Human Factors Research at the University of Florida Transportation Institute (UFTI) and Alignment with the U.S. DOT’s Transportation Priorities

Webinar

Wednesday, March 10, 2021
12:00 PM – 1:15 PM EST

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Agenda

University of Florida researchers will provide an overview of innovative projects at the Human Factors Research Group at the University of Florida Transportation Institute and how these relate to the U.S. DOT’s transportation priorities.

- **Introduction and Moderation**
  Alexander Bond, U.S. DOT

- **Smartphone Based Alerts to Reduce Speeding in School Zones and Near Bicyclists**
  Dr. Eakta Jain

- **Public Perception and Human Behaviors around Autonomous Shuttles**
  Dr. Pruthvi Manjunatha

  Dr. Nicholas Napoli

- **Designing Automated Driving Systems (ADS) for People with Cognitive Disabilities**
  Dr. Sanaz Motamedi

- **Tools to Support Adoption of Vehicle Automation**
  Dr. Justin Mason

- **Evaluating the Use of Adaptive Cruise Control by Younger and Older Drivers**
  Dr. Wayne C.W. Giang

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Detailed Agenda

• Introduction and Moderation
  Alexander Bond, Transportation Policy Analyst in the Office of the Secretary for Policy at U.S. DOT

• Smartphone Based Alerts to Reduce Speeding in School Zones and Near Bicyclists
  Dr. Eakta Jain, Department of Computer and Information Science and Engineering

  Dr. Jain will present a recently completed FDOT-funded study on smartphone based alerts to drivers to reduce speeding in school zones and near bicyclists. This study collected heterogenous data, including trajectory data and driver attention via eye tracking. Our results indicate that app based alerts can reduce the probability of high speeds in school zones and increase driver attention on bicyclists. Though these preliminary results are on a small sample of drivers, they highlight the impact this methodology can have on transportation safety.

• Public Perception and Human Behaviors around Autonomous Shuttles
  Dr. Pruthvi Manjunatha, Department of Civil and Coastal Engineering

  Dr. Manjunatha has previously studied drivers’ mental workload and situational awareness and their effect on driver behavior. His recent work has involved studies on adoption of autonomous shuttles. He is conducting studies to understand the public perception of autonomous shuttles and human behaviors around such shuttles.

• Applying Cognitive Impairment and Cognitive State Detection to Future Flight Deck Systems
  Dr. Nicholas Napoli, Electrical and Computer Engineering Department and Director of the Human Informatics and Predictive Performance Optimization (HIPPO) Lab

  Dr. Napoli will briefly discuss cognitive impairment and cognitive state detection research with regards to the aerospace domain. This research aims to design future flight deck systems to have the synergetic intelligence to monitor the human and provide decision support and mitigation that would ensure the intended system behavior and maintain safety within the flight.

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• Designing Automated Driving Systems (ADS) for People with Cognitive Disabilities
  Dr. Sanaz Motamedi, Department of Industrial & Systems Engineering

  Dr. Motamedi’s recent funded research is focused on people with cognitive disabilities using highly automated driving systems (ADS) which might provide a tremendous opportunity to prolong their mobility and independence. The goal of this project is to develop innovative ADS designs that operate at Levels 4 and 5 of automation for people with MCI and mild to moderate dementia.

• Tools to Support Adoption of Vehicle Automation
  Dr. Justin Mason, Department of Occupational Therapy in the College of Public Health and Health Professions

  Dr. Mason will discuss projects using the automated shuttle operating in downtown Gainesville and the UF Institute for Mobility, Activity, and Participation’s driving simulator. The focus of this presentation will be on resources and tools developed specifically for these projects such as a survey to assess users’ perceptions of automated vehicles, a simulated driving scenario and on-road route, and training modules to teach younger (18-25 years old) and older (65+) drivers how to safely use adaptive cruise control.

• Evaluating the Use of Adaptive Cruise Control by Younger and Older Drivers
  Dr. Wayne C.W. Giang, Department of Industrial and Systems Engineering

  Dr. Giang will discuss projects related to advanced driver assistance systems. One study focuses on evaluating workload, trust, and driving performance of younger and older drivers while using adaptive cruise control systems. I will touch on how training and mental models of the driving automation may differ between the two age groups.