An Evaluation of Autoencoder and Sparse Filter as Automated Feature Extraction Process for Automotive Damper Defect Diagnosis

Abstract:

With reduced driver’s perceptions in regard of defects of a vehicle’s suspension system, caused by autonomous driving, health monitoring of automotive dampers during driving will become increasingly relevant. Using only sensor signals of the vehicle’s electronic stability program for this task is cost-efficient since those sensors are already available. Machine learning algorithms in conjunction with actual measurement data can be used to classify sensor readings according to the vehicle’s damper health state. This paper evaluates two methods for automated feature generation, namely “Autoencoder” and “Sparse Filter The classification performance using those feature sets is compared to established feature engineering methods.

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