SPTC WEBINAR SERIES

Safety Performance Assessment for Highly Automated Vehicles

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ABSTRACT

Earning public trust in highly automated vehicles, and greater understanding of how they operate, is paramount as automakers and their suppliers push to put cars and trucks on the road that can safely operate without a driver. While complex automated vehicle safety testing programs are being implemented across industry, they are generally proprietary, and their structure remains hidden from public view. To remedy this, Mcity developed the Mcity Safety Assessment Program, a two-part protocol for testing the behavior competence of automated vehicles before their widespread use on public roads. The first part of the assessment is a "Driver's License Test" that measures the basic behavioral competency of an automated vehicle through random scenario generation. The second part is a "Driving Intelligence Test" that challenges AI-based algorithms with a diverse set of scenarios representing those that most often result in crashes, injuries and fatalities. Mcity believes the Mcity Safety Assessment Program could serve as the blueprint for a publicly inspectable behavioral safety framework, helping industry bring automated vehicle technology to market in a manner that truly benefits society. In this talk, we will highlight Mcity 2.0, a facility funded by the National Science Foundation, that aims to build a digital infrastructure providing researchers remote access to the Mcity mixed reality testing environment for highly automated vehicles.

BIO

Dr. Henry Liu is the Director of Mcity and Bruce D. Greenshields Professor of Engineering at the University of Michigan, Ann Arbor. He also directs the Center for Connected and Automated Transportation, a USDOT funded regional university transportation center. Dr. Liu conducts interdisciplinary research at the interface of transportation engineering, automotive engineering, and artificial intelligence. He is recognized for his foundational work in cyber-physical transportation systems, particularly on the development of smart traffic signal systems with connected vehicles, and testing/evaluation of autonomous vehicles. He has published more than 130 refereed journal articles. His work on safety validation of autonomous vehicles has been published in Nature and featured as the cover story. Professor Liu and his work have been widely recognized in public media for promoting smart transportation innovations. He has appeared on a number of media outlets including Wall Street Journal, Forbes, Science Daily, Tech Xplore, CNBC, WXYZ, etc. Prof. Liu is the managing editor of Journal of Intelligent Transportation Systems and a board member for the ITS America.

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