The *School of Computer and Information Technology* of the **Beijing Jiaotong University** (BJTU) in collaboration with the:

- The *Intelligent Transportation Systems Lab* of the **Massachusetts Institute of Technology** (MIT/ITS Lab), and
- The *Dynamic Systems & Simulation Laboratory* of the **Technical University of Crete** (DSSL/TUC)

Organize a six hour,

Webinar

on

"INTELLIGENT TRANSPORTATION SYSTEMS FOR SUSTAINABLE MOBILITY:
Advanced topics from the US and European experience"

Monday December 6th and Tuesday December 7th, 2021

6:45pm - 10:00pm Beijing time

Speakers:

- Professor **Yidong Li**, Vice Dean, School of Computer and Information Technology BJTU (Webinar Chair)
- Professor **Moshe Ben-Akiva**, Director, MIT/ITS Lab
- Professor **Markos Papageorgiou**, Dynamic Systems & Simulation Lab, TUC
- Professor **George Giannopoulos**, Advisory Professor BJTU

Webinar language: English

(Free Participation after registration in: https://www.wjx.top/vj/wF5swMJ.aspx)

Webinar Aim and Overview

The aim of the *Intelligent Transportation Systems (ITS) and Sustainable Mobility Webinar* is to acquaint the audience with a number of advanced topics and concepts of ITS for smart mobility and transportation system management, with a focus on the US and Europe. The lectures will address the following topics:

- Analytics of smart vehicular traffic control in the era of Connected and Automated Vehicles (CAVs), including the framework and methodologies developed by the MIT ITS Lab as well as applications in managed lanes,
- Mainstream traffic flow control methods and applications enabled by use of Variable Speed Limits (VSL) as a novel and promising freeway traffic management tool.
- Methodologies and analytics of freeway traffic control in the era of Connected and Automated Vehicles (CAVs) with introduction of the two new concepts: *lane-free* traffic conditions that avoid risky lane-changing maneuvers and increase the capacity of the roadway, and *vehicle nudging*, whereby CAVs – by "pushing" other vehicles in front of them – allow for smoother traffic flow freed from the anisotropy restriction (which stems from the fact that human driving is influenced only by downstream vehicles).
- Advanced ITS and C-ITS concepts and applications in Europe with focus on Public Transport operations.

Lectures schedule and program

Day 1: Monday December 6th, 2021

18:45 – 18:55:
Introduction to the Webinar and its objectives (Professor Yidong Li, SCIT/BJTU)
18:55 – 19:35:
Advanced ITS Concepts and Practices for Sustainable Mobility in Europe and the US
(Professor George Giannopoulos, BJTU)
19:35 – 19:50: Q & A

19:50 – 20:00 BREAK

20:00 – 20:40: ***Freeway Traffic Control via Variable Speed Limits***
(Professor Markos Papageorgiou, DSSL/TUC)
20:40 – 20:55: Q & A

20:55 – 21:00 BREAK

21:00 – 21:45: ***Online Analytics for Smart Mobility and Transportation System Management – Part I: General Framework and Methods***
(Professor Moshe Ben-Akiva, MIT/ITS Lab)
21:45 – 22:00: Q & A

Day 2: Tuesday December 7th, 2021

18:45 – 18:55:
Introduction to the day's webinar (Professor Yidong Li, SCIT/BJTU)

19:00 – 19:40:
Advanced ITS for Public Transport operation
(Professor George Giannopoulos, BJTU)
19:40 – 19:55: Q & A

19:55 – 20:00: BREAK

20:00 – 20:40: ***A New Traffic Paradigm and Related Opportunities in the Connected and Automated Vehicles Era***
(Professor Markos Papageorgiou, DSSL/TUC)
20:40 – 20:55: Q & A

20:55 – 21:00: BREAK

21:00 – 21:45: ***Online Analytics for Smart Mobility and Transportation System Management – Part II: Application to Managed Lanes***
(Professor Moshe Ben-Akiva, MIT/ITS Lab)
21:45 – 22:00: Q & A

Participant Takeaways

- Introduction to current thinking in ITS systems and models in Europe and the US.
- Alternative approaches to dynamic traffic management and traffic simulation.
- New concepts in connected and automated vehicles introduction into freeway traffic flows
- Analytics for the prediction, optimization and personalization of smart mobility services and transportation system management
- Novel ways of managing Public Transport systems and operations by use of ITS.

Who Should Attend

This program is intended for individuals interested in theory, research, and practice of ITS in the smart mobility landscape of the future, in particular:

1. Academics in Universities and Research Centers involved in traffic management and control, connected and automated vehicles traffic and transportation, public transport operations, and similar fields.
2. Professionals in the mobility industry including car companies, mobility businesses in the private sector, manufacturers, infrastructure, and Transportation Network Companies.
3. Individuals working in transportation consulting, planning, and related government agencies.
4. PhD students in transportation systems, planning and/or urban mobility.

Brief CVs of the speakers

Professor Moshe Ben-Akiva:

Moshe Ben-Akiva is the Edmund K. Turner Professor of Civil and Environmental Engineering at the Massachusetts Institute of Technology (MIT) and Director of the MIT Intelligent Transportation Systems Lab. He holds a PhD degree in Transportation Systems from MIT and honorary degrees from the University of the Aegean, Université Lumiére Lyon, KTH Royal Institute of Technology, and University of Antwerp. His awards include the Robert Herman Lifetime Achievement Award in Transportation Science from the Institute for Operations Research and the Management Sciences, the Lifetime Achievement Award of the International Association for Travel Behavior Research, the Jules Dupuit Prize from the World Conference on Transport Research Society, and the Institute of Electrical and Electronics Engineers ITS Society Outstanding Application Award for DynaMIT, a system for dynamic network management. Prof. Ben-Akiva has co-authored five books, including the pioneering textbook Discrete Choice Analysis published by MIT Press, and over 400 papers in refereed journals and conferences. He is a global leader in advancing transportation demand modelling and systems analysis research and practice and is renowned for his multidisciplinary approach to developing technologies and methods across a variety of disciplines – including mathematics, behavioral sciences, engineering, and technology – that enable researchers and practitioners to address sustainable mobility challenges.

Professor Markos Papageorgiou:

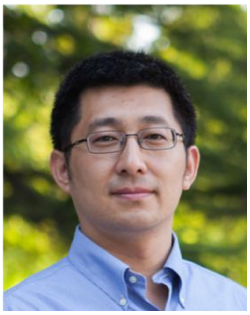
Markos Papageorgiou received the Diplom-Ingenieur and Doktor-Ingenieur degrees in Electrical Engineering from the Technical University of Munich, Germany, in 1976 and 1981, respectively. He was a Free Associate with Dorsch Consult, Munich (1982-1988), and with Institute National de Recherche sur les Transports et leur Sécurité (INRETS), Paris, France (1986-1997). From 1988 to 1994 he was a (tenured) Professor of Automation at the Technical University of Munich. Since 1994 he has been a Professor at the Technical University of Crete, Greece. He was a Visiting Professor at Politecnico di Milano, Ecole Nationale des Ponts et Chaussées, MIT, University of Rome La Sapienza and Tsinghua University; Honorary Visiting Professor at University of Belgrade; and a Visiting Scholar at the

University of California at Berkeley. His research interests include automatic control and optimisation theory and applications to traffic and transportation systems, water systems and further areas. He served as Editor-in-Chief of Transportation Research – Part C (2005-2012). He is a Life Fellow of IEEE and a Fellow of IFAC. He received several distinctions and awards, including the 2020 IEEE Transportation Technologies Award, and two ERC Advanced Investigator Grants.

Professor George Giannopoulos:

Prof. George A. Giannopoulos is a transportation planner, professor emeritus of the Aristotle University of Thessaloniki, Greece, and corresponding member of the Academy of Athens. He is the founder and past director of the Hellenic Institute of Transport - the National Transport research Organisation of Greece. He is also, Advisory Professor at the Beijing Jiaotong University (BJTU), member of the Energy Steering panel of the European Academies Science Advisory Council (EASAC) and member of the US/TRB Research Innovation Implementation Committee. Prof. Giannopoulos worked extensively with the EU, chairing or participating in working groups or Committees in several DGs (primarily DG MOVE and DG RTD). He has been associated for 12 years - 7 of which as its chair - with the Transport Advisory Group, the high level advisory body of the Transport Research Program of the EU. He is the author of 16 books, 4 of which in English, and of more than 250 papers. His two most recent books are: "Publicly funded Transport research in the P.R. China, Japan and Korea", published by Springer (2018), and "The accelerating Transport Innovation revolution: A global case study based analysis of current trends and experience", published by Elsevier (2019). He has received several distinctions and awards.

Professor Yidong Li:



Yidong Li is the Vice-Dean and a professor in the School of Computer and Information Technology at Beijing Jiaotong University. Dr. Li received his B.Eng. degree in electrical and electronic engineering from Beijing Jiaotong University in 2003, and M.Sci. and Ph.D. degrees in computer science from the University of Adelaide, in 2006 and 2010, respectively. Dr. Li's research interests include big data analysis, data privacy and security, advanced computing and intelligent transportation. Dr. Li has published more than 150 research papers in various journals (such as IEEE Trans. on Information Forensics & Security, IEEE Trans. on Intelligent Transportation Systems, IEEE Trans. on Knowledge & Data Engineering, IEEE Trans. on Cybernetics), and refereed conferences (such as SIGKDD, CVPR, AAAI). He has also co-authored/co-edited 5 books (including proceedings) and contributed several book chapters. He has organized several international conferences and workshops and has also served as a program committee member

for several major international conferences such as AAAI, ICML/PKDD, PAKDD, NFOSCALE, WAC, SAC, PDCAT, DANTH, and PAAP.