Potential benefits and challenges of automated technology in trucking, ways to enhance mobility for specialized segments of the population, an analysis of federal funding procedures for regional transportation projects, and a new process to get Illinois citizens to contribute ideas on how to improve transportation are among the studies completed by UTC faculty and staff researchers in studies completed in spring and summer of 2017.

Here are capsule perspectives on seven completed projects.

**Impact of Automated Vehicle Technology on Freight.** The trucking industry may be an early adaptor of automated vehicle (AV) technology in order to improve efficiency and reduce costs. In the report, “Catching Up To Automated Technology: How DOTs Can Stay Ahead of the Curve For Freight,” researchers analyzed potential benefits and challenges facing freight carriers. The study also identified actions state governments need to do to allow safe implementation of AV technology and how to maximize its practice.

**Travel Training for Chicago Public School Students.** Programs that teach disabled students how to use existing public transit networks to get to and from school builds independence and can dramatically cut down on operating costs. Researchers developed an integrative theory-driven framework for evaluating travel training programs from an analysis of data provided by Chicago Public Schools. The findings were presented in the report, “CPS Travel Training Evaluation Project.”

**Process for Evaluating New Starts Funding.** Funds managed by the Federal Transit Administration and allocated through the New Starts program are used for large regional capital-intensive transit projects. The report, “A Review of Capital Improvement Grant Program and the Need For a Uniform Project Selection Process,” was undertaken to illustrate the complex nature of the grant prioritization and selection process. One key recommendation: Establishment of consistent guidelines is essential for success. The report cites four issues and barriers within the current New Starts valuation process.

**Transportation Integration to Improve Mobility.** Autonomous vehicles and rideshare services are among the technology-focused advancements that are driving exploration of new ways to improve mobility. Researchers analyzed integrated transportation modes in other parts of the nation and relative state and federal legislation to provide a roadmap of sorts for Northeastern Illinois. In the report, “Integration of Transportation for Improved Mobility,” transportation integration gets categorized as functional, planning, societal and policy.

(continued on page 4)
Improving Mobility Focus of 2017 SISE Presentations

Forty graduate students and professionals dedicated to finding solutions to future transportation challenges gained insight on mobility through three morning presentations hosted by the Urban Transportation Center as part of the 2017 Summer Institute on Sustainability and Energy (SISE). The event, held August 11 in CUPPA Hall Room 110, featured talks related to expanding mobility options followed by lively discussion.

Dr. Paul Metaxatos, UTC Associate Director for Research Programs, kicked off the morning with a presentation, “21st Century Chicago: Mobility Challenges and Solutions.” He shared findings from a 2016 UTC study, “Increasing Mobility Through Enhanced Transit Connectivity,” which concluded that growth in technology created new services that can be integrated with existing public transit to enhance mobility throughout metropolitan Chicago.

Tim Grzesiakowski, Executive Director of TMA of Lake-Cook, provided insight into transportation management associations – public/private partnerships that address commuting issues. During his presentation, “Transportation Options for Southern Lake and Northern Cook Counties,” Tim noted that the TMA Shuttle Bug service is a partnership with Pace and provides 1,000 passenger trips daily from CTA and Metra stations to four major suburban employment centers.

Joe Iocabucci, New Mobility Practice Leader at Sam Schwartz Consulting, initiated an introspective discussion on the evolution of transportation in the U.S., from the beginning of the 20th Century, to the automobile-centric policies begun in the 1950s, to the changing commuting practices of today. His talk, “Future Mobility,” also included examples of how some cities are studying ways to better prepare for mobility changes brought on by car share and other services.

Also, Dr. Zorica Nedović-Budić, head of the CUPPA Department of Urban Planning and Policy, spoke on the graduate and certificate programs offered through the department. Started in 2011, the SISE program at UIC is a multi-disciplinary initiative that brings the next generation of professionals together for two weeks to study relevant issues within modern society, industry and technology. The theme of the 2017 program: “Transportation Next: Smart Cars, Electric Vehicles, Smart Grid, Infrastructure.”

Visiting Chinese Scholars Gain Insight on Supply Chain

Transportation scholars from a research-driven university in China took part in a discussion on the supply chain process during a June 29 workshop hosted by the Urban Transportation Center. Thirty-six students and their chaperones from Xi’an Jiaotong Liverpool University participated.

The group was on a national tour led by the Asia Institute, a pan-Asian think tank, to learn more about more about the U.S. supply chain process and its impact on international trade.

Separate presentations were given by UTC Director Dr. P.S. Sriraj, Dr. Paul Metaxatos, UTC Associate Director for Research Programs, and William Stillman, Executive Vice President at GAINSystems Inc., a Chicago company that provides technology services for supply chain providers.

CRRC Corporation Limited, the world’s largest supplier of rail transit equipment, sponsored the workshop, held in CUPPA Hall Room 110. The delegation also visited popular Chicago attractions, including Millennium Park and Navy Pier.

http://www.utc.uic.edu/
Since joining the UIC faculty in 2012 as Assistant Professor, Dr. Bo Zou has balanced a wide range of transportation research projects along with serving as an instructor in the UIC Department of Civil and Materials Engineering, where he teaches graduate and undergraduate courses. He’s even formed a new research group, TransLog Lab. Dr. Zou also is a UTC Affiliated Faculty member. In 2015 he led a study, “Integrated Modeling of High Performance Passenger and Freight Train Operation Planning on Shared Use Rail Corridors: A Focus on the US Context,” that resulted in development of a hypergraph based, two-level modeling approach for shared passenger and freight rail in Illinois.

The focus of your research has centered on transportation and logistics systems, new technologies in passenger/goods, and infrastructure maintenance and planning. What got you interested in these facets of transportation?

The current focus of my work is on the impact of new technologies on transportation systems and related infrastructure planning. Transportation is undergoing exciting transformation with the debut of new technologies such as crowdsourcing and automation. Technology is changing the way we move ourselves and move things. On the other hand, infrastructure in the U.S. is aging and work needs to be done to keep it in good condition. It is important to gain a comprehensive understanding of the true need for new infrastructure investment, as well as the maintenance and rehabilitation of existing infrastructure, for now and in the future.

You also are the Director of TransLog Lab, a research group at UIC that focuses on transportation and logistics. How did the group get started and what are some recent accomplishments?

The research group name is a short term for “Transportation and Logistics.” Some of our recent accomplishments include working with the Urban Transportation Center on developing a comprehensive methodology to assess the true returns for high-speed and intercity passenger rail investment. And, we just got some support from the National Science Foundation to study last-mile delivery in urban areas.

The Transportation Research Board 2018 Annual Meeting is coming up in January in Washington, D.C. What key transportation issues are on the agenda?

In my view, one important issue is how existing transportation systems and related infrastructure will respond to new technologies. This also demands careful rethinking of transportation policies, the decision-making process, and regulations.

In your role as Assistant Professor, you are nurturing the next generation of transportation engineers, analysts and planners. What are the biggest challenges ahead for transportation professionals?

I think there is a need for transportation professionals to become more connected and to engage more in new technologies — in engineering and design disciplines. For example, computer science permeates every aspect of society nowadays. Machine learning techniques, large-scale predictive tools, visualization and virtual reality are emerging and reshaping our lives. We need to learn how to leverage new technologies in cultivating the next generation workforce in the field.

You completed graduate and undergraduate studies at Tsinghua University in Beijing. What brought you to the U.S.?

At the time, I wanted to pursue further studies in transportation systems analysis as a doctoral student. I looked around and applied for several programs in the United States. I was very fortunate to get into the PhD program at UC Berkeley.
Research Roundup Continued: Maritime, Nature Express, IDOT Public Engagement

**Access to Public Lands Via the Nature Express.** Cook County in Illinois has six Nature Centers operated by the Forest Preserve District; but as noted in the report, “Public Transit to Public Lands: The Nature Express,” residents without cars lack convenient access to these public lands due to last-mile connections, inconvenient bus routes and other challenges. A research team used digital resources to develop an index to identify residents most likely to be disadvantaged by lack of access to forest preserves. The specialized tool was provided by ESRI (publisher of ArcGIS) and the Network Analyst extension of ArcGIS to generate service areas for Nature Centers, as well as transit stop locations and roadway network data. The results indicate that almost all of the forest preserves included in the study were not accessible by the target population group. The reasons include: Lack of last-mile connections, lack of pedestrian access, no bicycle paths/trails, and in many cases, not even a bus route or stop located within close proximity of a Nature Center.

**An Analysis of the Illinois Maritime System.** Illinois has 1,118 miles of navigable waterways passing through or bordering the state. From a commercial transportation perspective, these navigable rivers and Lake Michigan make up the Illinois Maritime Transportation System. The system is used primarily to transport freight, especially agricultural products. Passenger travel on these waters is most often for recreation. In August, the UTC produced a report, “An Analysis of the Illinois Maritime Transportation System,” that provided a detailed analysis of the overall Illinois waterway network, plus specific chapters regarding: Agricultural exports, key components of the system, locks and dams, ports and harbors, and maritime operations in six other U.S. states. The study maintains IDOT needs to create the support infrastructure that recognizes the value the maritime freight system provides to the Illinois economy and its role in a multimodal freight transportation system.

**Enhancing Quality Public Engagement on Transportation Issues.** The Illinois Department of Transportation (IDOT) has committed to improving its public engagement program and the quantity and quality of feedback and ideas it receives from Illinois residents. In 2016, IDOT commissioned a study to identify effective public engagement strategies for statewide Departments of Transportation. To build on the 2016 report, the UTC teamed up with researchers from the Institute for Policy and Civic Engagement (IPCE) in early 2017; the result was “A New Approach to Public Engagement: Capturing Better Ideas and Representative Priorities from the Public for the Illinois Department of Transportation,” a study that utilized an innovative online approach to supplement IDOT’s traditional public engagement methods. Through a multi-phased process, residents of Illinois voted on and submitted ideas and ranked their priorities related to transportation goals and modes. The unique strength of the multi-phased process was its ability to capture high quality ideas from the public and statistically representative public priorities.

**UTC in the News: Mid-Year 2017 Media Coverage on Emerging Transportation Issues**

Local and national digital, broadcast and print media looked to the Urban Transportation Center in mid-2017 for commentary and insight for reports on transportation-related topics in the news today. Here’s a short breakdown of some key news coverage.

**O’Hare High-Speed Rail Network.** This summer, SpaceX and Tesla founder Elon Musk issued a proposal to build a new high-speed rail network from O’Hare International Airport to the Loop. UTC Director Dr. P.S. Sriraj shared thoughts in a Crain’s Chicago Business commentary and during a July 5 segment broadcast on The 21st, public radio covering Illinois news.

**Hyperloop Rail.** Hyperloop is a conceptual transportation mode that could transport people and products at very high speeds. On September 20, Dr. Sriraj and Dr. Joseph Schwieterman of DePaul University’s Chaddick Institute discussed the prospect of Hyperloop service from Pittsburgh to Chicago on a featured segment of the WTTW television Chicago Tonight public affairs program.

**Illinois Infrastructure.** Future spending plans to improve transportation infrastructure in Illinois — such as the proposal to expand Interstate 55 from the southwest suburbs to the city — must be totally transparent in order to advance. Dr. Sriraj presented commentary on future infrastructure plans during an October 16 news report from the Illinois News Network.
Director’s Message: Active Summer of 2017 Remembered

By Dr. P.S. Sriraj, Director

Summer and early fall of 2017 have proven to be a busy time for the faculty researchers and staff at the Urban Transportation Center. As noted in this issue, we’ve completed seven transportation research reports that address freight, improving mobility and how IDOT can improve feedback from Illinois residents on future transportation issues. But there was a flurry of additional activity from Suite 340 at CUPPA Hall. Here are some highlights.

Student Researchers. At the start of the Fall 2017 semester, the UTC welcomed Lucy Chen and Sarah Geinosky as graduate research assistants. Lucy and Sarah, who are enrolled in the Master’s in Urban Planning and Policy program, will assist faculty researchers on current UTC projects. And, we’ve welcomed Em Hall and Amy Hofstra, PhD candidates, and Herbert Nuwagaba, an undergraduate fellow. These scholars will work out of the UTC on their studies.

Welcome Mat for IPGA. In early October, a cadre of graduate students supported by the Institute for Public and Government Affairs, a research unit based at the University of Illinois at Urbana-Champaign, took up residence in our offices. We welcome these student scholars, who are supporting research efforts from faculty in the UIC departments of Economics, Public Administration and Sociology.

Fall 2017 Seminar Series. Four presentations were held as part of the popular Seminar Series, the noontime lectures we host on compelling current transportation issues and topics. For the Fall 2017 semester, we secured speakers from the Illinois Tollway, IDOT, CMAP and the Chaddick Institute at DePaul University. Visit the Seminar Series webpage for details; we’ll offer a recap on each presentation in the next issue of the Connector.

TRB 2018 Annual Meeting. The UTC will have a strong presence in January at the 2018 Annual Meeting of the Transportation Research Board, the international gathering of transportation leaders, scholars and industry professionals. On the evening of January 8, we’ll host the popular UTC and CUPPA Alumni Association reception, our opportunity to recap accomplishments from 2017, recognize alumni, research colleagues and past directors, and announce the winners of the 2017 George Krambles Transportation Scholarship Awards. Thanks to CN Railway for its generous sponsorship.

Stay tuned, as we plan to share more news on UTC research, events and accomplishments in the early part of 2018.