UTC Project Information	
Project Title	Behavior-based Predictive Safety Analytics Phase II
University	Virginia Tech Transportation Institute
Principal Investigator	Andrew Miller
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Funding Source(s) and Amounts Provided (by each agency or organization)	Safe-D (Federal): $108,888 VTTI Match Source (Non-Federal): $42,000 TTI Match Source (Non-Federal): $16,694 SDSI Match Source (Non-Federal): $23,951
Total Project Cost	$191,534
Agency ID or Contract Number	Grant No: 69A3551747115 Project: 04-114
Start and End Dates	03-01-2019 through 08-31-2020
Brief Description of Research Project	This project addresses the emerging field of behavior-based predictive safety analytics, focusing on the prediction of road crash involvement based on individual driver behavior characteristics. This project seeks to analyze large scale continuous naturalistic data as well as event data, both public and proprietary, to study the role of different driving behaviors in the buildup of a safety critical event.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Deliverables • Draft Final Project Report (D) • Final Dataset and Metadata Uploaded to VTTI Dataverse (D) • Project Closure Report • Demonstration of Algorithms on Naturalistic Data Education and Workforce Development Plan • 2-week module on driver behavior analytics (VT, TAMU, SDSU) • Industry guest lecture for students (SDSU) • Involvement of at least two graduate students • Presentation at conferences or symposia • Student experience with collaboration between universities and industry Technology Transfer Plan • Algorithms for computation of behavioral safety indicators from continuous time-series data • Analysis results on behavior-risk relationships

	• Statistical models and machine learning techniques for predicting crash involvement and identifying unsafe drivers from individual characteristics and observable behavior • A real-time algorithm to determine crash risk Publication Targets • Journal Article with Industry - targeting Proceedings of the National Academies of Sciences • Journal Article - targeting Analytic Methods in Accident Research • Journal Article - targeting Transportation Research
Impacts/Benefits of Implementation (actual, not anticipated)	Anticipated Benefits of Implementation • Improvements in safety made towards recognition of safe and unsafe driving behaviors and conditions for occupational drivers or personal-use vehicle drivers • Dissemination of research and material to industry and academia • Incorporation of results into industry-ready products to improve on-the-road safety
Web Links • Reports • Project website	https://www.vtti.vt.edu/utc/safe-d/index.php/projects/behavior-based-predictive-safety-analytics-phase-ii/