



UTC Project Information	
Project Title	A Virtual Reality Framework to Measure Psychological and Physiological Responses of the Self-Driving Car Passengers
University	Purdue University
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Funding Source(s) and Amounts Provided (by each agency or organization)	CCAT: \$78,738.79 Cost share partner: \$78,800 Singapore NTU
Total Project Cost	\$157,538.79
Agency ID/Contract #	69A3551747105
Start and End Dates	01/01/2019 – 12/31/2021
Brief Abstract of Research Project	The aim of this proposal is to develop a virtual reality framework and incorporate virtual reality technology to examine and understand the physiological and psychological responses of self-driving car passengers. After developing the virtual reality framework, volunteers will be asked to participate in studies examining their anxiety levels and other psychological and physiological responses. Participants will act as car passengers in a virtual self-driving car and be immersed in a virtual reality trip. Participants will be asked to wear a head-mounted display (HMD) and enjoy the trip in the self-driving car. During the experiment, the participants' anxiety will be captured by recording the electrodermal responses using galvanic skin response (GSR) sensors.
Most Relevant CCAT Research Thrusts	<input type="checkbox"/> Enabling Technology <input type="checkbox"/> Policy & Planning <input checked="" type="checkbox"/> Human Factors <input type="checkbox"/> Infrastructure Design & Management <input type="checkbox"/> Control & Operations <input type="checkbox"/> Modeling & Implementation
Describe Implementation of Research Outcomes (or why not implemented)	Study is in progress. No implementation yet.
Impacts/Benefits of Implementation (actual, not anticipated)	This study will benefit transportation agencies in their quest to establish frameworks and regulations for drivers' roles and vehicle behaviors, to reduce the anxiety of passengers in self-driving cars. Also, understanding of passenger anxiety can help determine ways to increase passenger comfort in their interactions with self-driving cars. The findings will help to expand knowledge on human-autonomous vehicle interaction (human factors) in VR, in preparation for the inevitable era of self-driving cars.
Web Links (Reports, website)	ccat.umtri.umich.edu