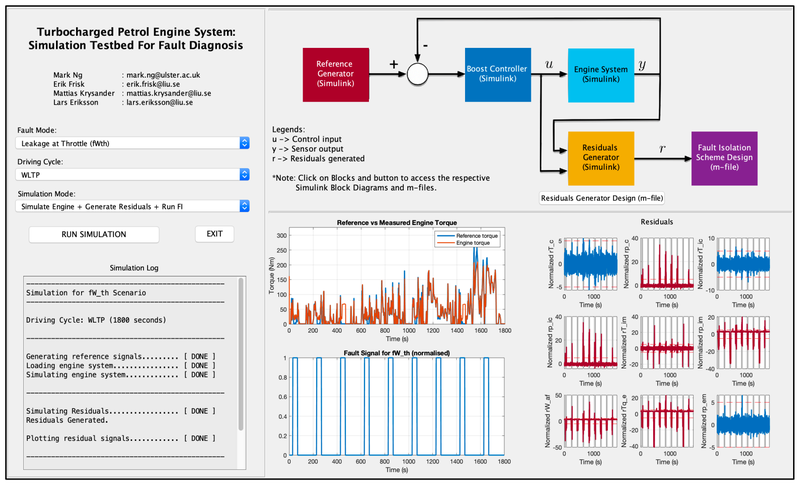


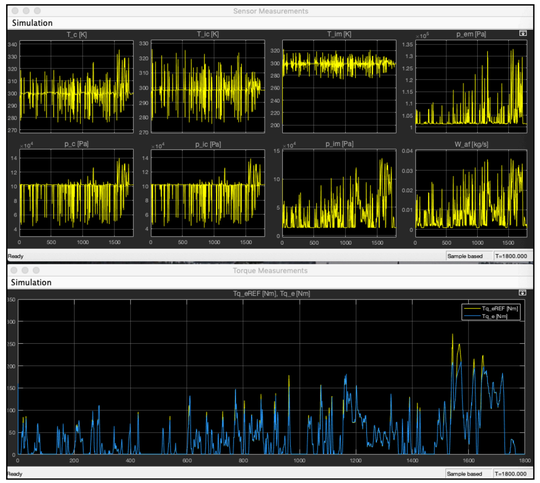
Ng *et al.*, *IEEE CSM*, 2020.

Verification of Engine Model and Controller Design

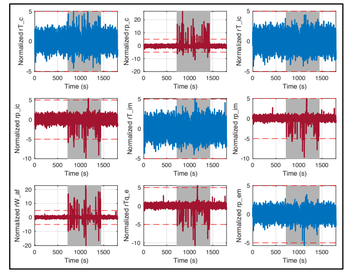


Ng *et al.*, *IEEE CSM*, 2020.

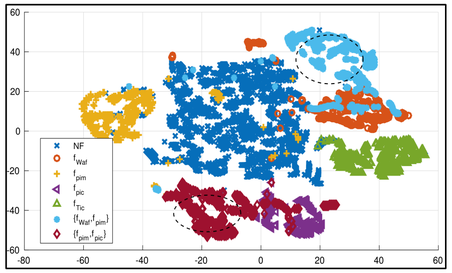




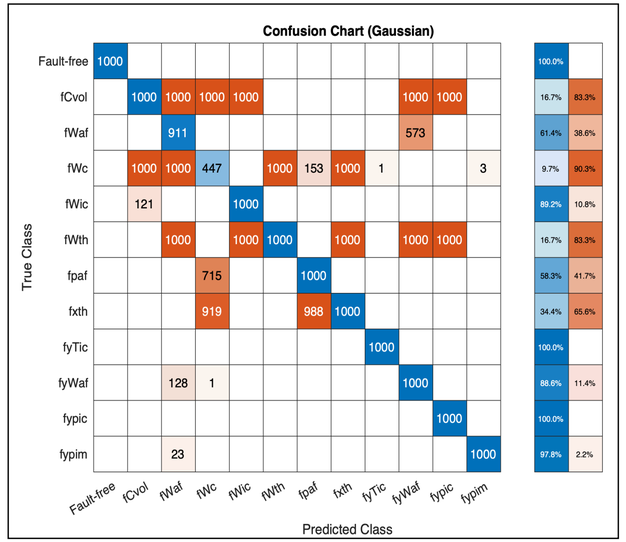
Simulation GUI and Telemetry Visualizations



Residuals Analysis



Multidimensional Data Analysis



Classification and Diagnosis

GitHub

IEEE CSM Paper