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THE CONCORDIA INSTITUTE FOR INFORMATION SYSTEMS ENGINEERING IS PLEASED TO PRESENT THE FOLLOWING GUEST LECTURE IN OUR CIISE DISTINGUISHED SEMINAR SERIES

Dr. Naveen Eluru

Department of Civil Engineering and Applied Mechanics
McGill University

ANALYZING COMMUTER TRAIN USER BEHAVIOR: A DECISION FRAMEWORK FOR ACCESS MODE AND STATION CHOICE

The purpose of the current research effort is to develop a framework for better understanding of commuter train users' mode and station choice behavior. Typically, mode and station choice for commuter train users is modeled as a hierarchical choice with mode being considered as the first choice in the sequence. The current study proposes a latent segmentation based approach to relax the hierarchy. In particular, this innovative approach simultaneously considers two segments of station and access mode choice behavior: Segment 1 - station first and mode second and Segment 2 - mode first and station second. The allocation to the two segments is achieved through a latent segmentation approach that determines the probability of assigning the individual to either of these segments as a function of socio-demographic variables, level of service (LOS) parameters, trip characteristics, land-use and built environment factors, and station characteristics. The proposed approach offers many advantages compared to the traditional alternatives. First, we gain a better understanding of the decision processes by examining who are the individuals who choose the station (or mode) first. Second, the approach proposed is free from simulation and easy to implement. Third, the results from our analysis will provide insights to transit agencies on how to improve transit service to reduce the automobile travel to commuter train stations. The proposed latent segment model is estimated using data from an on-board survey conducted by the Agence Métropolitaine de Transport (AMT) for commuter train users in Montreal region. The proposed model is employed to investigate the role of socio-demographic variables, LOS parameters, trip characteristics, land-use and built environment factors, and station characteristics on commuter train user behavior. The model results are employed for prediction of commuter train user behavior on a hold-out validation sample. Our data validation clearly illustrates the enhanced predictive power offered by the latent segmentation model.

Biography: **Naveen Eluru's** primary research areas of interest include transportation planning, socio-demographic and land-use modeling, sustainable urban design, integrated demand supply models, activity time-use analysis and transportation safety. Naveen is involved in the formulation of discrete choice models that allow us to better understand the behavioral underpinning of choice processes. He has worked extensively with discrete choice models accounting for self-selection, simultaneous equation modeling, generalized ordered logit models, stated preference studies, multiple discrete-continuous frameworks, and copula based models. Naveen is currently a member of Transportation Research Board (TRB) committee on Transportation Education and Training (ABG20) and Statistical Methodology Committee (ABJ80).

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