



CENTER FOR CONNECTED AND  
AUTOMATED TRANSPORTATION

## 2018 Global Symposium on Connected and Automated Vehicles and Infrastructure

Sponsored by the USDOT Center for Connected and  
Automated Transportation

March 7-8, 2018  
University of Michigan  
North Campus Research Complex  
Ann Arbor, MI 48105

The 2018 Global Symposium for Connected and Automated Vehicles and Infrastructure will focus on overarching research issues related to CAV research, technology, testing and deployments, policy, as well as education, training and workforce development. The Symposium is sponsored by the U.S. Department of Transportation's Center for Connected and Automated Transportation (CCAT) at the University of Michigan.

CCAT Partners include:



## Agenda: March 7, 2018

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**7:30 a.m. – 8:30 a.m.** Registration and Continental Breakfast

**8:30 a.m. – 8:45 a.m.** **Welcome**  
**Henry Liu, Director CCAT**  
**Jim Sayer, Director UMTRI**

**8:45 a.m. – 9:30 a.m.** **Keynote speaker Bob Zhang, Co-Founder and CTO, Didi Chuxing**

Didi Chuxing is the world's leading mobile transportation platform. The company offers multiple services for over 450 million users, including Taxi, Express, Premier, Luxe, Hitch, Bus, Minibus, Designated Driving, Car Rental, Enterprise Solutions and Bike-Sharing. With its daily rides reaching up to 25 million, over 21 million drivers find work opportunities on DiDi platform.

**9:30 a.m. – 10:30 a.m.** **Panel 1**

### **Executive Panel on Mobility**

Join us for an executive session on the future of mobility. The world's leaders in mobility will draw from their vast experiences to share their vision on policy, technology, and infrastructure. The panel will discuss how the current transportation system will be transformed to optimize the movement of people and goods to enhance our everyday lives.

**Moderator:** Jack Hu, Vice President for Research, University of Michigan

### **Panel Members:**

Justin Erlich, Head of Policy, Autonomous Vehicles & Urban Aviation, Uber

Neil Pedersen, Executive Director of the Transportation Research Board

Dan Sperling, Director of the Institute of Transportation Studies, University of California, Davis

Oliver Steinig, VP Business Development and Corporate Strategy North America, Robert Bosch LLC

**10:30 a.m. – 11:00 a.m.** **Break**

**11:00 a.m. – 12:00 p.m.** **Panel 2**

### **Smart Cities and Vehicle Mobility**

Vehicles are getting connected, and not just to the internet! They're getting connected to each other, to the infrastructure, and to road users including pedestrians, bicyclists etc. More than that, connected vehicles are an integral part of "Smart Cities." A Smart City integrates innovative technology - self-driving cars, connected vehicles, and smart sensors - into their transportation network. In addition to the U.S. DOT Smart Cities challenge, pockets of innovation are cropping up across the country and around the world.

**Moderator:** Jeff Hood, Principal, Deloitte Consulting LLP

### **Panel Members:**

Mark de la Verge, Chief of Mobility Innovation, City of Detroit

Carla Bailo, Chief Executive Officer, Center for Automotive Research (CAR)

Norm Marks, Automotive Strategy & Business Development, NVIDIA

Jon Coleman, Corporate Strategist and Smart City Leader, Ford Motor Company

Ed Straub, Technical Program Director, American Center for Mobility

**12:00 p.m. – 1:30 p.m.** **Lunch**

**1:30 p.m. – 2:30 p.m.      Panel 3**

**Policy and Social Justice**

Connected, automated and shared mobility solutions have the greatest potential to positively impact the lives of those living in historically underserved communities, senior citizens and the economically challenged. The absence of public transportation or personal vehicle ownership leave thousands without access to healthcare, education, and social interactions reducing their quality of life and often exacerbating economic hardships. U-M is on the forefront of transportation as an issue of social justice. How, and who, are benefiting from a shared economy - and how do we create balance?

**Moderator:** Tierra Bills, Assistant Professor and Michigan Society Fellow, University of Michigan Department of Civil and Environmental Engineering.

**Panel Members:**

Richard Ezike, Mobility and Equity Kendall Fellow at Union of Concerned Scientists and President of NSBE DC Professionals

Gloria Jeff, Principal Planner for the Wichita Area Metropolitan Planning Organization, and the current Chair of the Environmental Justice Committee at the Transportation Research Board

Jonathan Levine, Professor of Urban and Regional Planning, Taubman College of Architecture and Urban Planning, University of Michigan

**2:30 p.m. – 3:30 p.m.      Student Poster Session**

This is an opportunity for students to present their work to Symposium participants. A rolling-break also will take place during this time.

**3:30 p.m. – 4:30 p.m.      Panel 4**

**Infrastructure Needs in a Connected and Automated World**

Communication between developers/designers of transportation facility infrastructure and CAV technology must be established as early as possible to advance smooth development and transition to CAV and to establish a connection between vehicles and infrastructure. This will help enhance the life of the infrastructure while minimizing traffic disruption.

**Moderator:** Imad Al-Qadi, Professor of Civil Engineering, University of Illinois Urbana-Champaign

**Panel Members:**

Andrew Bui, Director for AECOM Ventures

Shane Underwood, Associate Professor, North Carolina State University

Benjamin Worel, MnROAD Operations Engineer, Minnesota Department of Transportation

**4:30 p.m. – 4:45 p.m.      ITS Michigan Scholar Award and Recognition**  
**Yousuf Taufiq, ITS Michigan President**  
**Assistant Vice President, Michigan Traffic and ITS Engineering, WSP**

**4:45 p.m. – 5:00 p.m.      Wrap-up day-one**

**5:00 p.m. – 5:15 p.m.      Depart for the University of Michigan Museum of Art**

**5:30 p.m. – 6:30 p.m.      UMMA exhibits and gift shop will be open.**

**6:00 p.m. – 8:00 p.m.      Dinner**

## Agenda: March 8, 2018

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- 7:30 a.m. – 8:30 a.m. Continental Breakfast**
- 8:30 a.m. – 8:45 a.m. Day 2 Welcome  
Henry Liu, Director CCAT**
- 8:45 a.m. – 9:30 a.m. Day 2 Morning Presentation and Discussion  
Michelle Krebs, Director Autotrader**

**Reluctant or Ready? The four essentials to driving customer acceptance of self-driving vehicles.**

The promise of self-driving vehicles is fast becoming a reality on roadways across the U.S., but are consumers reluctant or ready? Krebs reveals the newest research into consumer sentiment toward automation.

Krebs is a Detroit based executive analyst for Autotrader and an award winning automotive writer with over thirty-five years of experience covering and observing the auto industry. She is the former President of the Society of Automotive Analyst and is a board member and past president of Automotive Press Association.

Following this presentation, Krebs will be joined by Paul Lienert of Thompson Reuters where he covers the future of transportation/mobility and the intersection of autos, technology and venture capital. Lienert is an award-winning journalist covering the global auto industry for over forty years

**9:30 a.m. – 10:30 a.m. Panel 5**

**Enabling Technologies - CCAT Research**

The Center for Connected and Automated Transportation at UMTRI is the U.S. DOT region 5 University Transportation Center. It is a consortium between the University of Michigan, Purdue University, University of Illinois – Urbana Champaign, University of Akron, Central State University, and Washtenaw Community College. CCAT's mission is to significantly impact the evolution of the U.S. next-generation transportation systems with emerging technologies on safety, mobility, and sustainability and to provide national and regional leadership for connected and automated transportation research, science, education, training, and deployment. This session will highlight research being conducted by the CCAT consortium. The industry's premier researchers will present cutting edge research initiatives in connected and automated transportation. Topics include Cooperative Control Mechanism for Platoon Formation of Connected and Autonomous Vehicles; Access Control at Major-Minor Intersection through CAV in Mixed Traffic; Operations of Connected and Autonomous Freight Trucks under Congestion and Infrastructure Cost Considerations; and CAV Testing Scenario Design and Implementation using Naturalistic Driving Data and Augmented Reality.

**Moderator:** Henry Liu, Director, U.S. DOT Center for Connected and Automated Transportation

**Panel Members:**

Ping Yi, Professor, University of Akron

Srinivas Peeta, Professor of Civil Engineering in the Transportation and Infrastructure Systems Group, Purdue University, CCAT Associate Director

Yafeng Yin, Professor of Civil and Environmental Engineering, University of Michigan

Imad Al-Qadi, Professor of Engineering, University of Illinois at Urbana-Champaign, Director of the Illinois Center for Transportation (ICT) at the University of Illinois at Urbana-Champaign

**10:30 a.m. – 11:00 a.m. Break**

**11:00 a.m. – 12:00 p.m. Panel 6**

### **Leadership, Education, Training and Workforce Development**

Education, training and workforce development are critical to the successful deployment of CAV technologies. The need exists for both engineers as well as skilled technicians. This panel will focus on the need for a full-spectrum of leadership development and educational programs, ranging from leadership training, to full scale engineering-concentrated programs, and 2- and 4-year degree programs to advanced education. This panel will highlight student opportunities that will advance their academic knowledge in the classroom, research and skills development opportunities.

**Moderator:** Alan Lecz, Director, Washtenaw Community College, Advanced Transportation Center

#### **Panel Members:**

Carla Bailo, Chief Executive Officer, Center for Automotive Research (CAR)

Collin Castle, MDOT ITS Program Manager

Rose Bellanca, Washtenaw Community College President

Michelle Mueller, Washtenaw Community College, Vice President of Economic, Community and College Development

**12:00 p.m. – 1:30 p.m.      Lunch**

**1:30 p.m. – 2:30 p.m.      Panel 7**

### **Human Factors: Integrating the driver into a driverless world**

Connectivity, information sharing and dissemination, and automation under CAV technologies raise critical questions related to how humans (drivers, travelers, pedestrians, etc.) interface and interact with these technologies. This panel will discuss related needs, challenges and solutions.

**Moderator:** Srinivas Peeta, Professor of Civil Engineering in the Transportation and Infrastructure Systems Group, Purdue University, CCAT Associate Director

#### **Panel Members:**

Hani Mahmassani, William A. Patterson Distinguished Chair in Transportation, and Director, Transportation Center, Northwestern University

David Yang, Executive Director, AAA Foundation for Traffic Safety

Pamela Fisher, Director, Economic Development & Special Initiatives, Indiana Department of Transportation

**2:30 p.m. – 3:00 p.m.      Symposium wrap-up**

## Student Posters

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- Agrawal, Shubham – “Evaluating the Cognitive Effects of Real-Time Travel Information Using Physiological Indicators”
- Chen, Sikai – “Changes in Highway Agency Expenditures and Revenue in an Era of CAVs”
- Chen, Zhibin – “A Cost-Competitiveness Analysis of Charging Infrastructure for Electric Bus Operation”
- Gkartzonikas, Christos – “Factors Influencing the Behavioral Intention to Ride in Autonomous Vehicles”
- Gong, Siyuan – “Multi-Lane Cell Transmission Model for Mixed Traffic Flow with Connected and Autonomous Vehicles and Human-Driven Vehicles”
- Gong, Siyuan – “Cooperative Platoon Control for a Mixed Traffic Flow Including Human Drive Vehicles and Connected and Autonomous Vehicles”
- Gungor, Osman Erman – “Leveraging Autonomy in Truck Platooning to Improve Freight Transportation Sustainability”
- Guo, Yunao – “Paving the Way for CAVs and Multi-modal Transportation: Road User Roadway Design and Policies Preferences and CAV Adoption Attitudes”
- Huang, Shihong – “Adaptive Signal Control for Arterials Using Online Connected Vehicle Data”
- Lin, Lei – “Real-Time Compression of Connected Vehicle Data Based on Compressive Sensing”
- Liu, Lin – “Car-following Behavior of Vehicles in a Mixed Traffic Flow: Modeling and Stability Analysis”
- Saeed, Tariq U. – “Preparing our Highways to Accommodate CAVs: Emerging Roadway Design and Infrastructure Management”
- Seo, Toru – “Estimating Individual Congestion Externality Using Connected Vehicle Data”
- Song, Dong Yoon – “Effects of Cognitive Load on Driver Satisfaction under Real-Time Travel Information Provision”
- Wang, Jian – “Information Flow Propagation Wave Model Based on an Information Relay Control Strategy Under Congested V2V Communications”
- Wu, Xinyi – “Open Source Maps to Understand Real-World Vehicle Use and Safety”



The 2018 Global Symposium for Connected and Automated Vehicles and Infrastructure Poster Session is sponsored by ITS-Michigan.

ITS Michigan is dedicated to improving the safety, security and efficiency of the state's transportation system for the traveling public through the deployment of Intelligent Transportation Systems (ITS). ITS Michigan is a state chapter of ITS America. ITS Michigan members include private corporations, public agencies, academic institutions, research center and more. For more information: [www.itsmichigan.org](http://www.itsmichigan.org)



**Save the Date:**  
**CCAT Distinguished Speaker Series presents:**  
**Dr. Hani S. Mahmassani, Northwestern University**

April 11, 2018 at 2 p.m.  
UMTRI | 2901 Baxter Rd | Ann Arbor

Dr. Hani S. Mahmassani holds the William A. Patterson Distinguished Chair in Transportation at Northwestern University, where he is Director of the Northwestern University Transportation Center, and Professor in Civil and Environmental Engineering, with joint appointments in Industrial Engineering and Management Sciences, and Managerial Economics and Decision Sciences in the Kellogg School of Management. He has over 35 years of professional, academic and research experience in the areas of intelligent transportation systems, freight and logistics systems, multimodal systems modeling and optimization, pedestrian and crowd dynamics and management, traffic science, demand forecasting and travel behavior, and real-time operation of transportation and distribution systems.

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**The Patricia F. Waller Scholarship**



The Patricia F. Waller Scholarship was created to honor Dr. Waller and is intended to fund scholarships for U-M graduate students and senior undergraduate students who elect a curriculum, thesis or special project that address the human impact of transportation practice. Students may represent from all U-M departments and schools who are interested in conducting research on human aspects of transportation safety and issues related to transportation equity.

For more information, or to apply:  
<http://umtri.umich.edu/patricia-f-waller-scholarship>

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**Registration Is Open Now for the 2018 ITS-America Annual Meeting**



Detroit, Michigan  
June 4-7, 2018

Call for Papers/Sessions Now Open - submit by March 15, 2018  
Call for Demonstrations Now Open - submit by March 15, 2018  
Best of ITS Award - Member Submissions Open Now