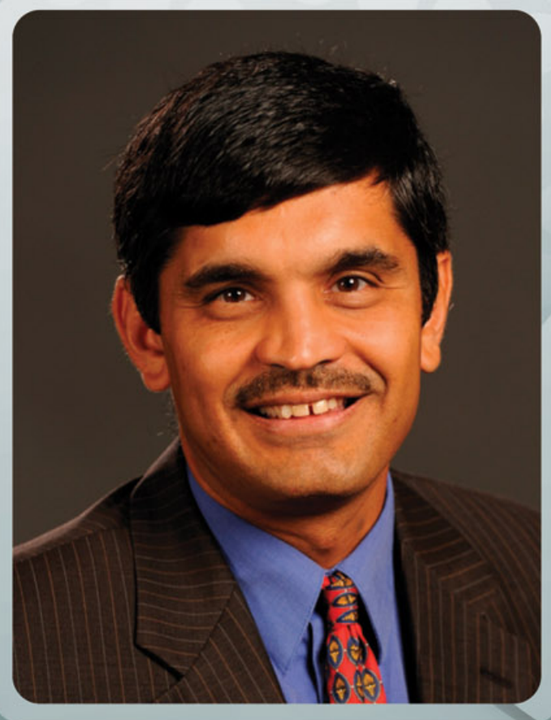
THE UNIVERSITY OF HONG KONG

Distinguished

TRANSPORT LECTURE Series 2017

On Harnessing the New Data Landscape for Transportation-Related Behavioral Analysis



Professor Chandra Bhat

Director of Center for Transportation Research, University Distinguished Teaching Professor and Adnan Abou-Ayyash Centennial Professor in Transportation Engineering, Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin

Lecture Abstract

This presentation will focus on a new data landscape in which a whole host of equipment can act as sensors — legacy roadway systems, smart phones and GPS systems, and smart cars themselves. The key issue is how to deal with such voluminous and diverse amounts of incoming data per unit of time, and translate them into usable information for near-real time operations purposes or for longer-term planning purposes. This is a challenge, given the low latency and data reliability required to translate data into actionable intelligence, especially for such safety applications as collision avoidance. In addition, predictive analytics to translate data into information requires the ability to deal with data that may be from multiple sources, highly noisy, heterogeneous, and high-dimensional with complex interdependencies. On the last of these, the joint modeling of data with mixed types of dependent variables (including ordered-response or ordinal variables, unordered-response or nominal variables, count variables, and continuous variables) is a tricky problem. The presentation will discuss the exciting possibilities, some enquiry and predictive analytics pathways forward in terms of methods, and the research challenges in the emerging landscape of data science applications for the transportation field. This will include a discussion of the activities being undertaken as part of the U.S.DOT-funded Tier 1 Center at UT-Austin on "Data-Supported Transportation Planning and Operations" (D-STOP).

About the Speaker

Dr. Chandra R. Bhat is the Director of the Center for Transportation Research (CTR) and the Adnan Abou-Ayyash Centennial Professor in Transportation Engineering at The University of Texas at Austin, where he has a joint appointment between the Department of Civil, Architectural and Environmental Engineering (CAEE) and the Department of Economics. Bhat is a world-renowned expert in the area of transportation and urban policy design, with far reaching implications for public health, energy dependence, greenhouse gas emissions, and societal quality of life. Methodologically, he has been a pioneer in the formulation and use of statistical and econometric methods to analyze human choice behavior. His current research includes the social and environmental aspects of transportation, planning implications of connected and automated smart transportation systems (CASTS), and data science and predictive analytics. He is a recipient of many awards, including the 2017 Lifetime Achievement in Transportation Research and Education Award (Academic) from the Council of University Transportation Centers (CUTC). This award is to "identify individuals who have had a long history of significant and outstanding contribution to university transportation education and research resulting in a lasting contribution to transportation." He also received the 2015 ASCE Frank Masters Award and the 2013 German Humboldt Award. In 2016, he was listed as the top ten transportation thought leaders in academia by CUTC and The Eno Foundation. He is a top-cited transportation engineering researcher.

Date: **17 February 2017 (Friday)**
Time: **7:00 - 8:00 p.m.**
Venue: **Wang Gungwu Theatre, Graduate House, The University of Hong Kong**

FREE Admission

Organized by : **Institute of Transport Studies, The University of Hong Kong**

Financial Sponsors :

Airport Authority Hong Kong
AMS Public Transport Holdings Limited
Autotoll Limited
CITIC Pacific Limited
CKM Asia Limited
Hong Kong Tramways, Limited
Hongkong International Terminals Limited
MTR Corporation Limited
Pacific Air Limited
SIMX Global Limited
The Kowloon Motor Bus Company (1933) Limited
The "Star" Ferry Company, Limited
Worldwide Flight Services

Non-Financial Sponsors :

Hong Kong Society for Transportation Studies
The Chartered Institute of Logistics and Transport in Hong Kong
The Chartered Institution of Highways and Transportation (Hong Kong Branch)
The Hong Kong Institution of Engineers – Civil Division
Hong Kong Institution of Highways and Transportation

Details of the Lecture can be found at http://www.hkuits.hku.hk/DTLS2017.htm