



ANNUAL REPORT

July 2015 – June 2016

UF Transportation Institute
UNIVERSITY of FLORIDA

UFTI VISION

To conduct and foster impactful, cross-cutting, multimodal transportation research; educate the next generation of transportation leaders; and facilitate technology transfer.

UFTI MISSION

To lead the profession in shaping a better transportation future by functioning as a preeminent center of multidisciplinary transportation research, students' top choice for transportation education, and a provider of state-of-the-art analysis and decision-support tools.

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DIRECTOR'S MESSAGE



Dear colleagues,

Autonomous vehicles, V2I and V2V connectivity, sensors, smart cities, and big data analytics continue to evolve and dominate the transportation-related news. It is not always clear how quickly these technologies are going to become a reality for the general public, but the transportation community is working very energetically toward that end.

The UFTI has positioned itself to lead the way in the refinement and deployment of several of these advanced technologies. Based on our extensive experience with autonomous vehicle technology through the DARPA Challenge and the Urban Challenge events, we are now developing novel algorithms for using autonomy and connectivity to reduce congestion. Ongoing work funded by the National Science Foundation (NSF) is developing signalized intersection control strategies and sensors that will optimize traffic flow and signal controls and will use simulation software to evaluate these strategies. A Florida Department of Transportation (FDOT) - funded project will test one such signal control optimization algorithm at FDOT's closed course facility (Traffic Engineering and Research Laboratory, or (TERL) in Tallahassee. Our field tests, planned for spring 2017, will evaluate the operation of the optimization algorithm for autonomous, connected and conventional vehicles.

This past year, the UFTI partnered with the City of Jacksonville and the University of North Florida to join the MetroLab Network, which focuses on research, development, and deployment (RD&D) projects that offer technological and analytically-based solutions to challenges facing urban areas including: inequality in income, health, mobility, security and opportunity; aging infrastructure; and environmental sustainability and

resiliency. The MetroLab Network includes 38 cities, 4 counties, and 51 universities, organized in more than 35 regional city-university partnerships.

An interdisciplinary group of researchers (Transportation Engineering, Urban Planning, and Computer Science) are working with FDOT's District 5 – Orlando to develop and use Big Data analytics platforms for decision making. Current focus efforts include integration of various data sources, assessment of data quality, visualization, and analytics using data mining / statistics methods.

This past year, Ms. Maria Cahill, AICP, joined the UFTI to lead the Technology Transfer (T2) Center. T2 has roughly 10 staff members and it houses the Florida Local Technical Assistance Program (LTAP) among others. Prior to this appointment Maria worked at the FDOT Office of Policy Planning and assisted with the Florida Transportation Plan and Future Corridors project. In a relatively short time Maria has engaged with numerous researchers and is leading new initiatives for disseminating research results to the transportation practitioner community.

This is a very exciting time for transportation, and I am thankful for the opportunity to be a part of it. As always, we invite you to provide us with feedback and are delighted to discuss opportunities for collaboration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lily Elefteriadou'. The signature is fluid and cursive.

Lily Elefteriadou, Ph.D.
Professor & UFTI Director



UFTI BY

THE NUMBERS

\$7,239,103.78

Annual Research Expenditures



9

Internal Steering
Committee Members

10

External Advisory
Board Members

\$1,946,242.50

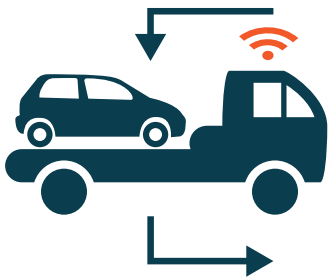
Auxiliary Revenue (T2 & McTrans)

85

Affiliated
Faculty

5,622

Course Participants (technology
transfer, i.e. webinars, non-degree)



RESEARCH

HIGHLIGHTS



Development and Testing of Optimized Autonomous and Connected Vehicle Trajectories at Signalized Intersections

Florida Department of Transportation (FDOT)

PI: Lily Eleftheriadou, Ph.D., Department of Civil & Coastal Engineering/ESSIE
Co-PIs: Carl Crane, Ph.D., Department of Mechanical & Aerospace Engineering & Sanjay Ranka, Ph.D., Department of Computer & Information Science & Engineering

This project uses a previously developed signal control optimization algorithm to test its functionality at FDOT's Traffic Engineering and Research Laboratory facility. The main objective of this project is to refine this algorithm, and develop and test the necessary software and hardware for enhancing traffic signal control operations simultaneously with vehicle trajectories, when the traffic stream consists of connected vehicles, autonomous vehicles, as well as conventional vehicles. The algorithm is capable of optimizing simultaneously vehicle trajectories of automated vehicles together with the signal control patterns at the intersection. A field test is planned for 2017.

RESEARCH HIGHLIGHTS

Traffic Signal Control with Connected and Autonomous Vehicles in the Traffic Stream

National Science Foundation (NSF)

PI: Lily Elefteriadou, Ph.D., Department of Civil & Coastal Engineering/ESSIE

Co-PIs: Carl Crane, Ph.D., Department of Mechanical & Aerospace Engineering & Sanjay Ranka, Ph.D., Department of Computer & Information Science & Engineering

Traffic signal control has a significant impact on transportation system efficiency, as well as energy consumption and environmental impacts. This project develops signalized intersection control strategies and other enabling sensor mechanisms for jointly optimizing vehicle trajectories and signal control. The strategies developed consider the presence of conventional vehicles in the traffic stream to facilitate transition to these new strategies in a mixed vehicle environment. The project also develops and uses simulation tools to evaluate these strategies as well as to provide tools that can be used in practice to consider the impacts of automated and connected vehicles in arterial networks.



Infrastructure Adaptation Planning for Autonomous Vehicles

STRIDE Center (USDOT)

PI: Yafeng Yin, Ph.D., Department of Civil & Coastal Engineering/ESSIE

Autonomous vehicles (AVs) are expected to offer extraordinary improvements to both the safety and efficiency of existing roadways and mobility systems. Before manual driving can be criminalized one day as some have predicted, the traffic stream on road networks will still be heterogeneous, with both conventional vehicles (CVs) and AVs. The project develops methods for infrastructure adaptation planning for AVs. A general mathematical framework will be proposed to aid government agencies to optimally identify critical locations to implement AV mobility applications, and designate and improve lanes, segments and areas for AVs only. We then extend the framework to optimize a roadmap for evolving highway infrastructures towards automated mobility.

Warrants, Design and Safety of Road Ranger Service Patrol

Florida Department of Transportation (FDOT)

PI: Yafeng Yin, Ph.D., Department of Civil & Coastal Engineering/ESSIE

Co-PI: Siva Srinivasan, Ph.D., Department of Civil & Coastal Engineering/ESSIE

This research project created a decision support system for managers who must decide if a roadway “warrants” the addition of the Safety Service Patrol (SSP). A computer tool was developed to facilitate the input of critical information about roadway segments necessary for the analysis. Where warranted, the tool also provides guidance on beat configuration and number of trucks recommended. While the safety benefits of SSP have been researched, this research is among the first to evaluate safety of SSP operations based on crash data and operator surveys.



Unmanned Aerial Vehicle (sUAV) Project

Florida Department of Transportation (FDOT)

PI: Dr. Jennifer Rice, Department of Civil & Coastal Engineering / ESSIE

Co-PI: Dr. Peter Ifju, Department of Mechanical & Aerospace Engineering

FDOT recognizes that part of improving the condition of these bridges is developing more modern methods for performing inspections, which decrease the costs and nuisances involved, while improving the quality of data obtained. Small unmanned aerial vehicles (sUAVs) offer potential advantages over traditional inspection strategies such as improved access, increased safety, lower costs, and potential for more accurate inspection results. This collaborative project brings together UF’s UAV and bridge maintenance experts, as well as the use and evaluation of UF’s existing aerial vehicle, the octocopter, to determine important operational parameters and other criteria to reach the study’s goals.

EDUCATION

Iva and Norman Tuckett Fellowship for the UFTI

The UFTI offers six fellowships through the Herbert Wertheim College of Engineering. Students from any department in the College are eligible. The following students were recipients of the Iva & Norman Tuckett Fellowship from the UFTI:



Pedro Felipe Adorno Maldonado
Department of Civil & Coastal Engineering/ESSIE



Stephen Carl Spana
Department of Civil & Coastal Engineering/ESSIE



Sinead Marie Crotty
Department of Civil & Coastal Engineering/ESSIE



Chad James Spreadbury
Department of Environmental Engineering Sciences/ESSIE



Kyle Jude Michael Ventura
J. Crayton Pruitt Family Department of Biomedical Engineering

Transportation Research Internship Program (TRIP)

Five interns were selected to participate in the UFTI Southeastern Transportation Research, Innovation, Development & Education (STRIDE) Center summer internship program, which began on May 19, 2016. STRIDE provides a unique opportunity to learn about transportation engineering, and students can reside at any of the eight universities associated with the STRIDE consortium. Interns are paired up with a faculty adviser and work with masters and doctoral students. For more information, visit: <http://stride.ce.ufl.edu/internship-opportunities>



Fernando Dahbura
Florida International University
Project Title: "Bicycle Crash Trend Analysis"
Interned at: Florida International University



Alex Dixon
Arizona State University
Project Title: "Florida REDI Counties and Communities – GIS Analysis for Safe Routes to Schools"
Interned at: University of Florida



Matthew Elias
University of Florida
Project Title: "Visualization of New York Taxi Data"
Interned at: University of Florida



Taehyun Kim
University of Florida
Project Title: "SwashSim – Signalized Intersection Simulation and VTape"
Interned at: University of Florida



Daniel Royer
University of Florida
Project Title: "Economic Impact of Shared Use Paths"
Interned at: North Carolina State University

UFTI Student Chapters

WTS Florida Gator Student Chapter

In November 2015, the UF WTS student chapter hosted the 5th Annual Transportation Symposium. Panelists included: Dr. Carl Crane, Director of the Center for Intelligent Machines & Robotics, UF; Ben Walker, P.E., associate vice president of HNTB Corp.; and Dr. David Metcalf, Senior Researcher, Institute for Simulation Training, UCF. The chapter also hosted a free interactive workshop and sponsored a field trip to Tampa Port where students were able to see operations in the water such as vessel traffic service management, cruise terminals, and how cargo cranes operate.



UF ITE Student Chapter

The ITE student chapter at the University of Florida held three seminars, two workshops and five events this year. Members also attended the FSITE Summer Meeting and participated in the 2016 Collegiate Traffic Bowl in Daytona Beach, Fla. In 2015, the UF chapter took a trip to the Port of Tampa Bay. In the spring of 2016, the ITE went to the Gainesville Traffic Management Center and I-95 in Jacksonville, which monitors traffic in the city and surrounding areas.



From top left: Members of the UFITE student chapter during Traffic Bowl; The leadership of the WTS Florida Gator Student chapter in one of their meetings; WTS Student Chapter President Maria Missena introduces panelists during the WTS Symposium; Members of the UFITE during one of their field trips to the Jacksonville Traffic Management Center.

ALUMNI HIGHLIGHTS



Jing Li, Ph.D. (UF 2012)

Assistant Research Scientist at Texas A&M Transportation Institute (TTI)

“The UF transportation program is very prosperous. Our professors are very active and well-established in the transportation engineering field,

which brings in many cutting-edge research projects. That gives the students great opportunities of getting involved in those innovative research projects, which are very important for graduate students to shape their research skills. I benefited a lot from my time as a research assistant there.”



Larry Dorilus, M.Eng. (UF 2016)

Traffic Operations Specialist, Albeck Gerken, Inc.

“Don’t be afraid to fail. Even the greatest minds have failed several times before reaching success.

Continue to believe in yourself, have faith in your abilities, and the rest will work out on its own.”



Yinan Zheng, Ph.D. (UF 2016)

Data Scientist – Systems Analysis Group WSP | Parsons Brinkerhoff

“I wish to translate my knowledge and skills gained at UF into sustainable solutions that help the transportation system and the society move forward.”



Di Wu, Ph.D. (UF 2011)

Senior Research Scientist at Amazon.com, Inc.

“I think the most critical decision to make after graduation, especially after spending quite some time in the Ph.D. program, is whether to pursue a career in academia or industry. I spent a lot of time struggling through the decision. I think what makes your life better is to be able to find a career that overlaps with your personal interests.”



Michael Armstrong, M.S. (UF 2015)

Project Engineer, HDR

“I wanted something more hands-on where I could get involved with real-world projects. When Professor Sampson offered me an opportunity at McTrans, I took it and ran with it.

Getting real practitioner experience is important. It bridges the gap between theory you learn in classroom and what actually happens.”

OUR GRADUATES

Where are they now?

Michael Armstrong, M.S.

(UF 2015)

Project Engineer
HDR

Larry Dorilus, M.Eng.

(UF 2016)

Traffic Operations Specialist
Albeck Gerken, Inc.

Nima Shirmohammadi, Ph.D.

(UF 2015)

Engineer Analytics & Optimization
Jet Blue Airways

Samantha Taningco, M.S.

(UF 2016)

Tech Support/Testing
UFTI/McTrans Center

Yinan Zheng, Ph.D.

(UF 2016)

Data Scientist – Systems Analysis Group
WSP | Parsons Brinkerhoff





From top left: Current and former graduate students Ruoying Xu, Don Watson, Clark Letter and Amy Cavaretta; Ana Moreno, Marilo Martin Gasulla and Ines Aviles Spadoni; Milton Carrasco of Transoft (at left) and Dr. Lily Elefteriadou (at right) with colleagues during the UFTI 2016 reception in January at TRB.

TECHNOLOGY TRANSFER

Transportation Technology Transfer Center (T2): A year in review

This year, the T2 Center marked 32 years in administering the Florida Local Technical Assistance Program (LTAP). In 2015, the T2 Center trained over 2,100 individuals in 127 course sessions. The T2 Center houses several statewide safety resource centers, including the Florida Pedestrian and Bicycling Resource Center and the Florida Occupant Protection Resource Center. These programs and projects have been renewed for the 2016-2017 grant year. A major change in the Center's leadership occurred in 2016, including a reorganization of its programs. A new director, Maria Cahill, AICP, was named in April of 2016. For more information about the T2 Center and the activities and projects housed at the Center, please visit <http://www.t2ctt.ce.ufl.edu/t2ctt/default.asp>.

McTrans Center: A year in review

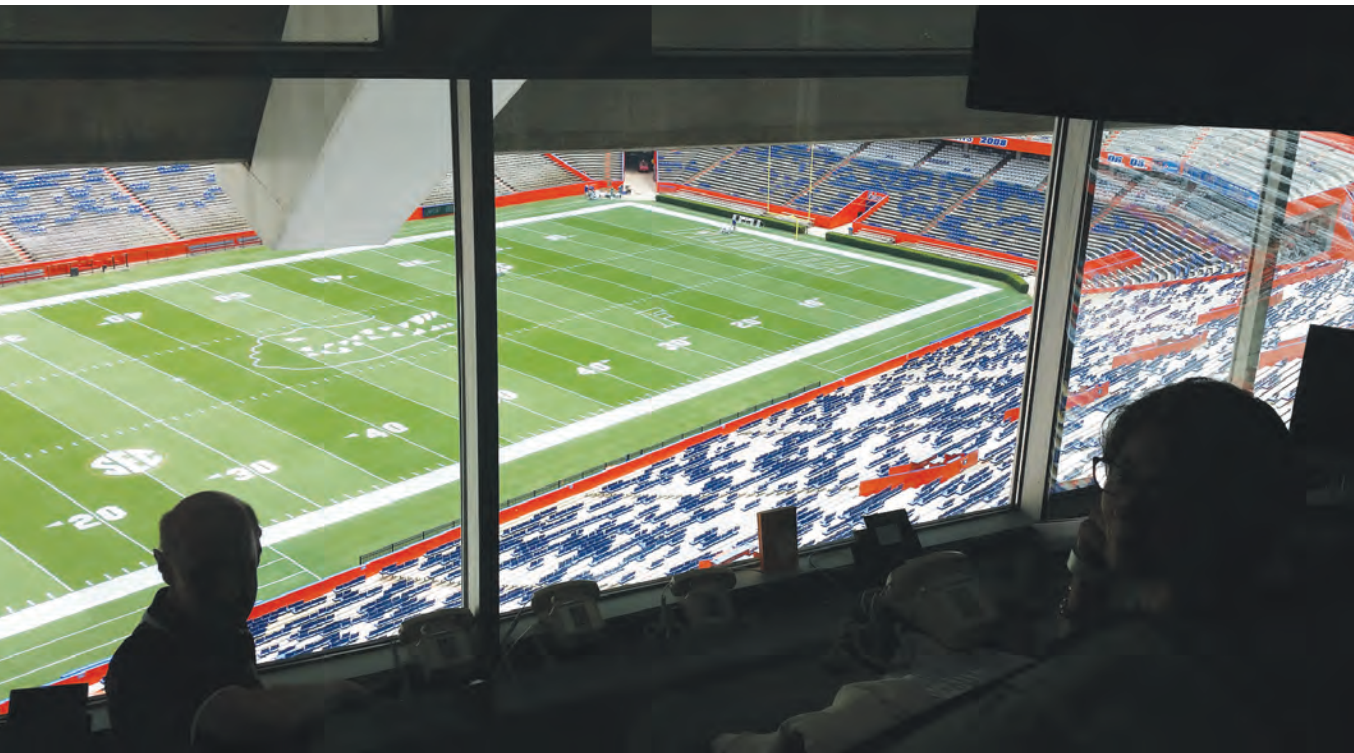
This year the McTrans Center celebrated its 30th anniversary. From its beginning in 1986 as a federally-funded grant to a completely self-supporting center in 1988, McTrans has continually developed, distributed and supported software for the traffic engineering and transportation planning profession. Recently, McTrans has been involved in the development of the latest version of the Highway Capacity Software™ (HCS7) that implements the updated procedures in the 6th Edition of the Highway Capacity Manual. Additionally, McTrans was involved in building travel time reliability mechanisms for urban streets and freeway facilities and alternative intersections. McTrans presented several webinar series and live training courses on highway capacity analysis and traffic engineering fundamentals. For more information visit <http://mctrans.ce.ufl.edu>.

UFTI Director Joins Panel of Industry Experts at HNTB Forum

UFTI Director Dr. Lily Elefteriadou participated in a panel of industry experts at an HNTB "Think: Infrastructure Forum" on August 18, 2015, in Orlando, Fla. The group of more than 40 leaders, experts and thinkers met for 2-hours to engage in discussions on key topics important to the transportation industry. The main topic of the discussion was on "Automated and Connected Vehicles." This new transportation technology will affect drivers and pedestrians, including car manufacturers, state DOTs, commercial trucking and logistics, companies, transportation engineers, consultants, the insurance industry and legislation.

Traffic Management for Football Games Workshop/Webinar

On September 3, 2015, the University of Florida Transportation Institute hosted a free workshop titled "Traffic Management for Football Games." The program included two presentations, one by Gator Alumni Matthew Weisman and the other by Texas A&M's Tim Lomax, Ph.D. The presentations were also offered as a live webcast, which has been recorded and can be seen online at https://www.youtube.com/watch?v=uGI4wt_BUBA.



A view from the Traffic Management Center at the University of Florida's Ben Hill Griffin Football Stadium.

Concrete Field Testing Technician Training & Certification

On October 9, 2015, seven students attended the American Concrete Institute's (ACI) Concrete Field Testing Technician training and certification course hosted by T2 on the UF campus in Gainesville. The attendees were a mix of undergraduate, graduate and doctoral students under the supervision of Dr. Chris Ferraro, P.E., in the Engineering School of Sustainable Infrastructure and Environment at UF. After successful completion of the written and performance exams, students earned an ACI Concrete Field Testing Technician Grade 1 certification, which is accepted worldwide.

WTS Transportation Symposium on Automated & Connected Vehicles

The WTS Florida Gator Student Chapter hosted their 5th annual Transportation Symposium on November 18, 2015. This year's topic was on "Automated & Connected Vehicles". Guest Speakers included Dr. Carl Crane, UF, director of the center for intelligent machines & robotics; and Dr. David Metcalf, senior researcher at the institute for simulation and training at the University of Central Florida.

UFTI Director Presents on Driver Behavior & Traffic Modeling at FSU-FAMU Research Seminar

Dr. Lily Elefteriadou traveled to Tallahassee to present her research on "Driver Behavior and Characteristics and their Use in Traffic Modeling." The talk was part of the Florida A&M University (FAMU) – Florida State University (FSU) College of Engineering's Civil and Environmental Engineering Seminar Series. It was also sponsored by the Center for Accessibility and Safety for an Aging Population (ASAP) at FSU.

UFTI Reception at TRB & STRIDE Student Poster Competition

The STRIDE Student Poster Competition was held in conjunction with the University of Florida Transportation Institute's Reception during the 95th Annual Meeting of the Transportation Research Board (TRB). Students from the STRIDE partner universities who worked on STRIDE-funded and related projects were invited to compete for 1st, 2nd and 3rd place scholarships worth \$500, \$250 and \$100, respectively. Winners of the competition were: Ossama Ramadan (UAB), 1st Place; Yinan Zheng (UF), 2nd Place; Chelsea Dyess (GT), 3rd Place.

UTC Conference for the Southeastern Region

STRIDE co-sponsored the 2016 UTC Conference for the Southeastern Region, which was held on March 31, 2016 and April 1, 2016, at the University of Tennessee, Knoxville. The conference theme was Safety, Mobility and Sustainability. Conference speakers included John Schroer, TDOT commissioner; Paul Trombino III, AASHTO president and Iowa DOT director; Peter Kelle, Louisiana State University; and Jurek Grabowski, director of research for the AAA Foundation.

UFTI's T2 Center Hosts Child Passenger Safety Meetings in North & Central Florida

The Florida T2 Center hosted two regional Child Passenger Safety (CPS) Updates this summer. CPS Updates are 8-hour workshops for CPS Technicians who educate parents across Florida on car seat installations. Alison Tillman, a certified CPS Technician at the UFTI's T2 Center, was on hand alongside several state technicians and instructors. State Farm provided funds for part of the Updates.



FACULTY & STUDENT AWARDS

Ines Aviles-Spadoni, M.S.

Research Coordinator, Administrative Leadership Award, Council of University Transportation Centers (CUTC) and ARTBA Awards Banquet, TRB, Washington, D.C. 2016

Deja Jackson

Best Oral Presentation, Dwight D. Eisenhower Transportation Fellowship, 2016, TRB, Washington, D.C., Paper: *Today's Perception of Vehicle Safety and It's Impact on Preparing for Tomorrow's Autonomous Vehicles*

Committee 200 (C200) Scholar Award, Herbert Wertheim College of Engineering, University of Florida 2016

Eleftheria (Ria) Kontou

Frankee Hellinger Graduate Scholarship WTS Central Florida 2015

Clark Letter

Student of the Year 2015
Southeastern Transportation Research, Innovation, Development & Education Center (STRIDE)

Megan McGinley

Frankee Hellinger Undergraduate Scholarship, WTS Central Florida 2016

Dr. Siva Srinivasan

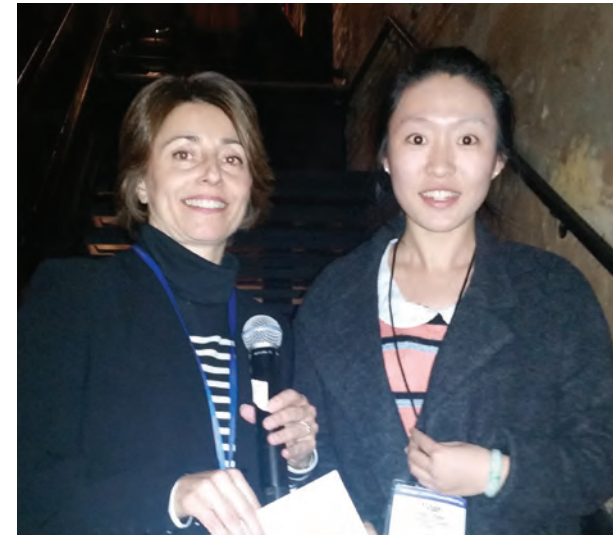
Runner-up, Florida Automated Vehicle Summit (poster competition), *Traveler Perceptions about Autonomous Vehicles: A Quantitative Synthesis* 2015

Don Watson

Eisenhower Transportation Fellowship 2015

Yinan Zheng

2nd Place Winner, STRIDE Student Poster Competition, TRB 2016, Washington, D.C., Poster Title *A Model of Pedestrian Delay at Unsignalized Intersections in Urban Networks*



Top right: Dr. Lily Elefteriadou presents Yinan Zheng with the 2nd Place Award during the UFTI/STRIDE Student Poster Showcase/Competition.

Bottom right: Ines Aviles-Spadoni, the Honorable Norman Mineta (former Secretary of Transportation) and Dr. Lily Elefteriadou during the CUTC Awards Banquet at TRB in January 2016.



INTERNAL STEERING COMMITTEE



Lily Elefteriadou, Ph.D.
UFTI Director & Kisinger Campo
Professor of Civil Engineering
ESSIE



Myoseon Jang, Ph.D.
Associate Professor
Environmental Engineering Sciences



Siva Srinivasan, Ph.D.
Associate Professor
Department of Civil & Coastal
Engineering/ESSIE



Carl Crane, Ph.D.
Professor
Mechanical & Aerospace
Engineering



Sanjay Ranka, Ph.D.
Professor
Computer & Information Science &
Engineering



Ruth Steiner, Ph.D.
Professor
Urban & Regional Planning



Maria Cahill, AICP
Director
Technology Transfer Center (T2)



Jennifer Rice, Ph.D.
Assistant Professor
Department of Civil & Coastal
Engineering/ ESSIE



Yafeng Yin, Ph.D.
Professor
Department of Civil & Coastal
Engineering/ESSIE



Evangelos Christou, Ph.D.
Associate Professor
Applied Physiology and
Kinesiology



Bill Sampson, P.E.
Director
McTrans Center

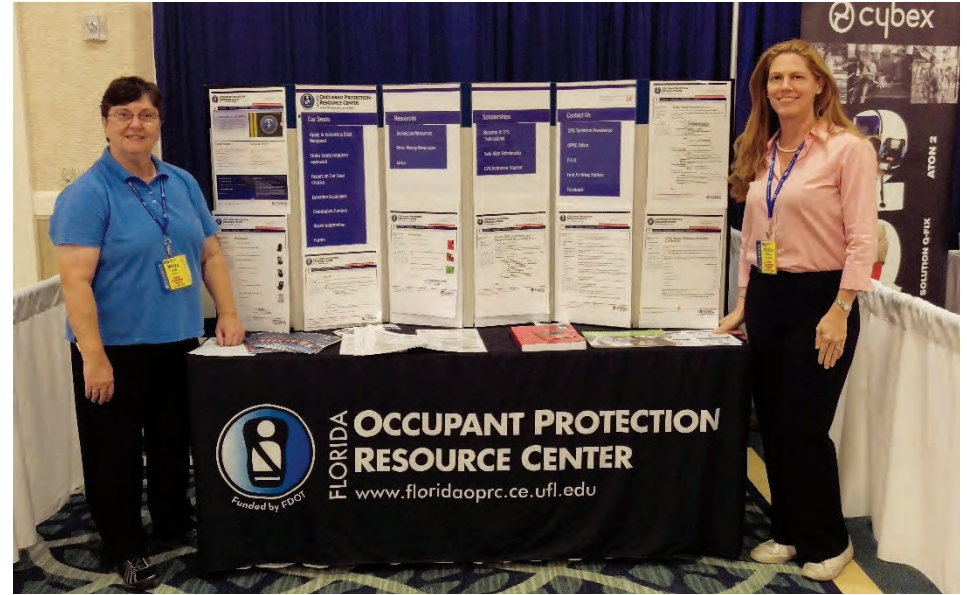
SUPPORT STAFF

Ines Aviles-Spadoni, M.S.
Coordinator, Research Programs
STRIDE Center

Madison Haughie, B.S.
Administrative & Communications Assistant
UFTI

Regan Tillery
Department of Civil & Coastal
Engineering/ESSIE





From left: Staff and interns at McTrans; Alison Tillman (at right) with a colleague during an Occupant Protection event; T2 hosts bike helmet fittings for the community.



AFFILIATED CENTERS



Center for Health & Built Environment

The Center for Health and the Built Environment is a research center focused on teaching, research, and service to address the relationship of the built environment to health outcomes with special attention to vulnerable populations. (Director: Dr. Ruth Steiner, Urban & Regional Planning)

Center for Intelligent Machines & Robotics (CIMAR)

CIMAR is an interdisciplinary research center conducting research on autonomous ground vehicle navigation, screw theory as applied to position and force control of robotic manipulators, three dimensional geometry and kinematic analysis of robotic systems, real-time computer graphics simulation, hardware/software system development and integration. (Director: Dr. Carl Crane, UF Mechanical & Aerospace Engineering)

Digital Worlds Institute

The Digital Worlds Institute exists to nurture leading edge research and education between the arts, communications, engineering and the sciences, focusing on advanced media systems and digital culture. (Representative: Dr. Angelos Barmpoutis, Computer Science & Engineering)

Geo-Facilities Planning & Information Research Center (GeoPlan Center)

The UF GeoPlan Center works to support land use, transportation, and environmental planning in the State of Florida by providing

geospatial and planning expertise, data, training, and education to the stakeholders involved in the planning process. The center is housed in the Department of Urban & Regional Planning. (Assistant Director: Dr. Ilir Bejleri, Urban & Regional Planning)

Human-Experience Research Lab (HXRL)

The Human-Experience Research Lab (HXRL) is focused on designing, building, and evaluating computational technologies as they relate to the human condition and reflecting on how these technologies affect society. (Director: Dr. Juan Gilbert, Computer & Information Science & Engineering)

Neuromuscular Physiology Lab

The lab's mission is to better understand movement deficits and to develop rehabilitation protocols to enhance functional independence. (Director: Dr. Evangelos Christou, Applied Physiology and Kinesiology).

Smart Infrastructure Management Laboratory

Research conducted in this lab is focused on advancing technological and analytical strategies to enable effective monitoring and management of civil infrastructure (Director: Dr. Jennifer Rice, Civil & Coastal Engineering)

Institute for Mobility, Activity, & Participation (I-MAP)

I-MAP focuses on mobility and transportation through the lifespan. Mobility and transportation enable activity, facilitate participation in society, promote access to goods and services, and enhances quality of life. (Director: Dr. Sandra Winter, Department of Occupational Therapy)

Efficient Transportation Decision Making (ETDM)

ETDM process incorporates environmental considerations into transportation planning to inform project delivery. (Director: Alexis Thomas, Urban & Regional Planning)

Florida Traffic & Bicycle Safety Education Program (FTBSEP)

FTBSEP employs the diverse skills of a Regional Training Team composed of teachers and other professionals around the state to encourage walking and bicycling as healthy and environmentally responsible transportation choices. (Director: Dr. Dan Connaughton, Tourism, Recreation, & Sports Management)

ENGINEERING
INDUSTRIES





From left: Dr. David Metcalf's son, Adam, speaks about his experience participating in the Tesla Motors challenge to drive a Model S for more than 400 miles on a single charge; Ines Aviles-Spadoni (at right) with Dr. Virginia Sisiopiku and Dr. Ossama Ramadan of the University of Alabama at Birmingham (STRIDE Consortium members) at the UTC Conference for the Southeastern Region in Tennessee; Larry Dorilus at Gainesville's Traffic Management Center.

SELECTED PROJECTS

Intersection Safety Courses for Florida's Rural Counties and Small Communities

USDOT
Nina Barker & Jaime Carreon, T2 Center

Investigating the Effects of Drivers' Body Motion on Traffic Safety

STRIDE Center/US Department of Transportation
Dr. Angelos Barmpoutis, Digital Worlds UF; Dr. Alexandra Kondyli, Civil & Coastal Engineering & Dr. Lily Elefteriadou, Civil & Coastal Engineering

FL Ped/Bike Safety Resource Center 2016

Florida Department of Transportation
Maria Cahill, AICP, T2 Center

NHTSA Occupant Protection Assessment for Florida

Florida Department of Transportation
Maria Cahill, AICP & Jeri Shell, T2 Center

Occupant Protection Resource Center (2015-2016)

Florida Department of Transportation
Maria Cahill, AICP, T2 Center

Local Technical Assistance Program, 2015-2016

Florida Department of Transportation
Maria Cahill, AICP & Nina Baker, T2 Center

Transportation Safety Center, (2015 - 2016)

Florida Department of Transportation
Maria Cahill, AICP & Dr. Siva Srinivasan, Civil & Coastal Engineering

Safe Routes to School Evaluation

Florida Department of Transportation
Maria Cahill, AICP & Dr. Siva Srinivasan, T2 Center/ Civil & Coastal Engineering

Florida Pedestrian & Bike Safety Resource Center, 2015

Florida Department of Transportation
Jaime Carreon, & Nina Barker, T2 Center

Florida Minority Task Force on Occupant Protection, 2015

Florida Department of Transportation
Dr. Lily Elefteriadou & Jeri Shell, UFTI/ T2 Center

Technology Transfer Support (2015 - 2016)

Florida Department of Transportation
Jeri Shell, T2 Center

Southeastern Transportation Research, Innovation, Development & Education Center (STRIDE 1 & 2) 2012-2017

USDOT/OST-R
Dr. Lily Elefteriadou, Civil & Coastal Engineering

Signal Timing Optimization with Consideration of Environmental and Safety Impacts

STRIDE/USDOT
Dr. Lily Elefteriadou, Civil & Coastal Engineering

Before and After Implementation Studies of Advanced Signal Technologies in Florida

Florida Department of Transportation
Dr. Lily Elefteriadou & Dr. Scott Washburn, Civil & Coastal Engineering

Traffic Signal Control with Connected and Autonomous Vehicles in the Traffic Stream

National Science Foundation
Dr. Lily Elefteriadou, Civil & Coastal Engineering ; Dr. Sanjay Ranka, Computer Science Engineering; and Dr. Carl Crane, Mechanical & Aerospace Engineering

Evaluation of Arterial Corridor Improvements and Traffic Management Plans in Florida

Florida Department of Transportation
Dr. Lily Elefteriadou, Civil & Coastal Engineering

Development and Testing of Optimized Autonomous and Connected Vehicle Trajectories at Signalized Intersections

Florida Department of Transportation
Dr. Lily Elefteriadou, Civil & Coastal Engineering

Improvements to the FDOT Travel Time Reliability

Florida Department of Transportation
Dr. Lily Elefteriadou, Civil & Coastal Engineering

Florida DOT Central Office Statistics Florida Department of Transportation & Cambridge Systematics

Dr. Lily Elefteriadou and Dr. Siva Srinivasan, UFTI

Big Data Management Pilot

Florida Department of Transportation
Dr. Lily Elefteriadou and Dr. Siva Srinivasan, and Dr. Sanja Ranka

Sunshine Skyway Bridge Monitor Phase I: System Assessment & Integration Recommendations

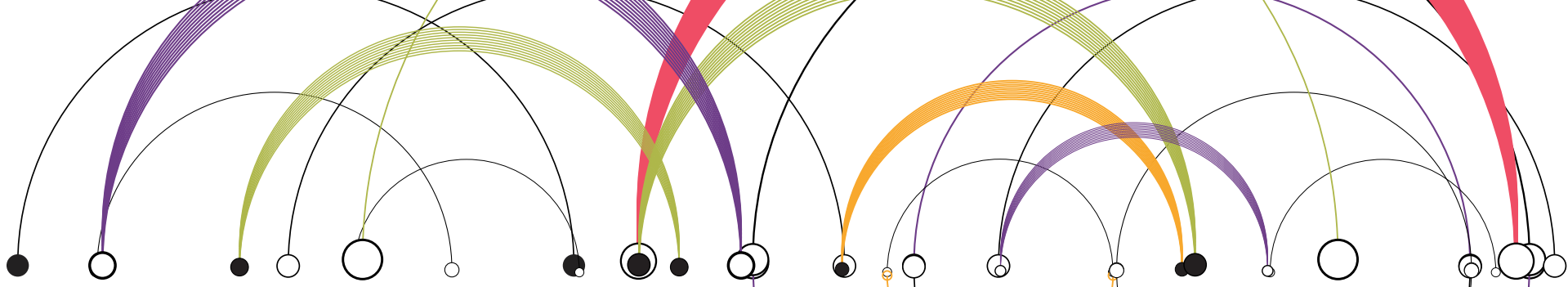
Florida Department of Transportation
Dr. Jennifer Rice, Civil & Coastal Engineering

Loading on Coastal Bridges in Windstorms using Rapidly Deployable Sensor Network

National Science Foundation Career Award
Dr. Jennifer Rice, Civil & Coastal Engineering

The Use of Small, Unmanned Vehicles to Inspect Bridges

Florida Department of Transportation
Dr. Jennifer Rice, Civil & Coastal Engineering



Warrants, Designs and Safety of Road Ranger Service Patrols

Florida Department of Transportation
Dr. Siva Srinivasan & Dr. Yafeng Yin,
Civil & Coastal Engineering

Development of Support Systems, Instructions Modules, and a Case Study for the Enhanced Driving Simulator at the Gator Tech Smart House

STRIDE/USDOT
Dr. Siva Srinivasan, Civil & Coastal Engineering

Towards a Holistic Understanding of Quality of Life: An Analysis of Activity-Travel Patterns on Non Mid-Week Days

STRIDE/USDOT
Dr. Siva Srinivasan, Civil & Coastal Engineering

Development of Case Studies, Numerical Exams and Instructional Modules for Teaching Roadway Safety Analysis

STRIDE/USDOT
Dr. Siva Srinivasan, Civil & Coastal Engineering

Surveying Florida MPO Readiness

Florida Department of Transportation
Dr. Siva Srinivasan, Civil & Coastal Engineering

Signalized Intersection Simulation Program for Education

STRIDE/USDOT
Dr. Scott Washburn, Civil & Coastal Engineering

Emissions Modeling and Integration into Traffic Micro-Simulation

STRIDE/USDOT
Dr. Scott Washburn, Civil & Coastal Engineering

Improved Analysis of Two-Lane Highway Capacity and Operational Performance

National Academy of Sciences/USDOT
Dr. Scott Washburn, Civil & Coastal Engineering

Commercial Truck Parking Detection

Florida Department of transportation
Dr. Scott Washburn, Civil & Coastal Engineering

Comparative Analysis of Dynamic Pricing Strategies for Managed Lanes

STRIDE/USDOT
Dr. Yafeng Yin, Civil & Coastal Engineering

From Pricing to Cap-and-Trade: Analysis and Design of Quantity-based Approach to Congestion Management

National Science Foundation/EAGER
Dr. Yafeng Yin, Civil & Coastal Engineering

Workshop for Managed Lanes on Arterials

STRIDE/USDOT
Dr. Yafeng Yin, Civil & Coastal Engineering

Optimizing Operations and Management of Multi-Modal Urban Transport System for Environmental Improvement

Dalian University of Technology
Dr. Yafeng Yin, Civil & Coastal Engineering

A Cyber Physical System for Proactive Traffic Management to Enhance Mobility and Sustainability

National Science Foundation
Dr. Yafeng Yin, Civil & Coastal Engineering

Modeling and Analysis of Advance Parking Management for Traffic Congestion Mitigation

National Science Foundation
Dr. Yafeng Yin, Civil & Coastal Engineering

Vulnerability Assessment and Resilient Design of Interdependent Infrastructures

National Science Foundation
Dr. Yafeng Yin, Civil & Coastal Engineering

Improvement and Application of the Market Acceptance of Advanced Automotive Technologies

UT-BATTELLE
Dr. Yafeng Yin, Civil & Coastal Engineering

Analytical Techniques for Studying On-Demand Shared-Use Mobility

National Science Foundation
Dr. Yafeng Yin, Civil & Coastal Engineering


Infrastructure Planning for Autonomous Vehicles

STRIDE/USDOT
Dr. Yafeng Yin, Civil & Coastal Engineering

Integrated Personalized Real-Time Traveler Information

University of Maryland
Dr. Yafeng Yin, Civil & Coastal Engineering

SELECTED PUBLICATIONS



Al-Kaisy, A., Jafari, A., Washburn, S., Luttinen, T., and Dowling, R. (2016). Performance Measures on Two-Lane Highways: Survey of Practice. *Transportation Research Record: Journal of the Transportation Research Board*.

Chen, H., Nie, Y. and Yin, Y. (2015). Optimal multi-step toll design under general user heterogeneity. *Transportation Research Part B*, 81, Part 3, 775-793.

Chen, X., M. Hadi, Y. Xiao, L. Elefteriadou. (2016). Development of Macroscopic Emission Estimation Model Based on Microscopic Operating Modes. *Journal of the Transportation Research Board, Journal of the Transportation Research Board of the National Academies, Washington, DC, No 2570*, pages 39-47.

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Chen, Z., He, F. and Yin, Y. (2016). Optimal deployment of charging lanes for electric vehicles in transportation networks. *Transportation Research Part B*, 91, 344-365.

Chen, Z., Xu, Z., Zangui, M. and Yin, Y. (2016). Analysis of advanced management of curbside parking. *Transportation Research Record*.

Classen, S., Cormack, N. L., Winter, S. M., Monahan, M., Yarney, A., Lutz, A. L., & Platek, K. (2014). Efficacy of an occupational therapy driving intervention for returning combat veterans. *OTJR: Occupation, Participation, and Health*, 34(4), 177-182. PubMed PMID: 25347755.

Classen, S., Winter, S., Monahan, M., Yarney, A., Lutz, A. L., Platek, K., & Levy, C. (2016). Driving Intervention for Returning Combat Veterans Interim Analysis of a Randomized Controlled Trial. *OTJR: occupation, participation and health*, 1539449216675582.

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He, F., Yin, Y., Wang, J. and Yang, Y. (2016). Optimal prices of electricity at public charging stations for plug-in electric vehicles. *Network and Spatial Economics*, 16(1), 131-154.

Kondyli, A., B. St. George, L. Elefteriadou, G. Bonyani. (2016). Defining, Measuring and Modeling Capacity for The Highway Capacity Manual. *ASCE Journal of Transportation Engineering*.

Kondyli, A., B. St. George, L. Elefteriadou. (2016). Comparison of Travel Time Measurement Methods Along Freeway and Arterial Facilities. *Transportation Letters: the International Journal of Transportation Research*.

Kontou, E., Yin, Y. and Lin, Z. (2015). Socially optimal electric driving range of plug-in hybrid electric vehicles. *Transportation Research Part D*, 39, 114-125.

Liu, W., Yang, H. and Yin, Y. (2015). Efficiency of a highway use reservation system for morning commute. *Transportation Research Part C*, 56, 293-308.

Liu, W., Yin, Y., and Yang, H. (2015). Effectiveness of variable speed limits considering commuters' long-term response. *Transportation Research Part B*, 81, 498-519.

Lu, B., Shao-Quan, N., and Washburn, S. (2015). A Support Vector Regression Approach for Investigating Multi-Anticipative Driving Behavior. *Mathematical Problems in Engineering*. Vol. 2015, Article ID 701926, 10 pages. DOI:10.1155/2015/701926

- Mamidipalli, S., V. Sisiopiku, B. Schroeder, L. Elefteriadou, K. Salamati, N. Roupail. (2015). A Probit Based Pedestrian Gap Acceptance Model for Mid-Block Crossing Locations. *Journal of the Transportation Research Board of the National Academies*, Washington, DC, No 2519, pages 128–136.
- Mamun, M.S., Michalaka, D., Yin, Y. and Lawphongpanich, S. (2016). Comparison of socioeconomic impacts of market-based instruments for mobility management. *International Journal of Sustainable Transportation*, 10 (2), 96-104.
- Michalaka, D., R. Steiner, L. Elefteriadou. (2016). Roundabouts as a Form of Access Management. *Transportation Research Record: Journal of the Transportation Research Board of the National Academies*, No 2556, Washington, DC.
- Michalaka, D., Xu, R., Page, J., Steiner, R., Washburn, S., and Lily Elefteriadou. (2016). Roundabouts as a Form of Access Management. *Transportation Research Record: Journal of the Transportation Research Board*. No. 2556, Transportation Research Board of the National Academies, Washington, D.C., pp. 1–9. DOI: 10.3141/2556-01.
- Moreno, A., Llorca, C., Washburn, S., Bessa, J., and Alfredo Garcia. (2016). Effect of Average Passing Zone Length on Spanish Two-Lane Highway Performance. *Transportation Research Record: Journal of the Transportation Research Board*.
- Ozkul, S., and Washburn, Scott S. (2015). Updated Commercial Truck Speed versus Distance-Grade Curves for the Highway Capacity Manual. *Transportation Research Record: Journal of the Transportation Research Board*. No. 2483, Transportation Research Board of the National Academies, Washington, D.C., pp. 91–101. DOI: 10.3141/2483-11
- Shi, S., Yin, Y. and Guo, X. (2016). Optimal choice of capacity, toll and government guarantee for build-operate-transfer roads under asymmetric cost information. *Transportation Research Part B*, 85, 56–69.
- Shirmohammadi, N. and Yin, Y. (2016). Tradable credit scheme to control bottleneck queue length. *Transportation Research Record*.
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- Washburn, S., Frey, C., Roupail, N., Hulsberg, J., and Hu, J. (2015). Emissions Modeling and Integration into Microsimulation Modeling. Final Report. Southeastern Transportation Research, Innovation, Development and Education Center. 156 pages.
- Washburn, S., Frey, C., Roupail, N., Ozkul, S. and Hu, J. (2016). On-Board-Diagnostics (OBD) Data Integration into Traffic Microsimulation for Vehicle-Specific Fuel Use and Emissions Modeling and In-Vehicle App Testing. Final Report. Southeastern Transportation Research, Innovation, Development and Education Center. 111 pages.
- Washburn, Scott S. (2016). Signalized Intersection Simulation Program for Education. Final Report. Southeastern Transportation Research, Innovation, Development and Education Center. 29 pages.
- Xu, H., Yang, H., Zhou, J. and Yin, Y. (2016). A route choice model with context-dependent value of time. *Transportation Science*.
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- Zangui, M., Yin, Y. and Lawphongpanich, S. (2015). Sensor location problems in path-differentiated congestion pricing. *Transportation Research Part C*, 55, 217-230.
- Zha, L., Yin, Y. and Yang, H. (2016). Economic analysis of ride-sourcing markets. *Transportation Research Part C*, 71, 249-266.
- Zheng, Y., Chase, R.T., Elefteriadou, L., Schroeder, B., Sisiopiku, V.P. (2015). Modeling Pedestrian-Vehicle Interactions Outside of Crosswalks, Simulation Modelling Practice and Theory. Volume 59, Pages 89–101.
- Zheng, Y., L. Elefteriadou. (2016). A Model of Pedestrian Delay at Unsignalized Intersections in Urban Networks. *Transportation Research: Part B*.
- Zheng, Y., T. Chase, L. Elefteriadou, V. Sisiopiku, B. Schroeder. (2015). Driver Types and Their Behaviors Within A High Level of Pedestrian Activity Environment. *Transportation Letters: the International Journal of Transportation Research*.
- Zhou, Y., Xiao, Q, Mo, Z., Chen, S. and Yin, Y. (2016). Privacy-preserving transportation traffic Measurement in intelligent cyber-physical road Systems. *IEEE Transactions on Vehicular Technology*, 65(5), 3749-3759.

SELECTED PRESENTATIONS

Al-Kaisy, Ahmed, Jafari, Amirhossein, Washburn, Scott S., Luttinen, Tapio, and Dowling, Richard F. Performance measures on two-lane highways: survey of practice. Poster presentation at Transportation Research Board meeting (Washington, DC). January 2016.

Bejleri, I & Noh, S. Aging road user information system. Poster presented at the Quarterly Meeting of Safe Mobility for Life Coalition, Tallahassee, Florida, February 24 – 25, 2015

Cormack, N., Classen, S., Monahan, M., Winter, S.M., Yarney, A., Lutz, A., Platek, K., & Levy, C. Efficacy of an occupational therapy driving intervention for OEF/OIF combat Veterans: A pilot study. Poster presented at the 95th American Occupational Therapy Association Annual Conference. Nashville, Tennessee, April 18, 2015.

Cormack, N., Classen, S., Monahan, M., Winter, S.M., Yarney, A., Lutz, A., Platek, K., & Levy, C. Efficacy of an occupational therapy driving intervention for OEF/OIF combat Veterans: A pilot study. Poster presented at the Florida Occupational Therapy Association Fall Conference, November, 2014.

Hu, Jiangchuan, Frey, Christopher, and Washburn, Scott S. Comparison of vehicle-specific fuel use and emissions models based on externally and internally observable activity data. Poster presentation at Transportation Research Board meeting (Washington, DC). January 2016.

Michalaka, Dimitra, Xu, Ruoying, Page, Joseph, Steiner, Ruth L., Washburn, Scott S., and Lily Elefteriadou F, roundabouts as a form of access management. Poster presentation at Transportation Research Board meeting (Washington, DC). January 2016.

Moreno, A., Llorca C., Washburn, S., Bessa J., and Garcia, A. Effect of average passing zone length on spanish two-lane highway performance. Poster presentation at Transportation Research Board meeting (Washington, DC). January 2016.

Sursky, S., Winter, S. M., Classen, S., Yarney, A., Monahan, M., Lutz, A., Platek, K., & Levy, C. Intermediate-term effects of an occupational therapy driving intervention for combat veterans. Poster presented at the 39th annual Association for Driving Rehabilitation Specialists (ADED) Annual Conference. Louisville, Kentucky, August 2, 2015.

Szafranski, E., Winter, S. M., Classen, S., & Levy, C. Combat veterans' strategies to manage risky driving and preferences for driving intervention. Poster presented at the 39th annual Association for Driving Rehabilitation Specialists (ADED) Annual Conference. Louisville, Kentucky, August 1, 2015

Washburn, Scott S. NCHRP 17-65 project (Two-lane highway operations analysis) overview. International Highway Symposium on Enhancing Highway Performance Berlin, Germany. June 17, 2016

Winter, S. M., & Monahan, M. Fidelity: Realistic driving simulator scenarios. Presented at the 39th annual Association for Driving Rehabilitation Specialists (ADED) Annual Conference. Louisville, Kentucky, August 1, 2015, as part of the symposium "Driving Simulation: Sharing evidence, enhancing practice" (Classen, S. – lead author/ moderator).

Winter, S. M., Special populations/conditions: Returning combat veterans. Presented at the 39th annual Association for Driving Rehabilitation Specialists (ADED) Annual Conference. Louisville, Kentucky, August 1, 2015, as part of the symposium "Driving Simulation: Sharing evidence, enhancing practice" (Classen, S. – lead author/ moderator).

Winter, S. M., Classen, S., Levy, C., Yarney, A., Monahan, M. Sursky, S., and Szafranski, E. Efficacy of a driving intervention for Veterans with polytrauma using a simulator. Poster presented at the VA RR&D Polytrauma conference "New Perspectives in TBI Rehabilitation". Hyattsville, Maryland, May 5-6, 2015.





University of Florida Transportation Institute (UFTI)
512 Weil Hall
P.O. Box 116580
Gainesville, FL 32611-6580

www.transportation.institute.ufl.edu

