



PACTRANS SEMINAR SERIES

Date: Wednesday, November 13th 2013
Time: Seminar: 2:30 P.M. – 3:30 P.M.
Reception: 3:30 P.M. – 4:30 P.M.
Location: UW Seattle Campus
Husky Union Building Room 334

Organized by

**The Pacific Northwest Transportation Consortium (PacTrans)
USDOT University Transportation Center for Federal Region 10**

Presentation Title:

What is the Level of Volatility in Instantaneous Driving Decisions?

Abstract

Instantaneous driving decisions are part of incessant human behavior during driving, strongly affecting safety outcomes, energy consumption and tailpipe emissions. To accommodate changes in surrounding environment, drivers make instantaneous decisions, such as maintaining speed, accelerating, braking, maintaining acceleration or deceleration, or increasing the rate of acceleration or deceleration (referred to as jerk, which is the decision to change the marginal rate of acceleration and deceleration). These instantaneous decisions and their combinations result in driving volatility. This paper develops a framework for understanding instantaneous decisions and explores volatility in such decisions with the aim of developing a fundamental understanding of instantaneous decisions. Empirical analysis is based on a large scale (big-data) travel behavior survey database, with 51,337 trips and their associated second-by-second (total 33 million seconds) Global Positioning System (GPS) data collected in 2011 in Atlanta, GA. Various measures are used to quantify volatility in instantaneous driving decisions and exploring correlates of volatility in the Atlanta metropolitan area. Statistical analysis revealed that volatility in instantaneous decisions varies significantly between groups of drivers based on gender, age, trips of varying lengths, and peak hours. The implications of the findings are discussed.



Speaker: Dr. Asad J. Khattak

Dr. Asad J. Khattak is Beaman Professor of Civil & Environmental Engineering and Director of Safety Programs-Center for Transportation Research at University of Tennessee, Knoxville, where he teaches and conducts research in transportation. Dr. Khattak's research focuses on various types of innovations related to 1) intelligent transportation systems, 2) transportation safety, and 3) sustainable transportation. During 2006-2013, he was Frank Batten endowed chair Professor of Civil Engineering at Old Dominion University where he developed and directed ODU's transportation research initiatives and educational programs. Dr. Khattak is: 1) Editor of Science Citation Indexed Journal of Intelligent Transportation Systems, 2) Associate Editor of SCI-indexed International Journal of Sustainable Transportation, and 3) Editorial Advisory Board Member of Transportation Research, Part C, and Analytic Methods in Accident Research.

For questions, please contact Ms. Meghan MacKrell, assistant director for PacTrans at

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