

**Project Information Form**

Project Title:	Intelligent Parking Assist for Trucks with Prediction
University:	University of Southern California
Principal Investigator:	Petros Ioannou
PI Contact Information:	Email: ioannou@usc.edu
Funding Source(s) and Amounts Provided (by each agency or organization):	US Department of Transportation (USDOT) - \$100,000.00
Total Project Cost:	\$100,000.00
Agency ID or Contract Number:	USC-DOT-309 DTRT13-G-UTC29
Start and End Dates:	January 1, 2017 – December 31, 2017
Brief Description of Research Project:	<p>Truck parking has been identified as a major issue both in the USA and E.U. and has been selected by the American Transportation Research Institute as the most important research need for the trucking industry in 2015. The lack of appropriate and convenient parking locations has been the cause of several safety issues over the past years as drivers might be forced to either drive while tired and increase the risk of accidents or park illegally in unsafe locations, which might also pose a safety hazard to them and other drivers. Additionally, the parking shortage also impacts the shipment costs and the environment as the drivers might spend more fuel looking for parking or idling for power when parked in inappropriate locations.</p> <p>This project's objective was to study the truck parking problem, generate useful information and parking assist algorithms that could assist truck drivers in better planning their trips. By providing information about parking availability to truck drivers, the researchers expect to induce them to better distribute themselves among existing rest areas. This would decrease the peak demand in the most popular truck stops and attenuate the problems caused by the parking shortage.</p> <p>In this project, several parking availability prediction algorithms were tested using data from a company's private truck stops reservation system. The prediction MSE (mean squared error) and classification (full/available) sensitivity and specificity plots were evaluated for different experiments. It is shown that none of the tested algorithms is absolutely better than the others and has superior performance in all situations. The results presented show that a more efficient way would be to combine them and use the most appropriate one according to the situation. A model assignment according to current time of the day and</p>



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	target time for prediction is proposed based on the experiment data.
Describe Implementation of Research Outcomes (or why not implemented):  Place any photos here	
Impacts/Benefits of Implementation (actual, not anticipated):	
Web Links Reports Project website	<a href="https://ncst.ucdavis.edu/project/intelligent-parking-assist-for-trucks-with-prediction/">https://ncst.ucdavis.edu/project/intelligent-parking-assist-for-trucks-with-prediction/</a>  <a href="https://escholarship.org/uc/item/7dm0x5mr">https://escholarship.org/uc/item/7dm0x5mr</a>