



Northwestern
TRANSPORTATION CENTER

CCITT
Center for the Commercialization of
Innovative Transportation Technology

Industry Technical Workshop
Virtual Reality in
Transport Innovation

TUESDAY, NOVEMBER 12, 2019 @ 1:00 PM
Cahn Auditorium - 600 Emerson Street, Evanston

INDUSTRY TECHNICAL WORKSHOP

Virtual Reality in Transport Innovation

Welcome to the Fall 2019 Industry Technical Workshop—*Virtual Reality in Transport Innovation*—hosted by Northwestern University Transportation Center (NUTC) and the Center for the Commercialization of Innovative Transportation Technology (CCITT), where industry experts showcase advances and opportunities in virtual, augmented and mixed reality (VR/AR/MR) technology for applications across the transportation sector.

Well beyond gaming and personal entertainment, the Fall 2019 Workshop explores VR/AR/MR technologies in private companies and government organizations deployed for the purposes of product design, vehicle maintenance, manufacturing inspection, real estate exploration, construction planning, warehouse and delivery operations, and more—including showcasing potential transport experiences to new investors, users and consumers. Thank you for joining NUTC and CCITT, as we learn more about this exciting tool for innovation!

EVENT CO-CHAIRS

Hani S. Mahmassani - Patterson Transportation Chair / Director, NUTC

Bret Johnson - Associate Director, NUTC / Director, CCITT

ABOUT NUTC

The Northwestern University Transportation Center (NUTC) is one of the world's leading interdisciplinary education and research institutions, serving industry, government and the public sectors. Founded in 1954 to generate substantive and enduring contributions for the better movement of materials, people, energy, and information, NUTC stands at the forefront of transportation research and education. NUTC brings together academic researchers, students and business affiliates in a joint open exploration of transportation and supply chain operations. NUTC aims to influence national and international transportation policy, management and technological developments with the goal of making transportation and supply chain operations more productive, efficient, safe, secure, environmentally friendly and socially beneficial.

ABOUT CCITT

The Center for the Commercialization of Innovative Transportation Technology (CCITT) fosters the implementation of innovative technologies for all modes of surface transportation, including but not limited to railways, mass transit, highways and waterways.

Workshop Agenda

TUESDAY, NOVEMBER 12, 2019

Cahn Auditorium, Evanston

1:00 - 1:30 PM **Registration Check-In**

1:30 - 1:35 PM **Welcome from NUTC**

1:35 - 1:45 PM **Opening Remarks**

1:45 - 3:00 PM **Speaker Presentations**

"HD Maps for Virtual and Augmented Reality"

Xin Chen

Director of Engineering, HERE Technologies

"Transition to a Digital xReality"

James Fadenrecht

Leader of Boeing Commercial Airplanes
Visualization Center of Excellence

"The Future of Urban Air Mobility"

Zhuyun Gu

Data Scientist, Uber

"Enterprise-wide Extended Reality Adoption at Ford"

Ilan Weitzer

IT Technical Manager, Ford

3:00 - 3:30 PM **Networking Break**

3:30 - 4:15 PM **Panel Discussion**

Hani S. Mahmassani [Moderator]

Director, NUTC / Patterson Chair

4:15 - 4:30 PM **Closing Comments**



Speaker Bios

Xin Chen

Director of Engineering, *HERE Technologies*

James Fadenrecht

Leader of Boeing Commercial Airplanes
Visualization Center of Excellence, *The Boeing Company*

Zhuyun Gu

Data Scientist, *Uber*

Bret Johnson

Director, CCITT / Associate Director, Transportation Center,
Northwestern University

Hani S. Mahmassani

William A. Patterson Distinguished Chair in Transportation
/ Director, Transportation Center, *Northwestern University*

Ilan Weitzer

IT Technical Manager, *Ford*

Justin Zubrod

Founder & Managing Partner, *Justin Zubrod & Co.*



XIN CHEN

Director of Engineering
HERE Technologies

Dr. Xin Chen is a Director of Engineering at HERE Technologies whose team is completing pioneering work to achieve the automation of next generation map creation using computer vision and machine learning technologies. He has over 50 U.S. Patents in LIDAR and image analysis for mapping and he has served on an NSF (National Science Foundation) panel to evaluate and award funding to multimillion-dollar projects advancing research in these areas. Xin has been awarded 2010 and 2011 IMPACT awards to recognize "employees making outstanding contributions," an award recognizing "Significant Intellectual Property Contributors" for 2011-2012, 2013 and 2014 company-wide Hack Week top awards, and 2015 Berkeley Office Hackathon top award. He has numerous publications at CVPR and CVIU. Xin is an adjunct faculty member and PhD advisor at Northwestern University and Illinois Institute of Technology teaching "Geospatial Vision and Visualization" and "Biometrics" courses. Xin obtained his Ph.D. in Computer Science and Engineering from the University of Notre Dame.

JAMES FADENRECHT

Leader of Boeing Commercial Airplanes Visualization Center of Excellence
The Boeing Company

James leads the Boeing Commercial Airplane (BCA) Visualization Center of Excellence (ViCE) and Digital Enterprise Engineering Visualization direction supporting Engineering Visualization and Spatial Integration processes and capability requirements. In this assignment, James develops engineering visualization, visual analytics and digital reality solutions supporting the use of engineering visualization information across BCA and the Enterprise product lifecycle.

Prior to this assignment, James held leadership positions in Engineering, Manufacturing Engineering, Tooling, Production and Business Management, Supporting BCA airplane programs and enterprise business units. Before joining Boeing in 1988, James was a Senior Systems Engineering manager with Electronic Data Systems (EDS), Oldsmobile division of General Motors and Senior Account Executive for Electronic Systems Development, Newark Electronics. In addition, he has provided consulting services for business and product development in

various start-up companies across multiple industries.

James holds a BS-IDT from Central Washington University, BSMfgE and BSME from Western Washington University and a MS from Antioch University, Seattle.

ZHUYUN GU

Data Scientist

Uber

Zhuyun Gu is currently working at Uber Elevate team as a Data Scientist to understand the future of urban air mobility. Zhuyun is a graduate of MIT, where she received a master degree in Transportation. After graduation, she joined Cambridge Systematics in Chicago as a travel demand modeler, providing service and insights for public sector.

BRET JOHNSON

Director, CCITT

Associate Director, Transportation Center

Northwestern University

Bret Johnson is the Associate Director of the Northwestern University Transportation Center (NUTC), and the Director of the Center for the Commercialization of Innovative Transportation Technology at Northwestern. Bret manages corporate relations and engagement for NUTC, and develops strategic research collaborations and executive education programs with and for industry and public sector partners. In this role, he also helps nurture, grow, and develop programming for the Transportation Center's Business Advisory Council. Bret also conducts primary market and industry research for NUTC-led research projects and serves as a project manager for the same.

Prior to joining Northwestern, Bret held senior engineering and project management positions at 3COM, Grayhill, Northrop-Grumman, and GE Astrospac. He received an M.A. in Science, Technology and Public Policy from The George Washington University, an M.S. in Aeronautics and Astronautics from Stanford University, and a B.S. in Mechanical Engineering from Rensselaer Polytechnic Institute.

HANI S. MAHMASSANI

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

Hani S. Mahmassani is Director of the Transportation Center, and the William A. Patterson Distinguished Professor in Transportation at Northwestern University, which he joined on September 1, 2007, with joint appointments in the McCormick School of Engineering and the Kellogg School of Management. He previously served in endowed faculty positions at the University of Maryland and at the University of Texas at Austin. Mahmassani has over 35 years of experience as a researcher, scholar and professional in the transportation and logistics area.

Mahmassani is recognized nationally and internationally for a broad array of transportation research achievements; his applications span both passenger and freight, and he has been especially effective at connecting advanced models to emerging policy issues. He has pioneered the use of novel data sources and real-time data streams in transportation modeling and decision-making, including sensor data from intelligent transportation systems deployments, probe data from GPS and smartphones, transaction records from payment systems, and vehicle-based tracking systems. His current research is focused on autonomous vehicle deployment, including fleet operations for emerging mobility service models.

ILAN WEITZER

IT Technical Manager
Ford

Ilan Weitzer is a Technical Expert in Advanced Engineering Visualization at Ford Motor Company where he is the technical lead in the Advanced Manufacturing IT group. His responsibilities span the investigation, promotion and implementation of Extended Reality technologies and tools in Ford's manufacturing and product development. It includes virtual, augmented and mixed reality trends and technologies, performing technology prove-out, digital-twin initiatives. He currently leads the development of across functional platform to enable and scale the use of CAD and engineering assets with XR applications (experiences). Prior to his current role, Ilan was the technical lead for

CAD Visualization and Interoperability, developing and deploying Ford's product development CAD, PLM and Engineering Visualization systems. Ilan has over 25 years of experience experimenting with emerging technologies, serving on a number of industry wide organizations like AIAG, OMG and he's currently serving as the Chair of Siemen's JTOpen, and has a Bachelor in Computer Science and Master in Computer Engineering & Process Control.

JUSTIN ZUBROD

Founder & Managing Partner
Justin Zubrod & Co.

Justin Zubrod, Sr. is managing partner of Justin Zubrod & Company, LLC, a professional services firm focused on the logistics and transportation sectors. He has previously served as a leader of the commercial transportation management consulting practices at Booz & Company, Booz Allen Hamilton, and A.T. Kearney, Inc. His specialty is strategy and turnaround work serving leading companies in the rail, package, motor carrier, air, and logistics sectors. Zubrod's clients comprise operators, investors, law firms, and public agencies throughout the world. He received his undergraduate degree at the University of Maryland and MBA at Northwestern University. Zubrod is chair of the Northwestern University Transportation Center Business Advisory Council.



Northwestern University Transportation Center

600 Foster Street | Evanston, Illinois 60208

847.491.7287 | tcinfo@northwestern.edu

transportation.northwestern.edu



facebook.com/infoNUTC

[@infoNUTC](https://twitter.com/infoNUTC) [#ITW2019](https://twitter.com/infoNUTC)

tiny.cc/NUTClinkedin