Literature Survey:

1. Trip Based Modelling of Fuel Consumption in Modern Heavy-Duty Vehicles Using Machine learning

- Abstract Heavy-duty trucks contribute approximately 20% of fuel consumption in the United States of America
- Predicting fuel consumption per trip based on dynamic on-road data can help the automotive industry to reduce the cost and time for on- road testing.
- In this paper, an artificial neural network was implemented to model fuel consumption in modern heavy-duty trucks for predicting the total and instantaneous fuel consumption of a trip based on very few key parameters, such as engine load (%), engine speed (rpm), and vehicle speed (km/h).
- The performance of the artificial neural network was evaluated using mean absolute error and root mean square error
- The model was further evaluated with data collected from a vehicle on-road trip.

2. Development of a heavy-duty diesel vehicle emissions inventory predict

- Abstract Emissions from heavy-duty diesel vehicles are known to contribute a substantial fraction of the oxides of nitrogen, and particulate matter to the atmospheric inventory. A suite of emissions factor tables was generated for emissions inventory prediction.
- A doubling of vehicle weight was found to result in roughly a 50% increase in NOx emissions.
- The accuracy was found to improve with the inclusion of many data covering wide range of model year groups and driving schedules. Off-cycle operation was found to increase the NOx emissions by more than double. The speed-acceleration model predicted the emissions with reasonable accuracy

3. Assessing Car Damage with Convolutional Neural Networks:

- This study focuses on automotive damage estimation, with auto

insurers as their main potential clients. Three different Transfer Learning techniques are employed to do this, each of which identifies the existence, location, and degree of damage.

- Convolutional Neural Networks, which are adapted to maximize accuracy, serve as the foundation for the algorithms used. Varying degrees of accuracy were achieved across different models deployed ranging from 68% to 87%.
- In this work, accuracy as high as 87.9% was attained. This study improves several existing methods and creates opportunities for collaboration in image recognition, notably in the field of auto insurance.

4. Fuel Consumption Monitoring for Travel Demand Modeling:

- They have used data provided by Sharif University and CUBE software to predict patterns in fuel consumption and travel demand estimation. They used Traffic Analysis Zones and Traffic Analysis Districts to get travel demand estimations.
- They intended to find if there is a relationship between fuel consumption and other exogenous and endogenous variables.
- At the end they concluded that they is a very strong correlations between fuel use and trip's generation process by exogenous and endogenous variables.

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