

## USER EXCHANGES OF TRANSPORTATION SUPPLY AND NEW OPERATIONAL PARADIGMS IN A SHARED-CONNECTED-AUTONOMOUS FUTURE

Thursday, March 21  
12:00 - 1:15 PM (US Arizona)

College Avenue Commons (CAVC)  
Room 559 (Parking)



**R. Jayakrishnan**

*Professor*

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### About the Talk

Newer technologies and high market penetration of personal communication systems along with the advent of autonomous and connected vehicle systems bring up many new possibilities for different paradigms of operation in transportation systems. Facilitated by significantly more peer-to-peer (P2P) communication, users in the future can consume transportation supply with more complete information on individual heterogeneity in utility satisfaction. Several possibilities exist in such a world of shared economy, with regard to using road and vehicle space in a temporally efficient manner. Breaking the traditional First-Come-First-Served paradigms with P2P monetary exchanges to compensate for utility disparities can improve system and user level efficiency. Car-sharing and ride-sharing are two of the more well-known systems of relevance. Autonomous vehicles bring up another dimension in terms of shared ownership as well. There is also recent research in collaborative 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 such mechanisms for signal and lane usage, and ride-matching in shared-ride systems. It also describes the associated pricing and behavioral issues where economic concepts such as envy-freeness are introduced as a basis for such schemes to be user-driven and equitable, without system level mandates.

### About the Speaker

Professor 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. He 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 professional committees and academic panels of the Federal Highway Administration, National Science Foundation, and the Transportation Research Board. A paper co-authored by him received the prestigious Pyke Johnson Award for the best paper in planning at the 2009 TRB meeting. 22 PhD students have graduated under his advice, with half of them in faculty positions around the world. He has over 125 refereed publications to his credit. He has been a visiting professor at institutions such as the Ajou University in South Korea and the Amrita University in India.

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ASU Engineering – Global Outreach and Extended Education (GOEE).

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Light refreshments will be served. Event is open to the public.



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