



Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Predicting Travel Time on Freeway Corridors: Machine Learning Approach
University	The University of North Carolina at Charlotte
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Funding Sources and Amount Provided (by each agency or organization)	U.S. Department of Transportation: \$60,000 The University of North Carolina at Charlotte: \$30,007
Total Project Cost	\$90,007
Agency ID or Contract Number	
Start and End Dates	10/01/2018 – 12/31/2019
Brief Description of Research Project	Estimating the travel time of any segments on freeways is of great importance to route planning, traffic monitoring, and bottleneck identification. Many researchers have conducted numerous studies on estimating travel time. However, travel time forecasting is still a very challenging problem since it can be affected by diverse complex factors, including spatial correlations, temporal dependencies, and external conditions (e.g., weather). The purpose of this project is to develop machine learning approach that incorporates the stochastic characteristics of segments to model the travel time on a freeway corridor. Segment travel time correlations will be analyzed and examined using an advanced



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	<p>model (e.g., pattern recognition model and neural network model) based on historical travel time data. To evaluate the quality of such model, other models (including time-series models, and linear regression models) which may not explicitly consider spatial-temporal correlations between segment travel times will also be developed. The proposed approach will be developed, used and tested to analyze and predict the travel time on several freeway corridors in Charlotte, North Carolina using vehicle probe data. The advantages and disadvantages of each model will also be identified and compared.</p>
<p><i>Describe Implementation of Research Outcomes (or why not implemented)</i></p> <p><i>Place Any Photos Here</i></p>	
<p><i>Impacts/Benefits of Implementation (actual, not anticipated)</i></p>	<p>Project has not begun yet, so no impacts have been realized.</p>
<p><i>Web Links</i></p> <ul style="list-style-type: none"> • <i>Reports</i> • <i>Project website</i> 	<p>https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2019-UTC-Project-Information-01-Fan.pdf</p>