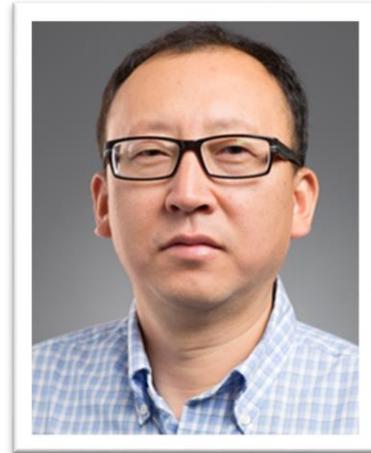


Macroscopic Dynamic Traffic Network Control with Drivers' Route Choice Behavior

ABSTRACT - We propose a modeling and solution framework for controlling traffic flow on a potentially large transportation network with the consideration of drivers' route choice behavior. We introduce such a macroscopic dynamic traffic network control problem and the associated challenges for formulation and solution. We show how the problem may be formulated as a Differential Complementarity System (DCS). We also discuss the solution method of the DCS formulation, which is illustrated using some numerical experiments.



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SPEAKER BIO – Dr. Xuegang (Jeff) Ban is a Professor with the Department of Civil and Environmental Engineering of the University of Washington. He received his B.S. and M.S. in Automotive Engineering from Tsinghua University, and his M.S. in Computer Sciences and Ph.D. in Civil Engineering (Transportation) from the University of Wisconsin at Madison. His research interests are in Transportation Network System Modeling/Simulation, Urban Traffic Modeling/Control, and Transportation Big Data Analytics, with focuses on emerging technologies/systems such as Connected/Automated Vehicles (CAVs), New Mobility Services, and Electric Vehicles/Buses. Dr. Ban is an Associate Editor of *Transportation Research Part C, IEEE Transactions on Intelligent Transportation Systems*, and *Journal of Intelligent Transportation Systems*, and serves on the editorial board of *Transportation Research Part B, Networks and Spatial Economics*, and *Transportmetrica B*. He is a member of the Network Modeling Standing Committee (AEP40) and the Vehicle-Highway Automation Standing Committee (ACP30) of the Transportation Research Board (TRB).