

IVT - Seminar

“Parking Space Management via Dynamic Performance-Based Pricing”

by Prof. Yanfeng Ouyang

Wednesday, June 24th, 2015, 15:00-15:45hr
HIL F36.1; ETH Hönggerberg, Zürich

Abstract:

In congested urban areas, it remains a pressing challenge to reduce unnecessary vehicle circling for parking while at the same time maximize parking space utilization. In observance of new information technologies that have become readily accessible to drivers and parking agencies, we develop a dynamic non-cooperative bi-level model (i.e. Stackelberg leader-follower game) to set parking prices in real-time for effective parking access and space utilization. The model is expected to fit into an integrated parking pricing and management system, where parking reservations and transactions are facilitated by sensing and informatics infrastructures, that ensures the availability of convenient spaces at equilibrium market prices. It is shown with numerical examples that the proposed dynamic parking pricing model has the potential to virtually eliminate vehicle circling for parking, which results in significant reduction in adverse socioeconomic externalities such as traffic congestion and emissions. (Joint work with Daniel Mackowski and Yun Bai)

Presenter's bio:

Yanfeng Ouyang is Associate Professor, P.F. Kent Endowed Faculty Scholar of Civil and Environmental Engineering, and D.B. Willett Faculty Scholar at the University of Illinois at Urbana-Champaign (UIUC). He received his Ph.D. in civil engineering from the University of California at Berkeley in 2005. His research mainly focuses on transportation and logistics systems, urban infrastructure systems, traffic flow theory, and applications to energy, sensor, and agricultural systems. He currently serves as a Department Editor of IIE Transactions, an Area Editor of Networks and Spatial Economics, an Associate Editor of Transportation Science, an Associate Editor of Transportmetrica B, and a Guest (Co-)Editor of Transportation Research Part B, Journal of Intelligent Transportation Systems, and the International Journal of Rail Transportation. He is on the editorial advisory board of Transportation Research Part B and the Journal of Infrastructure Systems. He is an active member and officer of several professional societies such as the Transportation Research Board, the Institute for Operations Research and the Management Science, and the American Society of Civil Engineers. He received a Faculty Early Career Development (CAREER) Award from the U.S. National Science Foundation in 2008, a Walter L. Huber Research Prize from the American Society of Civil Engineers in 2015, a High Impact Project Award from the Illinois Department of Transportation in 2014, an Engineering Council Outstanding Advisor Award from UIUC in 2014, a Xerox Award for Faculty Research from UIUC in 2010, a Gordon F. Newell Award from Berkeley in 2005, among others.

Organizer: Dr. Monica Menendez (monica.menendez@ivt.baug.ethz.ch)

No reservation is required.


Institut für Verkehrsplanung und Transportsysteme
Institute for Transport Planning and Systems

NSL Netzwerk Stadt und Landschaft
Network City and Landscape

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich