

# S. Travis Waller

UNIVERSITY OF  
NEW SOUTH WALES,  
AUSTRALIA

Advisian Professor of Transport Innovation

Director of the Research Centre for Integrated Transport Innovation (rCITI)  
in the School of Civil and Environmental Engineering

# REPRESENTING INFORMATION AND ADAPTIVITY IN TRANSPORTATION NETWORK PLANNING

## ABSTRACT

**T**ransportation systems can be characterized as complex networks with thousands of decision-makers interacting in real-time. Historically, basic network equilibrium approaches were employed by cities and regions worldwide as a means of quantifying transportation system behavior to support long-term planning. With advances in information and communication technologies, many traditional modeling assumptions grow increasingly problematic. However, there remains key gaps in terms of advanced methods that are deployable at large-scale for societal planning. We have developed a range of network-based approaches that incorporate key aspects of adaptive behavior as well as improved representation of volatility. Such models require a synthesis of domains ranging from new graph theoretical insights to behavioral validity via experimental economics and simulation.

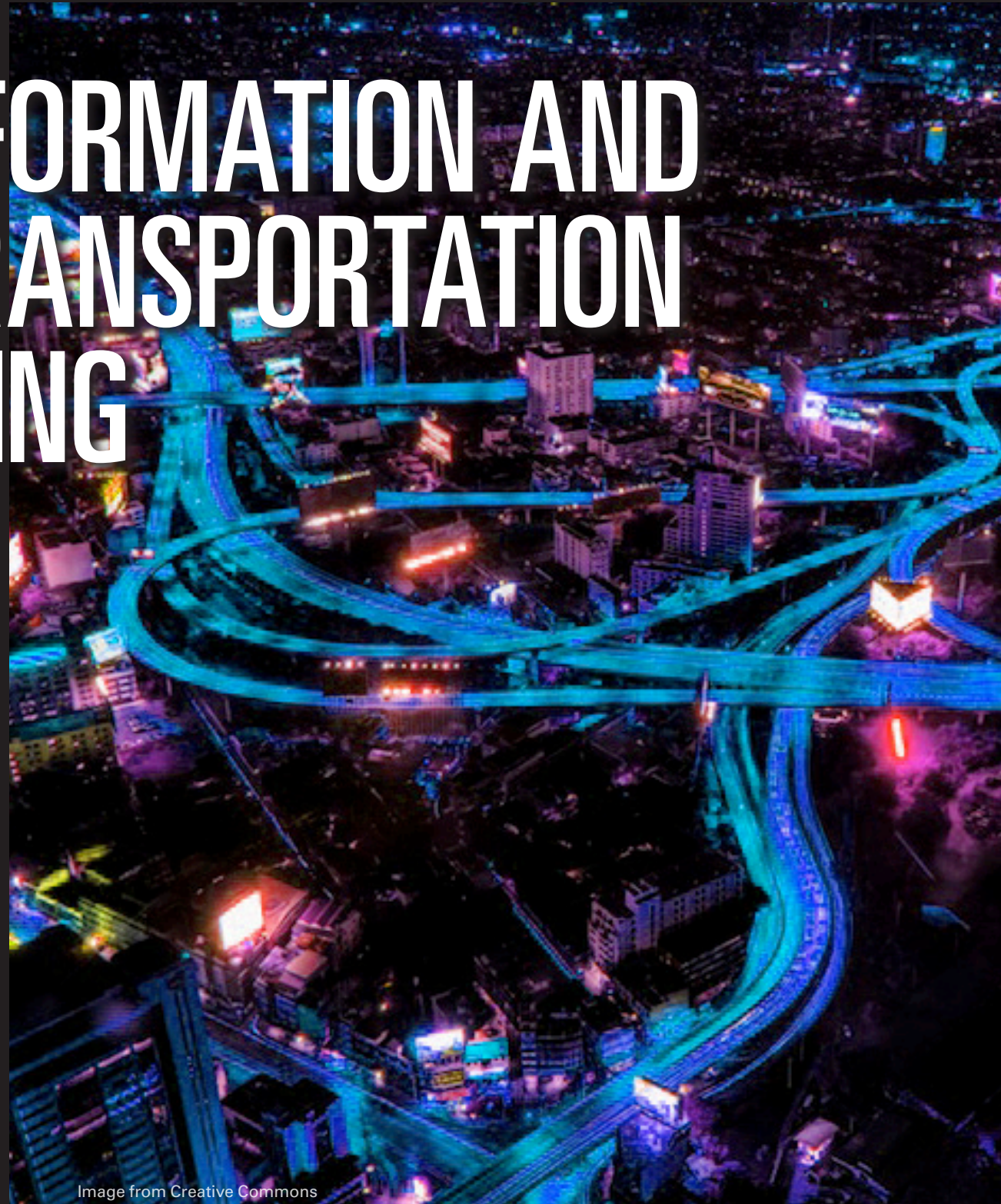


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# OCTOBER 31, 2016

**Pre-lecture Reception: 4:30pm**

**Lecture: 5-6pm**

**Building 1-190**

**Faculty Hosts:**

**Lydia Bourouiba**

**and Carolina Osorio**

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

## BIOGRAPHY

Dr. Waller is the Advisian Professor of Transport Innovation and Director of the Research Centre for Integrated Transport Innovation (rCITI) in the School of Civil and Environmental Engineering at UNSW – Australia. He obtained his B.S. in Electrical Engineering from The Ohio State University followed by a M.S. and Ph.D. in Industrial Engineering & Management Sciences from Northwestern University.

He was named one of the top 100 innovators in science and engineering in the world under 35 years of age by MIT's Technology Review magazine for his work on dynamic traffic analysis in 2003. In 2004, he received the U.S. National Science Foundation CAREER award for his proposed research and teaching plan on stochastic network equilibrium. In addition, he received the U.S. Transportation Research Board's Fred Burggraf Award in 2009, for a paper on new network design models that incorporate environmental justice, and the Hojjat Adeli Award for Innovations in Computing in 2012.