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Utilization Prediction of Highway Truck Parking Areas in Iowa

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Abstract

Parking shortage has been one of the biggest challenges faced by truck drivers, fleet managers and owner operators for many years. Truck Parking Information Management System (TPIMS) have been deployed in eight states to communicate real-time parking information to truck drivers to maximize utilization of existing truck parking facilities. This work presents prediction analysis for truck parking utilization through machine learning methods, which will help truck drivers better plan their route and make informed parking decisions. Government agencies can also utilize the results for future traffic planning. Weather data, truck volume and spatial distribution of sites are considered during the prediction process. Random forest, boosting and other neural network methods are tested to prediction truck parking patterns and site-specific model is chosen based on the model performance.