**TRB Workshop 109**  
**Big Data Analytics and Applications: Role of Artificial Intelligence and Machine Learning**

Sunday 9:00 AM- 12:00 PM   
Convention Center, 152B

Mecit Cetin, Old Dominion University, presiding

**Sponsored by:**

Standing Committee on Artificial Intelligence and Advanced Computing Applications (ABJ70)  
Standing Committee on Travel Survey Methods (ABJ40)  
Standing Committee on Information Systems and Technology (ABJ50)  
Standing Committee on Geographic Information Science and Applications (ABJ60)  
Standing Committee on Statistical Methods (ABJ80)  
Standing Committee on Transportation Demand Forecasting (ADB40)

This workshop focuses on artificial intelligence and machine learning techniques for turning high volumes of fast-moving and diverse transportation data into useful information. Advanced data survey and analytics techniques and their applications to emerging big data sets (e.g., trajectory, social media, mobile sensing, and connected and automated vehicles) and the potential of big data in supporting needs such as performance measurement, forecasting, and real-time control are explored.

**Program:**

9:00 – 10:00 Introduction and Big Data Methods

10:00 – 10:30 Government Perspectives and Available Data

10:30 – 10:40 Break

10:40 – 11:30 Industry and Applications

11:30 – 12:00 Discussion, Research Needs and Directions (all speakers)

**Big Data Methods**

*Semantics and the City* (9:05 – 9:24)

**Dr. Francisco Camara Pereira,** ITSLab, Technical University of Denmark (DTU), ITSLab, Massachusetts Institute of Technology (MIT)

*Data Science Ontology in the Era of Deep Learning* (9:24 – 9:42)

**Dr. Nii O. Attoh-Okine,** Professor, Department of Civil and Environmental Engineering, University of Delaware

*Social Media and Its Relationship to Transit, Traffic and Accidents* (9:42 – 10:00)

**Dr. Qing He,** Stephen Still Assistant Professor in Transportation Engineering and Logistics, Department of Civil, Structural and Environmental Engineering, University at Buffalo, The State University of New York

**Government Perspectives and Available Data**

*Safety Data Analysis and Exploring Big Data for Safety* (10:00 – 10:15)

**James Pol,** PE, PMP, Technical Director, FHWA Office of Safety Research & Development | U.S. Department of Transportation

*ITS and Connected Vehicle Research Data Available on the Research Data Exchange* (10:15 – 10:30)

**Dale Thompson,** Senior Research Engineer, Enabling Technologies Team Leader, FHWA Office of Operations R&D, USDOT

**Industry and Applications**

*Next-Generation Location Services* (10:40 – 10:57)

**Dr. Jane Macfarlane,** Chief Scientist and Head of Research, HERE

*Use of Big Data for Transportation Systems Analysis – Southern California Experience with RIITS Data* (10:57 – 11:13)

**Dr. Xudong Jia**, Professor and Chair, Department of Civil Engineering, California Polytechnic University, Pomona.

*Advanced Modeling techniques to evaluate benefits of Connected Vehicle Technology* (11:13 – 11:30)

**Balaji Yelchuru**, Senior Associate at Booz Allen Hamilton

**Discussion, Research Needs and Directions (11:30 – 12:00)**