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Guiding Autonomous Vehicles in Challenging Weather Using Machine Learning Techniques

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Abstract : Research in this area of the intersection of distributed computing with automotive networks—more particularly, vehicular clouds, or VCs—has mushroomed. Deep learning is one of the most significant research areas of this study, which falls under machine learning techniques based on artificial neural networks with representation learning. Some of the most interesting research areas that fall under road traffic analysis are smart cars, congestion detection, monitoring of vehicle routes, and prediction of paths. Although vehicle ad hoc, The most significant studies that employed VANET networks have lately started using data mining techniques for traffic congestion monitoring. Despite the success of most of these systems in traffic congestion detection, it remains challenging to build an effective mechanism that unifies both recurrent and non-recurrent traffic congestion detection, control, and prediction into one system. The objective of this research is to evaluate the effectiveness of data mining and VANET in detecting, governing, as well as anticipating traffic congestion on roads. We came up with a model for determining, governing, and forecasting traffic congestion on roads based on the two automobiles, automobiles as well as cloud workers by assuming the SVM algorithm. It has three tiers, that include roadside units, cars as well as cloud workers. The roadside units capture information from vehicles and send that to the cloud worker and the automobile collects data of their own driving behavior as well as of other vehicles within their proximity. The cloud worker trains and deploys a model for detecting careless cars and identifying traffic congestion using the SVM algorithm.

Keywords : traffic environment, machine learning, intelligent transportation systems (ITS), transportation system
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