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(57) Abstract :
The automobile sector makes extensive use of many network protocols, including Controller Area Network (CAN) and Ethernet, to provide effective communication between car modules. These networks provide rich data from the different vehicle systems, such as the engine, gearbox, brake, etc. This information gathered from the car's sensors can be fed into machine learning algorithms to gain insight into the vehicle and its surroundings. This proposes a low-cost machine learning system that makes use of in-vehicle data to classify three factors: road surface, road traffic, and driving style. To forecast road conditions and driving style using labeled CAN data, we compared random forests, decision trees, and support vector machine techniques. These algorithms were applied to the task of determining if a road's surface was smooth, even, or pitted. They were also utilized to categorize driving styles as either normal or aggressive, as well as the volume of vehicle traffic. Observational findings were reported and discussed.

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