

TRANSPORTATION RESEARCH BOARD (TRB) ANNUAL MEETING

JANUARY 13 - 17, 2019 / WASHINGTON, DC

NORTHWESTERN PARTICIPATION & PRESENTATION GUIDE

SUNDAY, JANUARY 13, 2019

Sunday 09:00 AM - 12:00 PM

Convention Center, Ballroom C

Workshop 1001

From Transport Research to Innovation: Case Study-Based Presentation of U.S. and International Experiences

International Activities, Research (about research)

Presenter: **Bretton Johnson**, Director, Center for the Commercialization of Innovative Transportation Technology, Northwestern University, "Commercialization of research results at Northwestern University"

Sunday 09:00 AM - 12:00 PM

Convention Center, 140B

Workshop 1014

Network Modeling in the Era of Automation Technologies, Big Data Analytics, and Advanced Computing: Identifying Challenges and Pathways to Future Breakthroughs

Data and Information Technology, Operations and Traffic Management, Planning and Forecasting, Hot Topic: Transformational Technologies

P19-20529 - **Integrating Autonomous Vehicle Fleet Services in Dynamic Multimodal Network Models**

Hani Mahmassani, Northwestern University

Sunday 01:30 PM - 05:30 PM

Convention Center, 146B

Workshop 1094

Doctoral Research in Transport Modeling

Planning and Forecasting, Hot Topic: Transformational Technologies

P19-21384 - **Active Travel Market Segmentation Strategies using a Thresholds-of-Adoption Framework for Individuals and Communities**

Alec Biehl, Northwestern University

MONDAY, JANUARY 14, 2019

Monday 07:00 AM - 08:00 AM

Marriott Marquis, Capitol Hill (M3)

Policy and Organization Group Executive Board

Joseph Schofer, Northwestern University, presiding

Data and Information Technology, Policy

Monday 08:00 AM - 09:45 AM

Convention Center, 146B

Event 1104

The Role of Information Communication and Technology in Changing Travel Behaviors

Planning and Forecasting

19-05883 - **Virtual Leisure Activity Engagement: The Role of Childhood Technology Experience**

Lama BouMjahed, Mobility Lab

Hani Mahmassani, Northwestern University

Monday 08:00 AM - 09:45 AM

Convention Center, 147A

Event 1135

Automation, Crowdsourcing, and Home Deliveries

Freight Transportation, Planning and Forecasting, Terminals and Facilities, Hot Topic: Transformational Technologies

19-04917 - **Push and Pull Factors in Adopting a Crowdsourced Delivery System**

Aymeric Punel, Northwestern University

Alireza Ermagun, Northwestern University

Amanda Stathopoulos, Northwestern University

Monday 10:15 AM - 12:00 PM

Convention Center, 146B

Event 1174

Automated Transportation and Shared Mobility

Planning and Forecasting, Hot Topic: Transformational Technologies

19-00564 - **Paired-line hybrid transit system in a monocentric city with exponential demand pattern**

Sida Luo, Northwestern University

Yu Nie, Northwestern University

19-05653 - **Impact of Autonomous Vehicles on Household Activity and Travel Scheduling: An Integrated Dynamic Network Modeling Approach**

Xiang Xu, Northwestern University

Hani Mahmassani, Northwestern University

Ying Chen, Northwestern University

19-02789 - **Joint Design of Multimodal Transit Networks and Shared Autonomous Mobility Fleets**

Helen Pinto, Northwestern University

Michael Hyland, Northwestern University

Hani Mahmassani, Northwestern University

Omer Verbas, Argonne National Laboratory

Monday 01:30 PM - 05:30 PM

Marriott Marquis, Liberty J (M4)

Data for Decisions and Performance Measures Task Force

Joseph Schofer, Northwestern University, presiding

Data and Information Technology, Operations and Traffic Management, Policy

Monday 03:45 PM - 05:30 PM

Marriott Marquis, Independence H (M4)

Emerging Methods in Demand Forecasting Subcommittee, ADB40(1)

Amanda Stathopoulos, Northwestern University, presiding

Data and Information Technology, Planning and Forecasting

Monday 03:45 PM - 05:30 PM

Convention Center, Hall A

Event 1370

Freight Transportation Planning and Logistics Research

Data and Information Technology, Freight Transportation, Planning and Forecasting

19-02663 - **Utilization Rate as a Resilience Index for Supply Chain Networks**

Lama Al Hajj Hassan, Northwestern University

Ying Chen, Northwestern University

Hani Mahmassani, Northwestern University

Monday 03:45 PM - 05:30 PM

Convention Center, Hall A

Event 1371

Current Issues in Aviation

Aviation, Energy

19-03231 - **Variations in Airline Passenger Expectation of Service Quality Across the Globe**

Aymeric Punel, Northwestern University

Lama Al Hajj Hassan, Northwestern University

Alireza Ermagun, Mississippi State University

Monday 06:00 PM - 07:30 PM

Convention Center, Hall A

Event 1298

Artificial Intelligence and Machine Learning Methods for Transportation Applications, Part 1 (Part 2, Session 1299)

Data and Information Technology, Hot Topic: Transformational Technologies

19-03098 - **Smart and Connected Community Detection Using Travelers Point of Interest**

Ali Arian, University of Arizona

Alireza Ermagun, Northwestern University

Yi-Chang Chiu, University of Arizona

19-05030 - **Correcting Misabeled Taxi Trajectory Occupancy Status Using Input-Output Hidden Markov Model**

Kenan Zhang, Northwestern University

Lin Zhong, Sichuan University

Yu Nie, Northwestern University

Monday 06:00 PM - 07:30 PM

Convention Center, Hall A

Event 1299

Artificial Intelligence and Machine Learning Methods for Transportation Applications, Part 2 (Part 1, Session 1298)

Data and Information Technology, Hot Topic: Transformational Technologies

19-00575 - **"Hunting Image": Taxi Search Strategies Recognition Using Sparse Subspace Clustering**

Kenan Zhang, Northwestern University

Ying Chen, Northwestern University

Yu Nie, Northwestern University

19-05306 - **Improving Forecasting Performance Using a Committee Approach: A Machine Learning Framework**

Lama Al Hajj Hassan, Northwestern University

Hani Mahmassani, Northwestern University

TUESDAY, JANUARY 15, 2019

Tuesday 08:00 AM - 09:45 AM

Convention Center, 145A

Event 1394

Traffic Equilibrium, Control, and Network Design

Planning and Forecasting

19-02434 - **Complementarity Formulation and Solution Algorithm for Auto-Transit Assignment Problem**

Amirali Zarrinmehr, Tarbiat Modares University

Hedayat Zockaei Aashtiani, Sharif University of Technology

Yu Nie, Northwestern University

Hossein Azizian, Sharif University of Technology

Tuesday 08:00 AM - 09:45 AM

Convention Center, 204C

Event 1410

Use of Technology and Data for Bridge Management

Bridges and Other Structures, Data and Information Technology, Maintenance and Preservation, Hot Topic:

Transformational Technologies

19-05422 - **A Comparative Study of Predictive Analysis Methods to Estimate Bridge Response**

Fiorella Mete, Northwestern University

Ying Chen, Northwestern University

Amanda Stathopoulos, Northwestern University

David J. Corr, Northwestern University

Tuesday 08:00 AM - 09:45 AM

Convention Center, Hall A

Event 1436

Traffic Signal System with Connected Automated Vehicle Technology

Operations and Traffic Management, Hot Topic: Transformational Technologies

19-05931 - **Active Traffic Signal Control for Mixed Vehicular Traffic in Connected Environments: Self-identifying Platoon Strategy**

Archak Mittal, Ford Motor Company

Marija Ostojic, Northwestern University

Hani Mahmassani, Northwestern University

Tuesday 10:15 AM - 12:00 PM

Convention Center, 101

Event 1469

Connected Automated Vehicles: Modeling and Control

Hani Mahmassani, Northwestern University, presiding

Operations and Traffic Management, Hot Topic: Transformational Technologies

Tuesday 10:15 AM - 12:00 PM

Convention Center, Hall A

Innovations in Modeling and Assessing Sustainability in Transportation

Environment, Public Transportation, Society, Hot Topic: Resilience and Sustainability

19-03330 - **Parallel Decision-Making Processes: A Bivariate Ordered Probit, Stage-of-Change Approach to Model the Adoption of Walking, Cycling, and Bike-sharing**

Alec Biehl, Northwestern University

Maher Said, Northwestern University

Amanda Stathopoulos, Northwestern University

Tuesday 01:30 PM - 03:15 PM

Convention Center, 145A

Event 1515

Sustainable and Resilient Transportation Networks

Planning and Forecasting, Hot Topic: Resilience and Sustainability, Hot Topic: Transformational Technologies, Hot Topic: Transportation and Public Health

19-05738 - **Reliability-Based User Equilibrium in Dynamic Stochastic Networks: A Scenario Approach Considering Travel Time Correlations and Heterogeneous Users**

Ali Zockaie, Michigan State University

Hani Mahmassani, Northwestern University

Fatemeh Fakhroosavi, Michigan State University

Tuesday 01:30 PM - 03:15 PM

Convention Center, 140B

Event 1518

Accessibility for Policy and Practice

Policy, Planning and Forecasting, Society

19-04967 - **Disparity of Access: Variations in Transit Service by Race, Ethnicity, Income, and Auto Availability**

Elisa Borowski, Northwestern University

Alireza Ermagun, Mississippi State University

David Levinson, University of Sydney

Tuesday 03:45 PM - 05:30 PM

Convention Center, 147A

Event 1612

Emerging Modes for Last Mile Delivery in Dense Urban Areas

Freight Transportation, Planning and Forecasting, Vehicles and Equipment

19-03950 - **Analyzing the Crowd-Shipping Delivery Performance from Bidding to Delivering**

Alireza Ermagun, Northwestern University

Amanda Stathopoulos, Northwestern University

Tuesday 06:00 PM - 07:30 PM

Convention Center, Hall A

Event 1655

Vehicle Trajectory Data-Enabled Traffic Signal Control

Operations and Traffic Management

19-03317 - **Identifying Time Space Signal Event Signatures: A Diagnostic Performance Assessment Tool Using Vehicle Trajectories**

Marija Ostojic, Northwestern University

Archak Mittal, Ford Motor Company

Hani Mahmassani, Northwestern University

19-03365 - **Trajectory Analytics: Application to Traffic Signal System Performance Assessment**

Marija Ostojic, Northwestern University
Archak Mittal, Ford Motor Company
Hani Mahmassani, Northwestern University
David Hale, Leidos, Inc.

Tuesday 06:00 PM - 07:30 PM

Convention Center, Hall A

Event 1658

Traffic Flow Theory and Characteristics, Part 3 (Part 1, Session 1656; Part 2, Session 1657; Part 4, Session 1704; Part 5, Session 1753)

Operations and Traffic Management

19-05226 - **Predictive Speed Harmonization in a Connected Environment: A Machine Learning Approach**

Amr Elfar, Northwestern University

Alireza Talebpour, Texas A&M University

Hani Mahmassani, Northwestern University

WEDNESDAY, JANUARY 16, 2019

Wednesday 08:00 AM - 09:45 AM

Convention Center, 144A

Event 1685

Corridors and Freight Performance Measurement

Freight Transportation, Planning and Forecasting, Terminals and Facilities

19-02337 - **Freight Performance Measurement in FAST Act-Mandated State Freight Plans**

Lama BouMjahed, Mobility Lab

Joseph Schofer, Northwestern University

19-05921 - **A Reinforcement Learning Framework for Freight Demand Forecasting to Support Operational Planning Decisions**

Lama Al Hajj Hassan, Northwestern University

Hani Mahmassani, Northwestern University

Ying Chen, Northwestern University

Wednesday 08:00 AM - 09:45 AM

Convention Center, Hall A

Event 1692

Logistics of Disaster Response, Business Continuity, and Humanitarian Aid

Security and Emergencies, Policy, Safety and Human Factors, Hot Topic: Resilience and Sustainability

19-05418 - **On-Demand Rideshare for Emergency Relocation: An Exploratory Analysis of Context and Emotionality**

Elisa Borowski, Northwestern University

Amanda Stathopoulos, Northwestern University

Wednesday 08:00 AM - 09:45 AM

Convention Center, Hall A

Event 1694

Car Ownership and Sharing

Planning and Forecasting, Hot Topic: Transformational Technologies

19-03557 - **Why so certain? Analyzing certainty in the context of new ridesharing options**

Jason Soria, Northwestern University
Aymeric Punel, Northwestern University
Eran Ben-Elia, Ben Gurion University of the Negev
Yoram Shifan, Technion - Israel Institute of Technology
Amanda Stathopoulos, Northwestern University

Wednesday 08:00 AM - 09:45 AM

Convention Center, Hall A

Event 1698

Active Modes and Travel Behaviors

Planning and Forecasting, Hot Topic: Transportation and Public Health

19-01814 - **Combining Continuum and Multi-Stage Psychological Frameworks through a MIMIC model: A Joint Exploration of Active Travel and Public Transit Usage**

Alec Biehl, Northwestern University

Amanda Stathopoulos, Northwestern University

Wednesday 08:00 AM - 09:45 AM

Convention Center, Hall A

Event 1699

Self-Driving, Sharing, and On-Demand Adoption: Data and Models for a Transformative Mobility Roadmap

Amanda Stathopoulos, Northwestern University, presiding

Planning and Forecasting, Hot Topic: Transformational Technologies

19-04651 - **Evaluating the Impact of Spatio-Temporal Demand Forecast Aggregation on the Operational Performance of Shared Autonomous Mobility Fleets**

Florian Dandl, Bundeswehr University, Munich

Michael Hyland, Northwestern University

Klaus Bogenberger, Bundeswehr University, Munich

Hani Mahmassani, Northwestern University

19-05378 - **Privately Owned Autonomous Vehicle Optimization Model Development and Integration with ABM-DTA Framework**

Xiang Xu, Northwestern University

Hani Mahmassani, Northwestern University

Ying Chen, Northwestern University

Wednesday 08:00 AM - 09:45 AM

Convention Center, Hall A

Event 1705

Advanced Concepts for Intersections and Interchanges

Design, Operations and Traffic Management

19-00468 - **Intersection operation with nontraditional dynamic lane scheme through vehicle-to-signal connection**

Sida Luo, Northwestern University

Yu Nie, Northwestern University

Lin Zhu, Shandong University

Wednesday 10:15 AM - 12:00 PM

Marriott Marquis, Marquis Ballroom Salon 10 (M2)

Policy and Organization Group and Data and Information Section Leaders Discussion

Joseph Schofer, Northwestern University, presiding

Policy, Data and Information Technology

Wednesday 10:15 AM - 12:00 PM

Convention Center, Hall A

Event 1753

Traffic Flow Theory and Characteristics, Part 5 (Part 1, Session 1656; Part 2, Session 1657; Part 3, Session 1658; Part 4, Session 1704)

Operations and Traffic Management

19-06005 - **Prediction and Mitigation of Flow Breakdown Occurrence for Weather Affected Networks: Case Study of Chicago, Illinois**

Monika Filipovska, Northwestern University

Hani Mahmassani, Northwestern University

Archak Mittal, Ford Motor Company

Wednesday 02:30 PM - 04:00 PM

Convention Center, Hall A

Event 1774

Funding and Financing Surface Transportation: What Will the Future Bring

Administration and Management, Finance, Planning and Forecasting

19-02754 - **Examining the Effectiveness of App-based Incentive Systems for Peak Spreading**

Jason Soria, Northwestern University

Alireza Ermagun, Mississippi State University

Ali Arian, University of Arizona

Yi-Chang Chiu, University of Arizona

Wednesday 02:30 PM - 04:00 PM

Convention Center, Hall A

Event 1780

Transportation Network Modeling Mega Poster Session

Planning and Forecasting

19-01922 - **Real-Time Traffic Flow Pattern Matching to Improve Predictive Performance of Online Simulation-Based Dynamic Traffic Assignment**

Haleh Ale-Ahmad, Northwestern University

Hani Mahmassani, Northwestern University

Eunhye Kim, Northwestern University

Marija Ostojic, Northwestern University

19-02121 - **Day-to-Day Learning Framework for Online Origin-Destination Demand Estimation and Network State Prediction**

Eunhye Kim, Northwestern University

Hani Mahmassani, Northwestern University

Haleh Ale-Ahmad, Northwestern University

Marija Ostojic, Northwestern University

