

Potential Reduction of Fatal Crashes in South Carolina due to Automated Vehicles Technology Transfer Activities

by

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TECHNOLOGY TRANSFER ACTIVITIES

1 Outputs

Outputs include publications, presentations, and posters.

1.1 Output #1

Nahofti, Jamal & Sarasua, Wayne & Michalaka, Dimitra & Stanley, Matthew & Zou, Fengjiao & Murray-Tuite, Pamela & Brown, Kweku. (2023). Potential Reduction of Fatal Crashes in South Carolina Due to Automated Vehicles. Presented at Transportation Research Board 102nd Annual meeting, January, 2023. Peer Reviewed Conference.

1.2 Output #2

Zou, Fengjiao & Sarasua, Wayne & Ogle, Jennifer & Stanley, Matthew & Brown, Kweku & Michalaka, Dimitra & Lloyd, Juliann & Murray-Tuite, Pamela & Davis, William & Wade, Logan. Site Characterization for Fatal Crashes in South Carolina. Presented at Transportation Research Board 101st Annual meeting (Paper #22-04907), January, 2022. Peer Reviewed Conference.

1.3 Output #3

Michalaka, Dimitra. (2023) Safety and Health Impacts of Mobility Alternatives. Presented to the Safety and Security Science Group, TU Delft, Delft, Netherlands, September, 2023. Colloquium Presentation.

1.4 Output #4

Michalaka, Dimitra & Nahofti, Jamal & Sarasua, Wayne & Brown, Kweku. (2024). Potential Fatal Crashes Reduction in South Carolina Due to Different Levels of Automated Driving. To be Presented at The International Conference on Transportation and Development (ICTD 2024), June, 2024. Abstract Reviewed Conference.

1.5 Output #5

Stanley, Matthew (2021) Chasing Target Zero: Contributing Factors of Fatal Crashes in South Carolina, MS Thesis, Clemson University.

1.6 Output #6

Sarasua, Wayne. (2023). Potential Reduction of Fatal Crashes in South Carolina Due to Automated Vehicles and Other Cool Topics. C2M2 Webinar, June, 2023.

1.7 Output #7

Nahofti, Jamal & Sarasua, Wayne & Michalaka, Dimitra & Stanley, Matthew & Zou, Fengjiao & Murray-Tuite, Pamela & Brown, Kweku. (2022). Potential Reduction of Fatal Crashes in South Carolina Due to Automated Vehicles. C2M2 Fall Conference, November, 2022.

1.8 Output #8

Zou, Fengjiao & Sarasua, Wayne & Ogle, Jennifer & Stanley, Matthew & Brown, Kweku & Michalaka, Dimitra & Lloyd, Juliann & Murray-Tuite, Pamela & Davis, William & Wade, Logan.

Site Characterization for Fatal Crashes in South Carolina. Poster present at the C2M2 Fall Conference, November 2021.

2 Outcomes

2.1 Outcome #1

The most significant outcome is the quantification of how fatal crashes can be reduced with a significant market penetration of autonomous vehicles. This is based on the contributing factors and site characterization of fatal crashes in South Carolina. The estimated reduction in fatal crashes ranged from 10% to 23% for level 1 to nearly 95% for level 5 AV. The underlying assumption in terms of AV level is that the entire population of vehicles fall within that AV category. The methodology used for this estimation is novel and innovative and will be beneficial to future researchers trying to determine the impacts of AVs to crashes.

2.2 Outcome #2

One of the outcomes of this project was a Creative Inquiry course that included more than a dozen students in the Spring of 2021 that focused on analyzing the contributing factors of fatal crashes in South Carolina. One student in the class used the results from this analysis as a basis for his MS Thesis (Matthew Stanley). Other students wrote a white paper on site characterization of fatal crashes in South Carolina. Other students worked on literature review papers.

3 Impacts

3.1 Impact #1

The methodology used for estimating the reduction of fatal crashes due to AVs is novel and innovative and will be beneficial to future researchers trying to determine the impacts of AVs to crashes.

3.2 Impact #2

The quantification of fatal crash reduction and lives saved because of AVs has obvious societal benefits. It is the hope of the researchers that the results of this research will influence attitudes and policies related to AV development.