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| UTC Project Information | |
| Project Title | Modeling Driver Responses During Automated Vehicle Failures |
| University | Texas A&M and VTTI |
| Principal Investigator | Tony McDonald |
| PI Contact Information | mcdonald@tamu.edu ; 979-458-2339 |
| Funding Source(s) and Amounts Provided (by each agency or organization) | SAFE-D (Federal): \$168,980 Texas A&M Dept. of Industrial and Systems Engineering: \$104,935 Leeds Univeristy UK: \$65,000 Technische Universität Braunschweig: \$15,000 |
| Total Project Cost | \$353,915 |
| Agency ID or Contract Number | Grant No: 69A3551747115 Project: 03-036 |
| Start and End Dates | 01/01/2018-12/31/2020 |
| Brief Description of Research Project | In this project, we are developing a model of human behavior during automation failures that may be integrated into current and future design processes for automated vehicles. We will use this model to generate a set of design guidelines for future automated vehicle following technologies that will promote safety and reduce automated driving crashes. |
| Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here | <p>Through this project we will develop a model of driver behavior during automated vehicle failures, validate this model with three separate data sets, and conduct a driving simulator study. Through these activities we will contribute:</p> <ul style="list-style-type: none"> • A Matlab/Simulink package containing the software for our model, published jointly on the SAFE-D portal, VTTI website, and the Human Factors and Machine Learning Lab website • A technical report describing the project, published on the SAFE-D web portal • The simulator dataset, published on the SAFE-D portal • 4 peer reviewed publications describing our literature review findings, the initial model specification with naturalistic driving data, the findings from the simulator study, and the final model validation process respectively <p>We will also contribute the following educational materials:</p> <ul style="list-style-type: none"> • A course module for a course on Transportation Human Factors offered in the Department of Industrial and Systems Engineering at Texas A&M |

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| | <ul style="list-style-type: none"> • A series of guest lectures in a course on Advanced Vehicle Development and Testing in the Biomedical and mechanics department at Virginia Tech <p>Our final contribution will be in service of technology transfer and will consist of a series of design recommendations for automated vehicle following, published jointly on the SAFE-D portal, VTTI website, and the Human Factors and Machine Learning Lab website</p> |
| <p>Impacts/Benefits of Implementation (actual, not anticipated)</p> | <p>We anticipate that this work will influence automated vehicle following technology design and lead to improvements that enhance its interaction with human drivers.</p> |
| <p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website | |