



# Transportation Research Center *for Livable Communities*

## ***TRCLC Guest Speaker Seminar***

*2:00 pm, October 16<sup>th</sup>, Friday, 2015  
Parkview Room (D-132)  
College of Engineering and Applied Sciences, WMU*

### **Peer-to-Peer Sharing of Supply in Transportation: Possibilities and Algorithms**

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Newer technologies and high market penetration of personal communication systems bring up many new possibilities for different paradigms of operation in transportation systems. The users can consume transportation supply with more complete information and significantly more peer-to-peer (P2P) communication. Several possibilities exist in such a world of shared economy, with regard to using road and vehicle space in temporally efficient manner. Car-sharing and ride-sharing are two of the more well-known systems in this regard. Autonomous vehicles bring up another dimension in terms of shared ownership as well. There are also possibilities in using P2P communication for collaborative, competitive or negotiated consumption of other elements of transportation supply such as signal timings, and lane space availability. This presentation focuses on the possibilities, and discusses recent research into shared-ride systems for passenger transport and auction-based mechanisms for signal and lane usage. The presentation also lays out newer frameworks for supply, demand, and performance of transportation systems under these new paradigms and discusses algorithmic and mechanism-based details in solving real-world problems in ride-sharing and signal systems.

BIO

Prof. R. Jayakrishnan has been in the faculty of Civil and Environmental Engineering at the University of California at Irvine since 1991, after receiving his doctorate from the University of Texas at Austin. His research interests are in a variety of topics such as Traffic Flow Theory and Simulation, Transportation Systems Analysis, Network Modelling, Decision Theory, Intelligent Transportation Systems and Public Transit Design. Prof. Jayakrishnan has been a member of several professional committees, has served in the editorial committees of journals such as the ASCE Journal of Transportation Engineering and Transportation Research Part-C, and has served in several committees of the Transportation Research Board. He was a chair of the TRB subcommittee on Route Choice and Spatio-Temporal Processes. A paper co-authored by him received the Pyke Johnson Award for the best paper in planning submitted to U.S. Transportation Research Board in 2009. Eighteen doctoral students have graduated under his advice and he has about 100 refereed publications to his credit.