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MATC Smart Barrier: Vehicle Autonomy and Lane-Keeping via Vehicle-to-Infrastructure Communication

Presentation Topic

Run-off-road (ROR) crashes have been linked to approximately half of the 35,000 traffic deaths in the U.S. and more than a million deaths worldwide each year. Connected and Autonomous Vehicles (CAVs) use different sensors, processors, and techniques to remain on the road and to avoid potential collisions, but many challenges remain with CAV navigation.

Dr. Stolle will discuss an alternative paradigm which uses vehicle-to-roadside infrastructure (V2I) communication to track vehicle position and provide critical guidance information to the vehicle. Critical road information including as number of lanes, curvature, grade, and heading angle can be combined with dynamic environmental data such as traffic congestion, weather conditions, road conditions and friction, and lane closure information for advanced vehicle response. This system has the potential to complement existing guidance systems and improve the reliability of CAV navigation by integrating the unique strengths of transportation contributors: academia, public agencies such as state DOTs, wireless communication companies, vehicle manufacturers, and Transportation-as-a-Service (TaaS). Dr. Stolle will discuss the fundamentals of vehicle dynamics, application to road mapping, error correction algorithms, and discuss future research and needs for this system to grow.

About the Speaker



Dr. Cody Stolle is a research assistant professor with the University of Nebraska-Lincoln's Nebraska Transportation Center, Midwest Roadside Safety Facility, where he has conducted vehicle dynamics, run-off-road (ROR) crashworthiness, and occupant injury prevention research for the past 16 years. His research has assisted many sectors of transportation research including law enforcement and crash documentation, crash analysis, roadside barrier design and in-service performance evaluation, and defensive security using transportation design. He holds one patent in sports safety and injury prevention.

Join us via livestream:

July 15, 2020

1:00 PM Central Time

Register in advance for this meeting:

<https://unl.zoom.us/meeting/register/tJEkcOurqDkrHtK4r-zft8EMGiOLnMfe8zg6>

After registering, you will receive a confirmation email containing information about joining the meeting.

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