



Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Deep-Learning Based Trajectory Forecast for Safety of Intersections with Multimodal Traffic
University	The University of Texas at Austin
Principal Investigator	Christian Claudel
PI Contact Information	(737) 484-2969 / christian.claudel@utexas.edu
Funding Sources and Amount Provided (by each agency or organization)	The University of North Carolina at Charlotte: \$59,999 The University of Texas at Austin: \$30,822
Total Project Cost	\$90,821
Agency ID or Contract Number	
Start and End Dates	10/01/2017 – 09/30/2019
Brief Description of Research Project	With the convergence of computation, communication, sensing, and visualization into ever smaller and cheaper devices, the United States is entering in a new era of more efficient, safer and more affordable transportation. The recent emergence of novel augmented reality technologies in particular offer a formidable opportunity to improve the safety of traffic for all road users. In this proposal, our objective is to investigate the potential of augmented reality, in conjunction with deep-learning based image processing, for traffic safety at intersections, considering all possible modes of transportation. A major problem of a safety system is to offer reliable, timely warnings, with a low false detection rate. This



Center for Advanced Multimodal Mobility Solutions and Education

	<p>somehow requires the prediction of the future trajectories of the users, which is the primary focus of this proposal. In this project, our goal is to investigate how deep learning can be used to detect motion cues, and estimate over a short time horizon the future path of road users (depending on their transportation modes) using real-time video data. Once estimated, these paths will be used as part of an augmented-reality based system, where information about potential conflicts is displayed in the field of view of all road users, through smart glasses.</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><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-2018-UTC-Project-Information-09-Claudel.pdf</p> <p>https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2018-UTC-Project-Report-09-Claudel-Final.pdf</p>