



PacTrans Regional Transportation Seminar

Speaker: Sherif Ishak

Date: Wednesday, December 6, 2017

Time: 2:30 - 3:30pm, PST

Location: UW Seattle Campus

Husky Union Building (HUB) Rm 145



Webinar URL

<https://www.youtube.com/watch?v=pk0sc-ghnzM>

Organized by

The Pacific Northwest Transportation Consortium (PacTrans) Region 10 University Transportation Center

Seminar Title

Developing a Crash Risk Index and Detecting Driver's Engagement in Secondary Tasks from Driving Behavior Attributes and Socioeconomic Characteristics: A Naturalistic Driving Study

Abstract

Distracted driving has long been acknowledged as a leading cause of death or injury in roadway crashes. Previous research has focused mainly on the impact of different causes of distraction on driving behavior. Very few studies attempted to detect distracted driving from driving behavior attributes. This study takes advantage of the rich SHRP 2 Naturalistic Driving Study (NDS) database to develop a model for detecting the likelihood of a driver's involvement in secondary tasks from distinctive attributes of driving behavior. Five performance attributes, namely speed, longitudinal acceleration, lateral acceleration, yaw rate, and throttle position were used to describe the driving behavior. A model was developed for each of three selected secondary tasks: calling, texting, and passenger interaction. The models were developed using a supervised feed-forward Artificial Neural Network (ANN) architecture to account for the effect of inherent nonlinearity in the relationships between driving behavior and secondary tasks. The study also proposed a Crash Risk Index (CRI) to estimate the crash risk associated with the socioeconomic characteristics of drivers and their tendency to experience distracted driving.

Speaker



Dr. Ishak, PE, is a Professor and Department Chair of Civil Engineering. Prior to joining UAH, he was a Professor of Civil Engineering at Louisiana State University for 16 years. He has over 25 years of experience in the field of transportation engineering with emphasis on intelligent transportation systems, traffic operation and control, traffic flow modeling and simulation, traffic safety, human factors and driving behavior, artificial intelligence and advanced computing applications in transportation, and the new emerging area of connected and automated vehicles. He has served as PI or Co-PI on nearly 35 federal and state funded projects and supervised 30 MS and PhD students to completion. He is also the founder of the Intelligent Transportation Systems lab at Louisiana Transportation Research Center and the LSU driving simulator facility. Dr. Ishak chairs the Transportation Research Board Standing Committee on Artificial Intelligence and Advanced Computing Applications (ABJ70). He is also a member of the five-year National Cooperative Highway Research Program (NCHRP) panel for maintaining and executing a research agenda for the Connected and Automated Vehicles (CAV) roadmap, a board member of the Gulf Region Intelligent Transportation Society, and an associate editor for the Canadian Journal of Civil Engineering.

For questions, please contact Cole Kopca, Assistant Director for PacTrans, at pactrans@uw.edu | 206.685.6648 | www.pactrans.org
More Hall 112, Dept. of Civil & Environmental Engineering | University of Washington, Seattle, WA 98195-2700