

A Space-Based Solution to Improve Roadway Safety and Efficiency in Virginia:
Real-Time Winter Weather Data for Navigation
(Technical Report)

Discouraging Distracted Driving: The Power of Encouraging Change Online
(STS Research Paper)

An Undergraduate Thesis Portfolio
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by

Dorothea Starr LeBeau

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Preface

How can road and driver safety conditions within the United States be improved? Both technical and social aspects can contribute to the improvements in their own way.

How can real-time weather data collection be utilized in order to improve road safety? Slick roads due to precipitation can cause major accidents for drivers who use unreliable or inaccurate weather data, but by deploying a UVA-made satellite that collects roadway data and sends it back to users on a real-time basis the accident rates due to wet or icy roads could decrease considerably. Designed as a CubeSat, this satellite and its data streams have been fully planned by the UVA aerospace capstone group in partnership with MITRE, and will be constructed in a year following the graduation of the 2021 engineering class.

How do groups of people online attempt to discourage distracted driving? In the modern day, the quickest and easiest way to spread information and influence change is through the internet, but it is rare to categorize the people and methods used by them in their attempts to change dangerous behaviors such as distracted driving. In America, unorganized and organized groups of people attempt to discourage distracted driving through social media in different ways, including shaming, citing safety data, appeals to personal experience, and direct requests to the audience.

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