University Transportation Centers

32nd Annual Outstanding Student of the Year Awards

Presented by:

U.S. DOT's University Transportation Centers (UTC) Program and the Council of University Transportation Centers (CUTC)

January 7, 2023

U.S. Department of Transportation
Office of the Assistant Secretary for Research and Technology

WELCOME

Welcome to the 32nd Annual University Transportation Centers (UTC) Program's Outstanding Student of the Year Awards ceremony, sponsored by the U.S. Department of Transportation (U.S. DOT) and administered by the Office of the Assistant Secretary for Research and Technology (OST-R).

Each year, outstanding students from participating UTCs are honored by U.S. DOT for their achievements and promise for future contributions to the transportation field at the annual awards banquet of the Council of University Transportation Centers. Students are selected based on their accomplishments in such areas as technical merit and research, academic performance, professionalism, and leadership. This booklet highlights their research interest, accomplishments, and goals.

University Transportation Centers Program

During the past few years, the U.S. DOT has launched several new initiatives designed to set transportation in motion toward a more connected, accessible, and sustainable future. Under the management of the U.S. DOT's Office of the Assistant Secretary for Research and Technology (OST-R), the University Transportation Centers (UTC) Program continues to bolster those efforts through advancing research on topics such as connected vehicles, pedestrian and cyclist safety, freight performance measures, and emissions reduction technologies.

Since its beginning, the mission of the UTC Program has focused on the development of advanced U.S. technology and expertise in transportation through education, research, and technology transfer at universities nationwide. The UTC Program was created by Section 314 of the Surface Transportation and Uniform Relocation Assistance Act of 1987, 49 U.S.C. §5317, with the primary purpose of conducting research.

The Intermodal Surface Transportation Equity Act (ISTEA) of 1991 reauthorized the UTC Program through fiscal year (FY) 1997 and expanded its mission to include education and technology transfer. In addition to the ten Regional Centers, ISTEA created three "National" Centers and six University Research Institutes at universities named in ISTEA. This expansion led the U.S. DOT to adopt a strategic planning approach to program management based on a mission and set of goals that applied to all thirteen centers and six institutes. The U.S. DOT extended the grants to the Regional Centers for three years and announced its intention to reopen the program to competition, which occurred in 1994.

In 1998, the Transportation Equity Act for the 21st Century (TEA-21) reauthorized the UTC Program for an additional six years and increased the total number of centers from the original 10 to 33.

In 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) increased the number of centers to 60. In addition to the 10 Regional Centers, 10 Tier 1 funded centers were also competitively selected, and with the exception of the Title III centers, all of the UTCs were required to provide a one-for-one funding match.

The Surface Transportation Extension Act of 2011 (the Extension Act), gave discretion to redistribute the funds allocated to specific research projects and programs designated in SAFETEA-LU. In accordance with the Extension Act, the U.S. DOT competitively awarded grants to 22 UTCs in the amount of approximately $3.5 million each to 10 Tier 1 UTCs, two Tier 1 Transit-Focused UTCs, and 10 Regional UTCs, and FY 2012 funds were added following extension legislation.

In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) continued the UTC program, authorizing the competitive selection of 35 UTCs to receive a total of $72.5 million in funding for each of FYs 2013 to 2014, with continued funding from extension acts through FY 2015. Following a competition in 2013, grants of approximately $3 million each were awarded to five National UTCs, $2.75 million each to 10 Regional UTCs, and $1.5 million each to 20 Tier 1 UTCs.

The Fixing America's Surface Transportation (FAST) Act, signed in December 2015, was the first federal law in over a decade to provide long-term funding for surface transportation infrastructure planning and investment. The FAST Act authorized $305 billion in spending from FYs 2016 through 2020 for the maintenance of existing and establishment of new initiatives in research, education and workforce development, and the facilitation of technology transfer. To fulfill the FAST Act federal mandate, U.S. DOT hosted a grant competition that resulted in the announcement of 32 new UTCs in December 2016, and UTCs in Federal Regions 1, 2, and 3 were added in 2018.

The Consolidated Appropriations Act, 2019 authorized $15M to establish two additional National Centers focusing on congestion and infrastructure research.

The Further Consolidated Appropriations Act, 2020, authorized $5M in funding to establish four new short-term Tier 1 UTCs to conduct research focused under one of four topic areas, 1) Highly Automated Transportation Systems Research, 2) Communications Technology and E-Commerce Effects on Travel Demand, 3) Implications of Accessible Automated Vehicles and Mobility Services for People with Disabilities, and 4) Strategic Implications of Changing Public Transportation Travel Trends.

In November 2021, the Infrastructure Investment and Jobs Act passed in Congress. Commonly known as the "Bipartisan Infrastructure Law" or "BIL," the bill authorized the Secretary of Transportation to make grants available to eligible institutions of higher education in the amount of $90 million per year for five years, from FYs 2022 through 2026. These newly created University Transportations Centers (UTCs) will concentrate their research in seven focus areas:

1. Improving Mobility of People and Goods;
2. Reducing Congestion;
3. Promoting Safety;
4. Improving the Durability and Extending the Life of Transportation Infrastructure;
5. Preserving the Environment;
6. Preserving the Existing Transportation System; and
7. Reducing Transportation Cybersecurity Risks.

The Secretary will select five National UTCs, ten Regional UTCs, and 20 Tier 1 UTCs to continue the mission of the UTC Program and advance multi-modal transportation expertise and transformational research.

UTC Program is funded by the Federal Highway Administration and administered by the Office of the Assistant Secretary for Research and Technology (OST-R). For more information visit the UTC webpage at: **https://www.transportation.gov/content/university-transportation-centers**.

University Transportation Centers Outstanding Students of the Year

Students are organized by primary mode of interest/study area.

MULTIMODAL

Khalid Al-Kady
University of Nebraska–Lincoln

Javon Barrett
Morgan State University

Django Bergcollins
San Diego State University

Lauren Brown
University of Texas at El Paso

Luisa Castrejon
University of Texas at El Paso

Fred Chambers
Benedict College

Taylor Dinehart
University of South Florida

Abbie Dirks
Arizona State University

Lily Hanig
Carnegie Mellon University

Quinn Packer
University of Connecticut

Alexandra Pan
University of California, Berkeley

Julene Paul
University of California, Los Angeles

Peyton Ratto
California Polytechnic State University, San Luis Obispo

Matteo Saracco
Georgia Institute of Technology

Margaret Slattery
University of California, Davis

William Toledo
New Mexico State University

Carrie Tremblatt
University of Colorado Denver

Geoffrey Vega
Polytechnic University of Puerto Rico

PUBLIC TRANSIT

Michelle Duren
Johns Hopkins University

Ashley Hightower
University of Tennessee, Knoxville

Kurtis Johnson
Eastern Washington University

Aqshems Nichols
University of California, Berkeley

Sadie Mae Palmatier
University of Oregon

Valencia Stewart
Texas Southern University

ROAD

Helena Breuer
Oregon State University

Milana Cimesa
University of Nevada, Reno

Mehrdad Ghyabi
George Mason University

William Hughes, E.I.T.
University of Connecticut

Zachary Jerome
University of Michigan

Lizbeth Juarez-Bartolo
University of Arkansas

Hadi Khoury
North Carolina Agricultural and Technical State University

Emily Shull
University of Iowa

Josue Vaglienty
San Jose State University

Jade Williams
University of Idaho

Khalid Al-Kady

University of Nebraska–Lincoln (UNL)

Mid-America Transportation Center (MATC)

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Bio

Khalid Al-Kady is currently a fourth-year Ph.D. student in the Department of Civil and Environmental Engineering at the University of Nebraska–Lincoln (UNL). He is specializing in structural engineering and also pursuing a Ph.D. minor in computer science. Khalid's research focuses on developing robust remote structural health monitoring (SHM) frameworks using remote sensing platforms (i.e., LiDAR and UAVs) and computer vision/deep learning algorithms. His Ph.D. research has been supported by the Mid America Transportation Center (MATC) and the Nebraska Department of Transportation (NDOT). He is also a student fellow at the Nebraska Governance and Technology Center (NGTC) at UNL.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering from the University of Nebraska–Lincoln, December 2023

M.S. in Structural Engineering from Cairo University, March 2022

B.S. in Structural Engineering from Cairo University, June 2017

Preferred Career after Graduation

Khalid is seeking a career in academia.

Broad Research Interests

Infrastructure systems; transportation policy; intelligent transportation systems

Specific Research Areas

Remote structural health monitoring (SHM), large-scale structural testing, computer vision/deep-learning-based SHM solutions

Primary Mode

Multimodal

Top Accomplishments in 2022

In 2022, Khalid presented his research on phased-construction bridges at the Eighth World Conference on Structural Control and Monitoring (8WCSCM) and the 11th International Conference on Short and Medium Span Bridges (SMSB).

Dissertation Title and Summary

"Novel Pipelines for Dynamic Structural Health Monitoring Using Commercially Available Platforms"

Despite the great success of terrestrial laser scanners (TLS) in monitoring static deformations, there have been only a few case studies that explored the use of TLS in monitoring the dynamic deformations of civil structures. Therefore, this thesis aims to develop a novel end-to-end framework to monitor the dynamic vibrations of structures using TLS. To accomplish this goal, an extensive experimental study was conducted to investigate the effect of structure- and scanner-based parameters on the robustness of the proposed TLS-based dynamic monitoring framework. The results emphasize the potential of TLS for conducting accurate full-field dynamic monitoring of civil structures.

Javon Barrett

Morgan State University

Urban Mobility & Equity Center (UMEC)

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Bio

Javon Barrett is a senior in Transportation Systems Engineering at Morgan State University and president of the Morgan State ITE student chapter. He currently is an engineering intern for the Los Angeles Department of Transportation. He actively works to set a good example for his peers and continuously embodies the essence of excellence at Morgan State.

Degree and Anticipated Graduation Date

B.S. in Transportation Systems Engineering from Morgan State University, May 2023

Preferred Career after Graduation

Javon is planning a career in the public or private sector.

Broad Research Interests

Intelligent transportation systems; traffic engineering

Specific Research Area

Connected and autonomous vehicles

Primary Mode

Multimodal

Top Accomplishment in 2022

Top accomplishments for 2022 were being named UMEC's UTC Student of the Year, becoming president of Morgan State University's student chapter of the Institute of Transportation Engineers (ITE), and receiving an engineering internship with the Los Angeles Department of Transportation.

Research Title and Summary

"Leveraging a Driver Eye-Movement Tracking Sensor for the Enhancement of an In-Vehicle Audio-Visual Alert System for Averting High-Risk Conflicts with Pedestrians and Cyclists in the Urban Driving Environment"

The project will focus on the reduction of distracted driving by creating a system that uses eye tracking technology to audibly and visually alert drivers and refocus them on the road based on perceived danger.

Django Bergcollins

San Diego State University (SDSU)

Safety Through Disruption (Safe-D) led by Virginia Polytechnic Institute and State University (Virginia Tech)

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Bio

Django Bergcollins is pursuing a bachelor's degree in Civil Engineering with a minor in Computer Science at San Diego State University (SDSU), expecting to graduate in May 2024. Django is assisting Dr. Arash Jahangiri in the development of cutting-edge applications for improving safety at intersections. Previously, Django collaborated with graduate students to develop a work zone safety application utilizing OpenCV, YOLOX, Flutter, and Flask. Additionally, he is a land development intern at Michael Baker International and the Vice President External for the American Society of Civil Engineers (ASCE) SDSU.

Degree and Anticipated Graduation Date

B.S. in Civil Engineering with a minor in Computer Science from San Diego State University, May 2024

Preferred Career after Graduation

Django is considering a career in consulting, academia, or the public/private sector after graduation.

Broad Research Interests

Transportation planning; intelligent transportation systems; traffic engineering

Specific Research Area

Intelligent transportation management systems

Primary Mode

Multimodal

Top Accomplishments in 2022

Django co-authored the paper, "A Holistic Work Zone Safety Alert System through Automated Video and Smartphone Sensor Data Analysis," which is currently under review for the Safe-D National University Transportation Center. He and his research team developed a work zone safety smartphone application, which tracks vehicles traveling at hazardous speeds near a work zone, combining deep learning with a front-end user interface. He is continuing research under Dr. Arash Jahangiri on automated intersection analysis implementation. Django was elected Vice President External and Transportation Team Project Manager for ASCE SDSU. With these positions, he provides students with access to project sites and CAD design workshops, committed to helping civil engineering undergraduates prepare for their future career.

Research Title and Summary

"Developing an Intelligent Transportation Management Center (ITMC) with a Safety Evaluation Focus for Smart Cities"

Transportation safety planning challenges in the era of smart cities entail understanding safety impacts from disruptive technologies, measuring the effectiveness of safety countermeasures, proactively identifying high crash risk locations, etc. Recent advancement in communication technologies and big data analytics enable us to deal with these challenges in a computationally efficient way. Traditional transportation management centers (TMCs) have limited capability to utilize large amounts of data to properly evaluate transportation safety. The goal of this project is to develop an intelligent transportation management center (ITMC) that adopts automated video data analysis to evaluate safety. The proposed ITMC demonstrates how intelligent transportation systems (ITS) technologies and big data analytics can be utilized to proactively assess transportation safety at signalized intersections. Conventional methods of traffic safety risk assessment at signalized intersections, measuring the number of roadway crashes per unit of exposure, would require a long observation time, because crashes are rare events. The proposed ITMC adopts safety surrogate measures (SSMs) to identify near crash situations that can be applied in proactive risk calculations.

Lauren Brown

University of Texas at El Paso (UTEP)

Connected Cities for Smart Mobility towards Accessible and Resilient Transportation (C2SMART) led by New York University

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Bio

Lauren Brown completed a bachelor's degree (Summa Cum Laude) in Civil Engineering in 2021 at UTEP and is currently a graduate student in a Dual Master's program on Smart Cities jointly offered by UTEP and the Czech Technical University in Prague. Lauren worked on research pertaining to artificial intelligence and parking, and more recently on digital twins. She was awarded the C. Michael Walton Fellowship from the Center for Transportation Research at the University of Texas at Austin, where she completed research on Vision Zero best practices that resulted in a white paper and a presentation to a stakeholder group.

Degree and Anticipated Graduation Date

M.S. in Civil Engineering from the University of Texas at El Paso, May 2023

B.S. in Civil Engineering from the University of Texas at El Paso, December 2021

Preferred Career after Graduation

Lauren is planning a career in the public sector.

Broad Research Interests

Transportation planning; traffic engineering

Specific Research Areas

Smart cities, digital twins, accessibility, safety, and equity

Primary Mode

Multimodal

Top Accomplishments in 2022

Lauren was awarded the C. Michael Walton Fellowship from the Center for Transportation Research at the University of Texas at Austin. Her research there on Vision Zero best practices resulted in a white paper and a presentation to a stakeholder group.

Thesis Title and Summary

"Applying Smart Cities Indices to a Multi-Modal Corridor"

This research will center on quantifying the performance of a multi-modal infrastructure through a Smart Cities lens. The project will center on a case study of an existing rotary "roundabout" located in Prague, Czech Republic. Measurable performance indices relating to accessibility, mobility, safety, and equity will be defined, measured, and evaluated, both in terms of standalone efficacy and as a component of a Smart Cities framework for municipal operations.

Luisa Castrejon

University of Texas at El Paso (UTEP)

Center for Transportation, Environment, and Community Health (CTECH) led by Cornell University

lacastrejon@miners.utep.edu

Bio

Luisa Castrejon graduated from The University of Texas at El Paso (UTEP) with a B.S. in Civil Engineering in 2021. She is currently a graduate student in the Czech Republic Smart Cities Dual Master's Degree Program hosted by UTEP and the Czech Technical University in Prague. In 2020 she interned at the El Paso Water utility company and mastered preparing construction-related drawings. As a research assistant for CTECH in 2021, she conducted research on Green Transportation Infrastructure (GTI) implementation in urban semi-arid environments.

Degree and Anticipated Graduation Date

M.S. in Civil Engineering with concentration in Smart Cities from the University of Texas at El Paso, June 2023

B.S. in Civil Engineering from the University of Texas at El Paso, August 2021

Preferred Career after Graduation

Luisa will continue her education pursuing a PhD and later consider a career in consulting, or the public or private sector.

Broad Research Interests

Transportation planning; transportation policy; infrastructure systems

Specific Research Area

Sustainable infrastructure

Primary Mode

Multimodal

Top Accomplishments in 2022

In 2022, Luisa began studies at the Czech Technical University in Prague. She also delivered an invited presentation to local engineers and stakeholders about green infrastructure in El Paso, TX, and mentored a team of UTEP seniors for a project with a green infrastructure focus.

Thesis Title and Summary

"Applying Smart Cities Indices to a Multimodal Corridor"

This research centers on quantifying the performance of multimodal infrastructure through a Smart Cities lens, centering on a case study of an existing traffic rotary (roundabout) located in Prague, Czech Republic. Measurable performance indices relating to accessibility, mobility, safety, and equity are defined, measured, and evaluated, both in terms of standalone efficacy and as a component of a Smart Cities framework for municipal operations.

Fred Chambers

Benedict College

Center for Connected
Multimodal Mobility (C^2M^2)
led by Clemson University

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Bio

Fred Chambers is currently pursuing a bachelor's degree in Computer Engineering at Benedict College. Fred has always been fascinated with computer engineering, primarily computer chips. This past summer he interned at Benedict College's Summer Undergraduate Research Institute (SURI), where he had the opportunity to study the effect of weather factors on the propagation field of the 5G millimeter wave and 4G mini links under Dr. Esmail Abuhdima.

Degree and Anticipated Graduation Date

B.S. in Computer Engineering from Benedict College, May 2024

Preferred Career after Graduation

Fred is considering a career in consulting and the public or private sector after graduation.

Broad Research Interests

Infrastructure systems; traffic engineering; materials

Specific Research Area

Intelligent transportation systems

Primary Mode

Multimodal

Top Accomplishments in 2022

In 2021–2022, Fred was enrolled in a Google internship. In September 2022, he became one of only eight ServiceNow scholars selected nationally from all candidates attending Historically Black Colleges and Universities (HBCUs) and Predominantly Black Institutions (PBIs). He also installed an ML6352 (5G system), PTP550 (4G), and a Davis Weather Instrument (Vantage Vue 6250) system on campus.

Research Paper Title and Summary

"The Effect of Dust and Sand on the Propagating EM Millimeter Plane Wave"

Different applications in our lives use wireless connections to provide varying telecommunication services. These wireless channels are affected by different weather factors such as rain, snow, dust, and sand. In the past, more research was concentrated on the effect of weather factors on the millimeter plane waves especially during rainy days. The desert regions in the world are the sources of dust and sand. In this country, the southwest is a source of dust and sand during windy days. Previous work investigated the effect of dust and sand on the 5G millimeter wave by calculating the path loss of the propagating length to estimate the received power at the destination point. In this research, the effect of dust and sand on the propagating electric field is investigated by determining the complex dielectric constant of dusty region to estimate the wave number and attenuation factor of the propagating plane wave. The Maxwell's equations are used to find the expression of the electric field in the form of linear, circular, and elliptic polarization. Moreover, this work will investigate the behavior of propagating waves through dusty/sandy regions with different polarization. The numerical result displays the best polarization that is recommended to use during dusty/sandy weather. Also, the penetration of the millimeter wave in the dusty lossy medium is different with different values of humidity. In this research, MATLAB is used to simulate the effect of dust and sand on the propagating electromagnetic millimeter wave.

Taylor Dinehart

University of South Florida (USF)

National Institute for Congestion Reduction (NICR)

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Bio

Taylor Dinehart has always been interested in public service and in improving the lives of others. After serving in the military, she earned a Master of Urban and Regional Planning from UCLA and is now pursuing a Master of Public Health at USF. Her goal is to complete her degree and begin a career at the intersection of public health and transportation planning in the Tampa Bay Area. She is passionate about researching and expanding multimodal transportation, walkability, mixed-use zoning, green space, equity, and social justice.

Degree and Anticipated Graduation Date

M.P.H. (Master of Public Health) from the University of South Florida, Spring 2023

M.U.R.P. (Master of Urban and Regional Planning) from the University of California, Los Angeles (UCLA), 2019

B.S. in Political Science from Florida State University, 2005

Preferred Career after Graduation

Taylor is considering a career in academia, consulting, or the public or private sector following completion of her master's degree.

Broad Research Interests

Transportation planning; transportation policy; infrastructure systems; intelligent transportation systems

Specific Research Areas

Public health, resilience, sustainability, equity, and safety

Primary Mode(s)

Multimodal

Top Accomplishment in 2022

For research on the Feasibility of a Regional Transportation Systems Management and Operations (TSMO) Program, Taylor produced a framework for effective collaboration in TSMO planning across a megaregion that set the stage for a peer exchange between Central Florida MPOs and five successful TSMO organizations from other states.

Research Title and Summary

"Feasibility of a Regional Transportation Systems Management and Operations (TSMO) Program"

Taylor conducted a detailed and comprehensive literature review of TSMO programs in the United States, as well as a deep dive into five prominent organizations that successfully use TSMO at the regional and megaregional scales. That work was directly instrumental in defining a framework for successful collaboration on TSMO planning in megaregions and set the stage for a peer exchange among eight MPOs in Central Florida and their peers from successful TSMO organizations across the nation.

Abbie Dirks

Arizona State University

Teaching Old Models New Tricks (TOMNET)

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Bio

Abbie Dirks is a Civil Engineering master's student in the School of Sustainable Engineering and the Built Environment at Arizona State University. A graduate researcher in TOMNET, her research interests include travel behavior and attitudes, shared mobility, perceptions of emerging transportation technologies, and transportation equity.

Degree and Anticipated Graduation Date

M.S. in Civil, Environmental, and Sustainable Engineering from Arizona State University, May 2023

B.S. in Civil Engineering from the University of Iowa, December 2020

Preferred Career after Graduation

Abbie is considering a career in consulting, academia, or the public or private sector after obtaining her master's degree.

Broad Research Interests

Transportation planning; transportation policy; intelligent transportation systems

Specific Research Areas

Travel behavior and attitudes, shared mobility, perceptions towards emerging transportation technologies, and transportation equity

Primary Mode

Multimodal

Top Accomplishments in 2022

Abbie has been involved in three research projects since joining TOMNET and played a major role in their completion. TOMNET submitted three manuscripts on these research efforts for publication in *Transportation Research Record*, and Abbie will present their findings on multiple occasions, including the 2023 TRB Annual Meeting.

Thesis Title and Summary

"Access to Food in a Severe Prolonged Disruption: The Case of Grocery and Meal Shopping during the COVID-19 Pandemic"

This thesis explores one fault line in society revealed by the COVID-19 pandemic: Whether it be remote work, remote learning, online shopping, grocery and meal deliveries, or medical care, disparities and inequities among socioeconomic and demographic groups leave some segments of society more vulnerable and less adaptable than others. This thesis identifies vulnerable and less adaptable groups in the context of access to food, using a comprehensive behavioral survey data set collected during the pandemic's height in 2020. It thereby provides insights into why those groups may have experienced food access vulnerability when businesses and establishments were restricted, risk of contagion was high, and using online ordering platforms required technology savviness, as well as the ability to afford delivery charges. Using a simultaneous equations model, this thesis proposes and presents estimations of six endogenous choice variables, defined by cross-tabulating two food types (groceries and meals), and three access modalities (in-person, online with in-person pickup, and online with delivery). The estimations show that attitudes and perceptions play a significant role in shaping pandemic-era access modalities. After controlling for a host of attitudinal indicators, the model reveals that minorities, low-income individuals, and individuals residing in rural low-density areas are particularly vulnerable to being left behind and experiencing challenges in accessing food during severe and prolonged disruption. Social programs should aim to provide these vulnerable groups with tools and financial resources to leverage online activity engagement and access modalities.

Lily Hanig

Carnegie Mellon University

Mobility21—A USDOT National University Transportation Center

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Bio

Lily Hanig is a Ph.D. student in Engineering and Public Policy at Carnegie Mellon University. Her research focuses on analyzing transportation system equity during disruptive events (e.g., COVID-19 and climate change) and energy transitions. Her current work assesses long-distance coverage of electric vehicles (EV) chargers along corridors in the U.S.; her future work will look at optimal siting of EV chargers at the community level for equitable distribution and low emissions. Lily is excited to be working towards a more equitable and decarbonized transportation system during a period of disruption by new technologies in the field.

Degree and Anticipated Graduation Date

PhD in Engineering and Public Policy from Carnegie Mellon University, 2024

B.E. in Engineering Sciences from Dartmouth College, 2019

Preferred Career after Graduation

Lily plans to pursue a career in the public or private sector.

Broad Research Interests

Transportation planning; infrastructure systems; intelligent transportation systems

Specific Research Areas

Systems planning and optimization of transportation systems for equity and low emissions

Primary Mode

Multimodal

Top Accomplishments in 2021

Lily won the Herbert L. Toor Award for outstanding research paper submitted to the qualifier exam, titled *COVID-19 Public Transit Precautions: Trade-offs Between Risk Reduction and Costs*. Additionally, Lily interned at the National Renewable Energy Laboratory on the Mobility, Behaviors, and Advanced Powertrains team.

Dissertation Title and Summary

"Planning for Equitable Outcomes During Periods of Disruption in the Transportation Sector"

Lily's doctoral thesis assesses the impacts on equity of rare events and emerging technologies in transportation, such as the COVID-19 pandemic's impact on public transportation and the effect of rapid vehicle electrification on infrastructure investments.

Quinn Packer

University of Connecticut (UConn)

Center for Advanced Multimodal Mobility and Solutions and Education (CAMMSE) led by the University of North Carolina at Charlotte

quinn.packer@uconn.edu

Bio

Quinn Packer is a graduate student at the University of Connecticut, earning his Ph.D. in Transportation Engineering. After receiving his undergraduate degree in Civil Engineering at the University of Connecticut in 2020 as a New England Scholar, Quinn continued to grow his academic resumé by earning his M.S. in Transportation Engineering in 2022 while simultaneously working with the Connecticut Transportation Safety Research Center. Quinn's desire to improve society has focused his studies on transportation safety, to contribute to providing a more equitable and sustainable society for all.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering with Concentration in Transportation Engineering from the University of Connecticut, May 2025

M.Eng. in Civil Engineering (Concentration in Transportation and Urban Engineering) from the University of Connecticut, May 2022

B.S. in Engineering (Civil Engineering) from the University of Connecticut, May 2020

Preferred Career after Graduation

After the completion of his Ph.D., Quinn will be pursuing a career related to transportation safety.

Broad Research Interests

Transportation planning; transportation policy

Specific Research Areas

Transportation safety and an equitable and sustainable society for all

Primary Mode

Multimodal

Top Accomplishments in 2022

Quinn won Second Place in the Graduate Student Presentation Competition at the 2022 CAMMSE Annual Research Symposium for his presentation "Pedestrian Signal Compliance Under Concurrent and Exclusive Phasing at Traffic Signals Considering Geo-Spatial Factors." He also co-authored the 2022 CAMMSE report *Estimation of Pedestrian Compliance at Signalized Intersections Considering Demographic and Geographic Factors*.

Thesis Title and Summary

"Pedestrian Signal Compliance Under Concurrent and Exclusive Phasing at Traffic Signals Considering Geo-Spatial Factors"

Pedestrian signal compliance under concurrent and exclusive phasing at traffic signals was estimated using 145 different crosswalk locations in the state of Connecticut. Various buffer sizes were used to encapsulate land-use densities, population density, and poverty surrounding each crosswalk. These geospatial variables were used in combination with various street-level variables to predict pedestrian compliance with crossing signals. It was found that high-density land use area, weighted population density, sidewalk presence, intersections with exclusive phasing, and day of the week all decrease the odds of pedestrian compliance with signal phasing. Medium-density land use area, low-density land use area, and crosswalk presence increase the odds of pedestrian compliance.

(Ph.D. dissertation topic is pending at this time.)

Alexandra Pan

University of California, Berkeley

Tier 1 University Transportation Center on Telemobility led by Northwestern University

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Bio

Alexandra Pan is a Ph.D. candidate in Transportation Engineering at the University of California, Berkeley. Originally a mechanical engineer, she became interested in studying sustainable transportation after spending countless hours stuck in traffic when commuting to her first post-college job in southeastern Michigan. In graduate school, her research focus has been identifying and addressing transportation barriers faced by low-income communities, work that she hopes to continue in her future career. Alex loves biking and taking the bus around town and would one day like to have a ferry boat commute.

Degree and Anticipated Graduation Date

Ph.D. in Transportation Engineering from the University of California, Berkeley, Summer 2023

M.S. in Civil and Environmental Engineering from the University of California, Berkeley, December 2019

B.S. in Mechanical Engineering from Columbia University, May 2016

Preferred Career after Graduation

Alexandra plans a career in the public sector or research.

Broad Research Interests

Transportation planning; transportation policy

Specific Research Area

Housing and transportation decisions of low- and moderate-income suburban residents

Primary Mode

Multimodal

Top Accomplishments in 2022

In 2022, Alex published her first first-author paper, which was on the spatial equity and demographics of carsharing in North America. She also completed a year-long state-funded project on low-income suburban housing and transportation.

Dissertation Title and Summary

"Crabgrass Confinement: Housing and Transportation Accessibility Challenges of Suburban Poverty"

Suburban areas are characterized by lower-density development compared to that of urban areas. This may pose accessibility challenges for the growing population of low- and moderate-income suburban residents, particularly those without a personal vehicle. Using Contra Costa County in the San Francisco Bay Area as a case study, Alexandra aims in her dissertation to understand the factors that lead low- and moderate-income households to move to suburban areas, and to identify accessibility barriers faced by these households. She is using a mixed-methods approach comprising Public Use Microdata Sample (PUMS) data from the U.S. Census, online/in-person surveys, and English and Spanish interviews, including a comparison dataset of survey and interview data from low-income Oakland residents.

Julene Paul

University of California, Los Angeles (UCLA)

Pacific Southwest Region University Transportation Center led by the University of Southern California

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Bio

Julene Paul is a Ph.D. candidate in Urban Planning at the UCLA Luskin School of Public Affairs and a researcher at the UCLA Institute of Transportation Studies. Her research explores connections between transportation access, informal automobile sharing, and life outcomes. She has also studied the factors contributing to falling transit ridership, the mobility impacts of trends in vehicle ownership, and the social factors that influence sharing behaviors. She previously worked in the public sector as a transportation planner for the Port Authority of New York and New Jersey and as a Presidential Management Fellow for the Federal Transit Administration.

Degree and Anticipated Graduation Date

Ph.D. in Urban Planning from the University of California, Los Angeles, March 2023

M.C.R.P. (Master of City and Regional Planning) from Rutgers–The State University, May 2016

B.A. in Social Studies from Harvard University, May 2013

Preferred Career after Graduation

Julene is seeking a career in academia.

Broad Research Interest

Transportation planning

Specific Research Area

Transportation equity

Primary Mode

Multimodal

Top Accomplishments in 2022

In 2022, Julene published articles in Transportation, the *Journal of Rural Studies,* and the *Journal of Urban Affairs*. She also earned dissertation fellowships from the University of California Office of the President and the UCLA Institute of Transportation Studies.

Dissertation Title and Summary

"Sharing In and Sharing Out: Rates and Predictors of Informal Automobile Sharing in the U.S."

Julene's dissertation explores how U.S. travelers use social networks to mitigate disadvantage and maintain mobility. In her research, she uses both qualitative and quantitative methods, analyzing secondary survey data and interviewing people seeking rides on online forums. Her work also addresses whether travel constraints or trip purpose are better predictors of vehicle-sharing.

Peyton Ratto

California Polytechnic State University, San Luis Obispo

Center for Transportation Equity, Decisions and Dollars (CEDD) led by the University of Texas at Arlington

pratto@calpoly.edu

Bio

Peyton Ratto completed a bachelor's degree in City and Regional Planning in 2021 at California Polytechnic State University, San Luis Obispo. Since September of 2021, she has been pursuing a concurrent master's degree in City and Regional Planning and Civil and Environmental Engineering. She is involved in research for her thesis where she will be evaluating the reduction in vehicle miles traveled resulting from the availability of affordable infill housing. This research is funded directly by the California Air Resources Board. Peyton has also co-authored a textbook on the fundamentals of engineering that is written specifically for individuals with a non-engineering academic background.

Degree and Anticipated Graduation Date

Concurrent C.E.–M.S./M.C.R.P. with Specialization in Transportation Planning from California Polytechnic State University at San Luis Obispo, June 2023

B.S.C.R.P. (Bachelor of Science in City and Regional Planning) with Minor in Sustainable Environments from California Polytechnic State University at San Luis Obispo, June 2021

Preferred Career after Graduation

Peyton plans a career in the public or private sector.

Broad Research Interests

Transportation planning; transportation policy

Specific Research Area

Potential for reducing vehicle miles traveled

Primary Mode

Multimodal

Top Accomplishment in 2022

Peyton's top accomplishment for the year and contribution to the transportation field was her authorship of an Open Educational Resource that condenses the relevant information needed to prepare for pursuit of a transportation engineering degree into a single resource for Cal Poly students.

Thesis Title and Summary

"Impact of Innovative Financing Tools on the Production of Infill Housing and Reduction in VMT"

The thesis will examine the relative vehicle miles traveled (VMT) reduction based on the effects of innovative housing finance programs that may fund affordable infill housing, including, but not limited to, higher-density housing close to transit. Sketch planning tools will be the underlying methods used to estimate VMT, including the use of elasticities for specific project or context characteristics and statistical models that directly estimate VMT.

Matteo Saracco

Georgia Institute of Technology

Southeastern Transportation Research, Innovation, Development and Education Center (STRIDE) led by the University of Florida

msaracco6@gatech.edu

Bio

Matteo Saracco is a graduate student and research assistant at Georgia Tech pursuing a dual Master of City and Regional Planning and Master of Science in Civil Engineering (M.C.R.P./M.S.C.E.) degree. After completing his undergraduate studies at the University of Bologna, Italy, he moved to the U.S. for graduate studies, and has been engaged with the local community to promote active transportation through walking and biking. During the spring of 2022 he completed a research project studying curb management strategies through microscopic simulation. His research interests are centered around understanding how modeling and simulation software can be used to impact both engineering and planning practices.

Degree and Anticipated Graduation Date

M.C.R.P./M.S.C.E. (Dual Master of City and Regional Planning and Master of Science in Civil Engineering) from the Georgia Institute of Technology, May 2024

B.S. in Civil Engineering from the University of Bologna, October 2020

Preferred Career after Graduation

Matteo may pursue a career in the public or private sector, or in consulting.

Broad Research Interests

Traffic engineering; transportation planning; intelligent transportation systems

Specific Research Areas

Curb management strategies, microscopic simulation, and model calibration

Primary Mode

Multimodal

Top Accomplishments in 2022

Matteo was selected for HDR's Transportation Scholarship Program and completing a successful internship with the company over the summer. He is also excited to be presenting the research he worked on this past spring at the upcoming 2023 TRB Annual Meeting.

Research Summary

The dual degree requires completion of the requirements for each of the two programs. Matteo has not yet begun work on the research required by Civil Engineering, or the thesis required for the Master of City and Regional Planning.

Matteo's most recent completed research involved analyzing curb management strategies through microscopic simulation to understand their effects on the curb environment and on traffic as a whole. His current research focuses on establishing a framework for microscopic simulation model calibration for use at various levels (state and local agencies).

Margaret Slattery

University of California, Davis

National Center for Sustainable Transportation (NCST)

msslattery@ucdavis.edu

Bio

Margaret (Meg) Slattery is a Ph.D. candidate in the Energy Graduate Group at UC Davis. She studies the supply chain and recycling of electric vehicle batteries to inform decarbonization strategies that are sustainable from a life-cycle perspective. She is conducting community-engaged research about lithium extraction in California as an affiliate of Lawrence Berkeley National Laboratory. Her work on reuse, recycling, and logistics has been published in peer-reviewed journals and as reports from the International Energy Agency and the California Environmental Protection Agency. Prior to attending UC Davis, Meg worked for a small non-profit in Nicaragua called Grupo Fenix in 2015–2018.

Degree and Anticipated Graduation Date

Ph.D. in Energy Systems from the University of California, Davis, June 2023

M.S. in Energy Systems from the University of California, Davis, June 2020

B.A. in Science, Technology, and Society from Vassar College; June 2015

Preferred Career after Graduation

Meg is considering a career in consulting, academia, or the public or private sector following completion of her Ph.D.

Broad Research Interests

Transportation policy; infrastructure systems; materials

Specific Research Area

Critical mineral supply chains for clean transportation

Primary Mode

Multimodal

Top Accomplishment in 2022

Meg facilitated stakeholder discussions and co-authored the final report for California's Lithium Car Battery Recycling Advisory Group, which presents policy recommendations to the state legislature to ensure that electric vehicle batteries are reused or recycled at end of life.

Dissertation Title and Summary

"Incorporating Stakeholder Perspectives in Industrial Ecology: A Justice-Oriented Analysis of the Lithium-Ion Battery Value Chain"

Meg is analyzing the material production and recycling of lithium-ion batteries using a mixed-methods approach that integrates qualitative research and life cycle assessment (LCA). On the supply side, she is studying procedural justice in the development of Lithium Valley, California, through interviews, participant observation, and transcript analysis of public meetings. Based on these findings, she is developing a stakeholder-driven research agenda regarding the impacts of direct lithium extraction from geothermal brine and conducting a participatory LCA that incorporates the community's questions. Her dissertation also addresses end-of-life management for electric vehicle batteries, using semi-structured interviews with auto dismantlers, battery recyclers, auto original equipment manufacturers (OEMs), and other impacted stakeholders, to map out the pathways batteries follow at end of life and to provide policy recommendations.

William Toledo

New Mexico State University

Transportation Consortium of South-Central States (TranSET) led by Louisiana State University

wktoledo@nmsu.edu

Bio

William Toledo is a doctoral candidate in the Department of Civil Engineering at New Mexico State University (NMSU). He received his B.S. in Engineering from Fort Lewis College in 2016 and his M.S. in Civil Engineering from NMSU in 2018. He has published two journal papers, nine conference papers, and five research reports; presented his research in lectures and poster sessions at conferences in Austin, New Orleans, San Antonio, and Washington D.C.; and has had two journal papers accepted for publication in Transportation Research Record and the American Concrete Institute's *ACI Materials Journal*.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering from New Mexico State University, May 2023

M.S. in Civil Engineering from New Mexico State University, December 2018

B.S. in Engineering from Fort Lewis College, April 2016

Preferred Career after Graduation

William will pursue a career in academia.

Broad Research Interest

Materials

Specific Research Areas

Ultra-high performance concrete, overlay systems, bond assessment, and bond characterization

Primary Mode

Multimodal

Top Accomplishments in 2022

William's co-authored journal article, "Substrate Influence on Ultra-High Performance Concrete Bond Strength," was accepted for publication by the American Concrete Institute's ACI Materials Journal. And in September 2022, he presented the co-authored conference paper, "Mechanical Properties of Ultra-High Performance Concrete Containing Natural Pozzolan and Metakaolin," at the 2022 Tran-SET Conference.

Dissertation Title and Summary

"Ultra-High Performance Concrete Overlay Bond Characterization through Experimental, Field, and Analytical Testing"

This research was conducted to assess the potential of using ultra-high performance concrete (UHPC) for repair applications. UHPC's performance as a repair material depends greatly on its ability to bond to the substrate concrete. Therefore, this study assessed the bond between a UHPC overlay and concrete substrate through experimental, field, and analytical testing.

Carrie Tremblatt

University of Colorado Denver

Mountain-Plains Consortium (MPC)
led by North Dakota State University

carrie.tremblatt@ucdenver.edu

Bio

Carrie Tremblatt is currently a transportation professional and Ph.D. student at the University of Colorado Denver. Her experience in both land use planning and advocacy inspired her interest in transportation research. Carrie is particularly interested in exploring questions regarding the influence of the broader built environment on mode choice and public health. She has worked as a multimodal transportation planner for the Colorado Department of Transportation (CDOT) since 2019 on a number of planning efforts, including the Statewide Greenhouse Gas Emissions Rule for Surface Transportation.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering from the University of Colorado Denver, 2024

M.U.R.P. (Master of Urban and Regional Planning) from the University of Colorado Denver, 2012

B.A., Political Science and Government, Cornell University, 2005

Preferred Career after Graduation

Carrie will pursue a career in academia or the public sector.

Broad Research Interests

Transportation planning; transportation policy; infrastructure systems

Specific Research Areas

Road safety, built environment, mode choice, and public health

Primary Mode

Multimodal

Top Accomplishment in 2022

Carrie participated in CDOT's planning efforts related to the new GHG Pollution Reduction Planning Standard. Colorado is the first state in the nation to require that MPOs achieve GHG reduction levels in their selection of future transportation projects.

Dissertation Title and Summary

"A Systems-Level Analysis of Left-Turning Vehicle-Pedestrian Crashes"

Despite abundant intersection-level safety research on the most appropriate signal phasing for intersection safety, our transportation system continues to struggle with left-turning vehicle-pedestrian crashes. This crash type has long been one of the most dangerous for pedestrians: left-turning vehicle-pedestrian crashes outnumber right-turning crashes by a factor of 3 to 1. They are also grossly overrepresented in terms of crash severity. It is easy to tally such crashes among the more than 90% attributed to human error. Yet, an accumulation of challenging conditions for a driver suggests that left-turning vehicle-pedestrian crashes are systematic problems, and not random crashes caused by human error. Accordingly, the proposed project seeks to take a system-level approach to studying this crash type via an empirical, macroscopic analysis of eight cities across multiple years. This approach includes (1) determining where this crash type is over- or underrepresented when controlling for the level of pedestrian activity; and (2) statistically evaluating what combinations of signal, design, and/or policy approaches are associated with better or worse safety outcomes, while also accounting for crash migration. The results of this work will improve our understanding of transportation system-level design and policy strategies to help push us toward eliminating a senseless crash type that has proven to be excessively dangerous for urban pedestrians who have the right-of-way.

Geoffrey Vega

Polytechnic University of Puerto Rico

Center for Advanced Infrastructure and Transportation (CAIT) led by Rutgers, The State University of New Jersey

vega_101432@students.pupr.edu

Bio

Geoffrey Vega is a Ph.D. candidate in Engineering and Applied Sciences at the Polytechnic University of Puerto Rico (PUPR) and a full-time engineering instructor at the University of Puerto Rico at Ponce. He has worked in private industry as a project engineer on major construction projects. He graduated with honors as a member of the Golden Key International Honor Society from the University of Puerto Rico at Mayaguez (UPRM) with simultaneous bachelor's degrees in Civil Engineering and Land Surveying. He later was recognized there as an outstanding student while earning his M.S. in Structural Engineering.

Degree and Anticipated Graduation Date

Ph.D. in Engineering and Applied Sciences from the Polytechnic University of Puerto Rico, June 2023

M.S. in Civil Engineering from the University of Puerto Rico at Mayaguez, June 2012

B.S. in Civil Engineering and B.S. in Land Surveying from the University of Puerto Rico at Mayaguez, June 2005

Preferred Career after Graduation

Geoffrey intends to pursue a career in academia and/or consulting after graduation.

Broad Research Interests

Infrastructure systems; materials

Specific Research Areas

Finite element analysis and computational fluid dynamics

Primary Mode

Multimodal

Top Accomplishment in 2022

Geoffrey maintained academic continuity with high performance despite hurricanes, earthquakes, the COVID pandemic, and other major disruptions.

Dissertation Title and Summary

"Analysis of Failure in Cantilevered Overhead Sign Support–Truss with Post Due to Hurricane Maria"

The National Hurricane Center estimates the total cost of the damage caused by 2017 Hurricane Maria to Puerto Rico and the U.S. Virgin Islands at $90 billion—the third most expensive in U.S. history. Most traffic signs and signals in the road infrastructure experienced damages. This study performed a comprehensive field study to identify the cantilever-type traffic signs that experienced damages due to wind loads, and determine the specific nature and causes of those damages. Signs were geo-localized and documented, and field samples were obtained for laboratory testing to assess material mechanical properties. The detected damage types were then classified, and two main failure modes identified: (1) foundation system damages from rotation and overturning of the embedded foundation, and (2) structural damages to the pedestal from (a) double bending and shear failure of the anchor bolts (from rotation of the base plate about a vertical axis) and (b) crushing of the concrete (from rotation of the base plate about a horizontal axis). A GIS tool was developed to navigate the failures. Structural damages/collapse on the pedestal were concentrated in the southeast, east, and northeast zones of the island, while soil foundation faults were concentrated in the south, north, and northwest. The study findings resulted in the recommendation to review design specifications and improve quality control during construction to guarantee structures more resilient to stresses in future events.

Michelle Duren

Johns Hopkins University

Center for Advancing Research in Transportation Emissions, Energy, and Health (CARTEEH) led by Texas A&M Transportation Institute

mduren3@jhmi.edu

Bio

Michelle Duren is a Ph.D. candidate in Health Policy and Management at the Johns Hopkins Bloomberg School of Public Health. Her research focuses on how the environment and policy changes influence health behaviors. Her dissertation centers on uncovering reasons for the observed surge in bicycling during the COVID-19 pandemic and providing concrete policy implications for how bicycling changes can be sustained and furthered moving forward. Michelle is a health policy analyst for the Government Accountability Office. Michelle has a BA in Political Science and Master of International Public Affairs from the University of Wisconsin.

Degree and Anticipated Graduation Date

Ph.D. in Health Policy and Management from the Bloomberg School of Public Health, Johns Hopkins University, May 2023

M.I.P.A. (Master of International Public Affairs) from the La Follette School of Public Affairs, University of Wisconsin–Madison, May 2015

B.A. in Political Science from The University of Wisconsin–Oshkosh, May 2013

Preferred Career after Graduation

Michelle is seeking a career in the public sector or academia.

Broad Research Interests

Transportation policy; transportation planning

Specific Research Area

Health policy and vehicle emissions

Primary Mode

Public Transit

Top Accomplishments in 2022

Michelle published the following article in 2022:

Duren, Michelle, Johnathon Ehsani, Jeffrey Michael, and Keshia Pollack Porter. 2022. "Association between Perceived Risk of COVID-19 and Support for Transportation Policies." Case Studies on Transport Policy 10 (3): 1898–1903. https://doi.org/10.1016/j.cstp.2022.08.003.

During 2022, she was also responsible for fielding a national survey on bicycling behavior and perceptions.

Dissertation Title and Summary

"Understanding Modal Shift during the Pandemic and Quantifying its Public Health Impact"

The coronavirus pandemic has disrupted transportation patterns in dramatic and unforeseen ways. An emerging body of literature drawn from cell phone data suggests this may be indicative of shifts towards active transit, which may have the potential to continue if current telework practices are sustained. While cellular data provide useful insights into changes in travel frequency, it fails to identify reasons why the changes occurred and why a particular mode was used. More detailed individual-level data about motivations, perceptions, and attitudes are needed to inform policies that can sustain and build on beneficial changes in transportation modes used. Survey data offers the best mechanism to develop this deeper understanding of mode shift during the pandemic. Michelle designed and conducted a nationally representative survey of over 6,000 U.S. adults to explore transportation mode shift particularly related to bicycling behaviors, and aimed at understanding the factors that might lead them to bicycle more.

Ashley Hightower

University of Tennessee, Knoxville (UT)

Transit – Serving Communities Optimally, Responsively, and Efficiently (TSCORE) Center led by the Georgia Institute of Technology

ahighto3@vols.utk.edu

Bio

Ashley Hightower is pursuing her second bachelor's degree, this one a B.S. in Civil Engineering at the University of Tennessee, Knoxville. An undergraduate research assistant, she focuses on equity in public transportation, ridership recovery, and fare policy. This work recently earned her the Transportation Research Board's William B. Millar Award for best paper in the area of public transportation. Ashley previously earned a B.A. (Summa Cum Laude) in Foreign Languages and Literatures from the University of Memphis, with a triple concentration in Italian, German, and Russian.

Degree and Anticipated Graduation Date

B.S. in Civil Engineering from the University of Tennessee, Knoxville, December 2022

B.A. (Summa Cum Laude) in Foreign Languages and Literatures from the University of Memphis, December 2016

Preferred Career after Graduation

Ashley plans a career in consulting.

Broad Research Interest

Transportation policy

Specific Research Area

Equitable transportation

Primary Mode

Public Transit

Top Accomplishment in 2022

Ashley received the Transportation Research Board's William W. Millar Award for best paper in the area of public transportation for her first published study, the co-authored "Current Practices and Potential Rider Benefits of Fare Capping Policies in the USA."

Research Title and Summary

"Current Practices and Potential Rider Benefits of Fare Capping Policies in the USA"

Fare capping, a policy in which a transit agency caps the maximum amount a rider pays over a given period, has emerged as a relatively new innovation in public transit fare policy that is spreading rapidly. This research aims to synthesize fare capping policies and to explore the benefits that riders could receive from fare capping. This study applied a multiple case study method to explore fare capping policies at the 101 largest transit agencies in the U.S. At least 21 of those 101 agencies were found to have fare capping policies. Of those 21 agencies, 20 used daily fare caps, 4 used weekly fare caps, and 14 used monthly fare caps. The number of one-way regular fare trips needed to reach the daily, weekly, and/or monthly cap was determined for each agency. Rider discounts for each fare capping period were then calculated. This study also discussed some innovative fare capping policies like "nested" fare capping (fare caps within fare caps), as well as capping for reduced-fare policies. These unique policies could help to address some of the most pressing challenges that face the transit industry in promoting equity for vulnerable groups such as low-income, elderly, and disabled riders, and incentivizing riders to return to transit post-COVID. These findings could inform transit agencies that are planning or considering the implementation of fare capping policies.

Kurtis Johnson

Eastern Washington University

Small Urban, Rural and Tribal Center on Mobility (SURTCOM) led by Montana State University

kjohns97@ewu.edu

Bio

Kurtis Johnson earned a Bachelor of Arts in History at Eastern Washington University (EWU) and is currently enrolled in EWU's Master of Urban and Regional Planning program. His studies focus on public transportation, socioeconomic equality, health and well-being, and environmental justice, with an emphasis on how these topics impact communities of color and the working poor. Kurtis is currently working on two publications about social infrastructure in the context of Native American reservations and tribal transit.

Degree and Anticipated Graduation Date

Master of Urban and Regional Planning from Eastern Washington University, December 2022

B.A. in History from Eastern Washington University, June 2015

Preferred Career after Graduation

Kurtis intends to seek a Ph.D., and afterwards to work in the public sector.

Broad Research Interests

Transportation planning; transportation policy; infrastructure systems

Specific Research Areas

Equity, environmental justice, and the connection between health and transportation

Primary Mode

Public Transit

Top Accomplishments in 2022

Kurtis presented on Barriers and Facilitators in Tribal Transit Planning at the TRB 2022 Annual Meeting, was nominated for EWU's 2022 Student of the Year, and was elected President of the Association of Student Planners.

Thesis Title and Summary

"Formal Informalities"

Kurtis is using the case study of tribal transit interviews to analyze the social infrastructure in reservations and the surrounding region of tribes. This is meant to bring the concept of social infrastructure into the "fourth world" or from the global south into the marginalized, poor communities within the global north.

Aqshems Nichols

University of California, Berkeley

Collaborative Sciences Center for Road Safety (CSCRS) led by the University of North Carolina at Chapel Hill

aqshems@berkeley.edu

Bio

Aqshems Nichols is pursuing a doctoral degree in Civil Engineering with a focus in Transportation Engineering at the University of California, Berkeley. His current research focuses on investigating the relationship between transportation access and the educational outcomes of community college students. During his time at the UC Berkeley Safe Transportation Research and Education Center (SafeTREC), he has worked on research projects that included a study on the implications of pluralistic ignorance on safety; the production of short videos (including one on the role of perception of safety); and an evaluation of active transportation safety. He was awarded a Graduate Fellowship by the FHWA Dwight D. Eisenhower Transportation Fellowship Program in 2020 and 2021.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering (Transportation Engineering) from the University of California, Berkeley, 2024

M.S. in Civil Engineering from the University of California, Berkeley, 2017

B.S. in Civil Engineering from the University of Texas at Austin, 2015

Preferred Career after Graduation

Aqshems's career plans are in academia and the public sector.

Broad Research Interests

Transportation planning; transportation policy

Specific Research Area

Transportation access and equity

Primary Mode

Public Transit

Top Accomplishments in 2022

Aqshems developed a literature synthesis exploring the relationship between transportation safety and pluralistic ignorance that illustrated his intellectual depth and creativity. He then created a research brief that makes this topic, which is situated in the field of psychology and not familiar to many transportation researchers, accessible to a broader audience.

Dissertation Title and Summary

"Investigating Transportation Access to Community Colleges"

Aqshem's dissertation focuses on investigating the relationship between transportation access and the educational outcomes of community college (CC) students. To study these topics, he is using tools such as Python and GIS for spatial data analysis, and employing qualitative methods, such as in-depth interviews and focus groups, to acquire insights into the transportation barriers faced by community college students in California. The ultimate deliverable from his dissertation will be the formation of policy recommendations to be submitted to state lawmakers and other stakeholders that advise on how to best improve transportation access to CCs.

Sadie Mae Palmatier

University of Oregon (UO)

National Institute for Transportation and Communities (NITC) led by Portland State University

spalmati@uoregon.edu

Bio

Sadie Mae Palmatier is a graduate student at the University Oregon's College of Design, studying for a master's degree in Community and Regional Planning. At UO, she has worked with the interdisciplinary group Urbanism Next and the Institute for Policy Research and Engagement (IPRE) on new mobility and parking management projects. She is currently IPRE's project manager for an update to the Mid-Willamette Valley Council of Governments' Comprehensive Economic Development Strategy. After completing her undergraduate studies, Sadie Mae worked in clean energy finance in the San Francisco Bay Area and in recreation/transportation planning in Boulder County, Colorado, before returning to school.

Degree and Anticipated Graduation Date

M.C.R.P. (Master of Community and Regional Planning) from the School of Public Policy, Planning, and Management of the University of Oregon, June 2023

B. A. in Environmental Studies (concentration in Environmental Economics and Ecology) from Bates College, May 2018

Preferred Career after Graduation

After earning a PhD, Sadie Mae would consider a career in either academia or the private sector.

Broad Research Interest

Transportation planning

Specific Research Area

Effects of minimum parking requirements on land use and transportation

Primary Mode

Public Transit

Top Accomplishment in 2022

As Transportation Planning Intern with WSP's Portland office, Sadie Mae helped draft and submit the Oregon Toll Program's Low-Income Toll Report: Options to Develop a Low-Income Toll Program and Best Practices for Implementation to the Oregon State Legislature. This report provides guidance to the Oregon Department of Transportation and Oregon Transportation Commission on creating an equitable toll program for all Oregonians.

Thesis Title and Summary

"When Parking Goes Away, Does Housing Come to Stay?"

The effects of eliminating minimum parking requirements in Transit Oriented Development districts on housing development.

Valencia Stewart

Texas Southern University (TSU)

Cooperative Mobility for Competitive Megaregions (CM2) led by the University of Texas at Austin

v.stewart0854@student.tsu.edu

Bio

Valencia Stewart is a graduate student at Texas Southern University studying Transportation Planning and Management, with a concentration in planning and policy. She is also a research graduate assistant with the university's Center for Transportation, Training, and Research. She is president of the university's Women's Transportation Seminar chapter and is also the secretary of the Institute of Transportation Engineers chapter at TSU. This past January, Valencia was awarded a Dwight D. Eisenhower Transportation Fellowship, and she was selected to present research to The Transportation Research Board Conference in Washington D.C. as a TRB Minority Student Fellow. Her current research assisting faculty members Dr. Carol Lewis and Dr. Gwendolyn Goodwin is in a five-year project titled "Compilation: A Statement of Vulnerability Regarding Texas' Megaregion Corridors."

Degree and Anticipated Graduation Date

M.S. in Transportation Planning and Management from Texas Southern University, May 2023

B.A. in Political Science and Sociology from Lamar University, May 2018

Preferred Career after Graduation

Valencia would like to pursue and career in academia and/or the public sector.

Broad Research interests

Transportation planning; transportation policy

Specific Research Areas

Travel demand modeling and congestion pricing

Primary Mode

Public Transit

Top Accomplishments in 2022

This past summer Valencia was an FHWA Summer Transportation Internship Program for Diverse Groups (STIPDG) intern in the Realty Services Division in Washington D.C. In that capacity she assisted with federal relocation projects, project briefings, and standard operating procedure contracts.

Thesis Title and Summary

"Regional Toll Roads vs. Median Income: An Examination of The Relationship Between Toll Roads and Community Realities"

Congestion pricing is viewed as a sustainable policy that can aid in decreasing traffic congestion and can address the importance of decreasing the carbon footprint from highway travel. This research will examine the relationship between toll rates and the median income of regional populations. Data and additional literature presented will determine the average cost of a 12-mile trip on Houston area toll roads and the average cost per mile viewed from the perspective of median incomes within a regional scope.

Helena Breuer

Oregon State University

Connected Cities for Pacific Northwest Transportation Consortium (PacTrans) led by the University of Washington

breuerh@oregonstate.edu

Bio

Helena Breuer is a Ph.D. student at Oregon State University, studying under Dr. David Hurwitz and conducting research in the Driving Simulators Laboratory. Lena is currently studying vehicle-bicycle interactions at novel signalized intersection designs in the full-scale passenger car simulator, using biometric equipment to study visual attention and stress levels, vehicle kinematic data to assess driver performance, and survey methods to capture driver attitudes. Lena is passionate about the application of cognitive psychology to transportation network design to enhance user experience and optimize network performance. She is excited to begin paving a career in transportation that involves UX/UI design.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering from Oregon State University, 2024

M.S. in Civil Engineering from Virginia Tech, 2021

BS in Civil Engineering from Virginia Tech, 2019

Preferred Career after Graduation

Lena will be pursuing a career in consulting and/or the public or private sector.

Broad Research Interests

Transportation planning; intelligent transportation systems; traffic engineering

Specific Research Areas

Human factors in transportation, and automated vehicles

Primary Mode

Road

Top Accomplishment in 2022

Lena was named a Dwight D. Eisenhower Transportation Graduate Fellow.

Thesis Title and Summary

"Innovative Design Solutions for Vehicle-Bicycle Collisions at Signalized Intersections"

This research explores design assumptions about vehicle-bicycle interactions at signalized intersections and drivers' reaction time, cognitive behavior, and visual perception of roadway infrastructure. Four types of signalized intersection approaches with bike lanes were studied in the full-scale, passenger car driving simulator at Oregon State University. Three independent variables were studied across four virtual intersections—the proximity of the cyclist to the driver at the intersection approach, the presence of parallel parking, and the setback of the bike lane. A fully counterbalanced, partially randomized, within-subjects experiment was conducted over 6 weeks with a sample of 40 participants, where biometric instrumentation was used to study drivers' visual attention and stress levels, and vehicle kinematic data was used to analyze driver performance.

Milana Cimesa

University of Nevada, Reno (UNR)

Accelerated Bridge Construction University Transportation Center (ABC-UTC) led by Florida International University

mcimesa@nevada.unr.edu

Bio

Milana Cimesa is a third-year Ph.D. candidate in Civil and Environmental Engineering at the University of Nevada, Reno. She is working with ultra-high performance concrete (UHPC) to study its compressive and confinement behavior for bridges and buildings columns. Milana has tested over 230 UHPC cylinders and 13 UHPC columns, with several more columns to test next year. Because educating others and expanding current knowledge through research have always been her passions, Milana has leveraged her skills to train several undergraduate and graduate students peers in mixing, casting, and testing UHPC, and is currently polishing her skills further to prepare for an academic career.

Degree and Anticipated Graduation Date

Ph.D. with Combined M.S. in Civil and Environmental Engineering (Structural Engineering focus) from the University of Nevada, Reno, December 2023

B.S. in Civil Engineering from the University of Nevada, Reno, May 2020

Preferred Career after Graduation

Milana may pursue a career in academia, the public sector or the private sector after receiving her doctorate.

Broad Research Interests

Infrastructure systems; materials

Specific Research Area

Structural and bridge engineering: the compressive behavior of emerging types of ultra-high performance concrete with applications for bridge and buildings columns

Primary Mode

Road

Top Accomplishments in 2022

Milana constructed and tested 13 UHPC columns between UNR and the University of California, Berkeley. She completed the comprehensive examination for her Ph.D. one year early, which was a major milestone. Milana received Nevada Women's Fund and UNR Differential Fees scholarships and published her first peer-reviewed journal paper. She presented at the 12th National Conference on Earthquake Engineering (12NCEE) and Engineering Mechanics Institute (EMI)-ASCE conferences.

Dissertation Title and Summary

"Advancing Design and Detailing of Ultra-High Performance Concrete (UHPC) Axial Columns"

Ultra-High performance concrete (UHPC) is a relatively new generation of concrete with superior mechanical and durability properties when compared to conventional concrete, with the potential to revolutionize concrete structures and the construction industry. Despite its advantages, there is still a lack of understanding of the behavior of full UHPC components and systems, which is slowing the process of establishing design codes and standards for UHPC. Consequently, more research is needed to determine best design practices and reinforcement detailing that would fully utilize the superior behavior of this type of concrete. This research focuses on providing proper reinforcement detailing (e.g., optimizing transverse reinforcement for macro-confinement) while leveraging nano-enhancement (e.g., using carbon nanofibers in the mixture) and micro steel fibers reinforcement for multi-scale confinement. The UHPC-sensible design guidelines expected to come out of this research would eventually enable the realization of structures with longer service life due to the UHPC's high durability, as well as reduced section dimensions or increased sectional capacities due to its high strength compared to conventional concrete. This is of particular interest to the bridge community, where a new-generation of precast UHPC bridge columns can be realized, offering additional benefits in high-seismic areas and harsh and coastal environments.

Mehrdad Ghyabi

George Mason University

Center for Integrated Asset Management for Multi-Modal Transportation Infrastructure Systems (CIAMTIS) led by the Pennsylvania State University

mehrdad.ghyabi@yahoo.com

Bio

Mehrdad Ghyabi is a doctoral candidate in Civil Engineering at George Mason University. His research is focused on different elements of structural asset management. He is working on measuring structural deformations using videos captured by unmanned aerial vehicles, de-noising deformation data, and using displacement signals to update digital twin models. Mehrdad has published works in the fields of structural engineering and structural health monitoring.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering from George Mason University, May 2023

M.S. in Civil Engineering from Sharif University of Technology, December 2015

B.S. in Engineering from Iran University of Science and Technology, August 2007

Preferred Career after Graduation

Mehrdad will be seeking a career in consulting and/or the public or private sector.

Broad Research Interest

Infrastructure systems

Specific Research Area

Vision-based structural health monitoring

Primary Mode

Road

Top Accomplishment in 2022

Mehrdad was the first author on "Vision-Based Measurements to Quantify Bridge Deformations" published in the ASCE *Journal of Bridge Engineering*.

Dissertation Title and Summary

"Smart Cities and a Modern Approach to Structural Health Monitoring: Autonomous Visual Sensing and Decision Making"

In terms of infrastructures, a smart city can be defined as an urban area that uses different types of sensing systems to collect reliable data, evaluate those data, and make decisions to ensure safety, serviceability, and resiliency, in an autonomous way. This research investigates components of an integrated framework of infrastructure monitoring and operations in a smart city. This research is composed of three parts. The first part investigates the performance of vision-based data collection, as a structural health monitoring (SHM) sensing approach. Advantages and disadvantages of each method will be evaluated, and combined results will be created by using data fusion techniques. The second part of this research investigates the performance of unmanned aerial vehicles (UAVs), or drones, as vision sensors for autonomously recording vision-based structural responses. In the third part of this research, the focus is on digital twins as the awareness apparatus of smart infrastructures. It is expected that the continuous nature of response data resulting from vision-based methods will enhance the performance of digital twin models.

William Hughes, E.I.T.

University of Connecticut

Transportation Infrastructure Durability Center (TIDC) led by the University of Maine

william.hughes@uconn.edu

Bio

William Hughes is a Ph.D. candidate in Structural Engineering at the University of Connecticut. His research focuses on the resilience of communities and their infrastructure, including bridges, powerlines, and buildings, to natural hazards. His work with the TIDC involves the modeling of debris buildup around bridges and resulting foundation scour, and the vulnerability of bridges subject to multi-hazards.

Degree and Anticipated Graduation Date

Ph.D. in Structural Engineering from the University of Connecticut, May 2023

B.S.E. (Summa Cum Laude, Honors Scholar) in Civil Engineering with Minor in Environmental Engineering from the University of Connecticut, May 2019

Preferred Career after Graduation

William is interested in a career in academia or the private sector.

Broad Research Interests

Transportation policy; infrastructure systems

Specific Research Area

Resilience of structures and systems to natural hazards

Primary Mode

Road

Top Accomplishment in 2022

William presented his research at seven conferences, including as a student scholarship recipient at the ASCE SEI Electrical Transmission and Substation Structures Conference and as a second runner-up in the student paper competition at the ASCE Earth and Space Conference.

Research Title and Summary

"Physics-based and Data-driven Infrastructure Digital Twins for Community Resilience Assessment under Strong Storms"

Models combining mechanistic and data-driven approaches are integrated to develop frameworks for resilience analysis of infrastructure, including the transportation network and bridges, power distribution and transmission systems, trees, and buildings. From the individual structure level, community-level resilience is assessed, including social and economic effects and the impacts of mitigation strategies to inform improved mitigation decision making.

Zachary Jerome

University of Michigan

Center for Connected Automated Transportation (CCAT)

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Bio

Zachary Jerome graduated with a bachelor's degree in Civil Engineering in 2020 from the University of Tennessee and is currently a Ph.D. student at the University of Michigan. His research focuses on using connected vehicle (CV) and infrastructure technology to improve traffic control systems in terms of efficiency and safety. Specific work includes implementing a new signal retiming strategy based on safety and mobility performance measures from telemetry data. In Spring 2022, he was elected president of the Michigan Transportation Student Organization (MiTSO) for the 2022–23 academic year, where he also leads the university's ITE and ITS student chapters.

Degree and Anticipated Graduation Date

Ph.D. in Civil Engineering from the University of Michigan, May 2025

M.S. in Civil Engineering from the University of Michigan, May 2022

B.S. in Civil Engineering from the University of Tennessee, Knoxville, May 2020

B.M. in Viola Performance from the University of Tennessee, Knoxville, May 2020

Preferred Career after Graduation

Zachary plans a career in the private sector or consulting.

Broad Research Interests

Infrastructure systems; intelligent transportation systems; traffic engineering

Specific Research Area

Improving traffic control systems through the use of connected vehicle and infrastructure technology

Primary Mode

Road

Top Accomplishment in 2022

In 2022, two papers for which Zachary was first or co-author were published in the Transportation Research Record: "Determining Yellow Change and Clearance Intervals for Left-Turning Phases: Evaluation of the Current Guidelines with Connected Vehicle Data" and "Trajectory Data Processing and Mobility Performance Evaluation for Urban Traffic Networks."

Dissertation Title and Summary

Full definition of the dissertation topic is in progress, but will focus on using connected vehicle (CV) and infrastructure technology to improve the efficiency and safety of traffic control systems.

Zachary is particularly interested in how better management and investment decisions can be made using current traffic management technology. He would like to expand these concepts to a new traffic management and control framework in which CVs contribute to cooperative planning, signal management, road space management, and safety prioritization.

Lizbeth Juarez-Bartolo

University of Arkansas

Maritime Transportation Research and Education Center (MarTREC)

ljuarez@uark.edu

Bio

After receiving a bachelor's degree in Civil Engineering from the University of Arkansas in 2021, Lizbeth Juarez-Bartolo accepted a position as a graduate research assistant there, and is pursuing her master's degree, specializing in transportation engineering. During her graduate studies, Lizbeth has worked on simulation projects with challenges ranging from serving as a CEO for a startup selling LiDAR technology for a National Science Foundation program to creating and deploying a statewide traffic safety survey. At the same time, she has participated in the Institute of Transportation Engineers.

Degree and Anticipated Graduation Date

M.S.C.E. (M.S. in Civil Engineering) from the University of Arkansas, December 2023

B.S.C.E. (B.S. in Civil Engineering) from the University of Arkansas, May 2021

Preferred Career after Graduation

Lizbeth intends to pursue her doctorate.

Broad Research Interests

Transportation planning; transportation policy; infrastructure systems

Specific Research Areas

Accessibility and mobility, land use and transportation interactions, and transportation system equity

Primary Mode

Road

Top Accomplishment in 2022

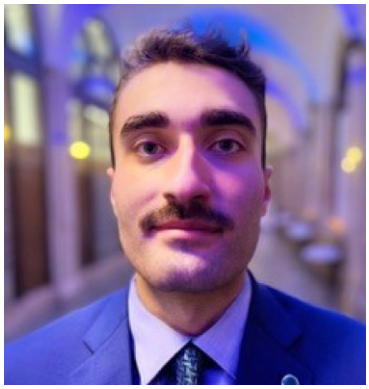
During the Missouri Valley District Institute of Transportation Engineers' 2022 Spring Conference, Lizbeth and her team won the Regional Traffic Bowl Competition, thereby qualifying for the International Traffic Bowl Competition. Traffic Bowl is a Jeopardy-style competition, with questions regarding transportation engineering topics.

Thesis Title and Summary

"Food Deserts' Effect on Arkansas's Rural Residents' Exposure to Vehicle Crashes"

Food deserts are areas in which a population of people do not have convenient options for obtaining affordable healthy groceries and fresh produce, due to the distance from which they live from the grocery store, lack of accessible transportation, and socioeconomic status. In Arkansas, based on available census tract data, 50 percent of the population lives approximately 10 miles or farther from a grocery store, causing low access to healthy groceries and fresh produce. While research into the adverse health effects of living within a food desert have been researched abundantly, there has been little research done observing the effects on drivers' safety due to the presence of food deserts. Given a rural resident's increased distance to and from a grocery store due to the presence of a food desert, the driver has increased exposure on the roadway which leads to an increased likelihood of the driver experiencing a vehicular crash. Utilizing the "2022 Arkansas Safety Awareness Survey," information will be gathered on safety attitudes, driving and riding behaviors, awareness of traffic safety enforcement and campaign activities, knowledge and opinions regarding cellphone usage laws, and trip information regarding grocery trips. The information gathered from this survey will be utilized to see the effects of food deserts on rural drivers' likeliness of being in a vehicular crash due to exposure on the roadways.

Hadi Khoury



North Carolina Agricultural and Technical State University (NC A&T)

Center for Advanced Transportation Mobility (CATM)

hkhoury@aggies.ncat.edu

Bio

Hadi Khoury is a Lebanese immigrant who was born in Saudi Arabia. He moved to the United States in 2016, and last year, he had the honor to become a citizen of this country. He graduated from North Carolina A&T State University in 2021 with a B.S. in Civil Engineering, and is currently finishing up his studies for the M.S. in Civil Engineering, with a concentration in transportation. Hadi is a roadway designer for an engineering firm, located in downtown Winston-Salem. He's passionate about serving his communities using his God-given talents. Hadi believes that adhering to integrity, virtue, and faith brings forth success and value for the greater good.

Degree and Anticipated Graduation Date

M.S. in Civil Engineering from North Carolina Agricultural and Technical (A&T) State University, December 2022

B.S. in Civil Engineering from North Carolina Agricultural and Technical (A&T) State University, May 2021

Preferred Career after Graduation

Hadi intends to go on for a Ph.D. and then pursue a career in the public sector.

Broad Research Interests

Transportation planning; intelligent transportation systems; traffic engineering

Specific Research Area

Designing equitable discounts for express lanes

Primary Mode

Road

Top Accomplishment in 2022

Hadi's co-authored paper was selected for presentation at the 2022 TRB Annual Meeting (see research summary below).

Research Title and Summary

"Model-Driven Equitable Discount Design for Express Lanes"

Priced-managed lanes are commonly used to mitigate traffic congestion by providing a time-reliable alternative and exploiting travelers' willingness to pay to generate revenue for the infrastructure projects. Equity and fairness issues for express lanes have always been considered; however, there is a lack of guidance on the design of equitable discounts. In this article, we present a modeling framework for analysis of equity issues with express lanes for tolls optimized for different objectives. Through simulation-based optimization of tolls, we argue that the choice of dynamic tolls impacts the delay differentials across different groups. We find that higher toll values and higher demand worsen the delay differentials across travel groups. We also prove that value-of-time (VOT) proportional discounts address equity differentials across the delay, where the discounts may be a function of current toll and travel time savings at a given gantry. Furthermore, we demonstrate that equitable discounts may result in a 25%–34% loss of revenue.

Emily Shull

University of Iowa (UI)

Safety Research Using Simulation (SAFER-SIM)

emilyshull95@gmail.com

Bio

Emily Shull completed a bachelor's degree in Psychology in 2018 at the University of Iowa (UI). She is currently a third-year Ph.D. student in the Industrial and Systems Engineering program at UI. As a doctoral research assistant at The National Advanced Driving Simulator, she is focusing on human attention and behavior in automated vehicles. Specifically, her research focuses on understanding how, with conditional automation, the driver can safely take back control when the automation can no longer function properly.

Degree and Anticipated Graduation Date

Ph.D. in Industrial and Systems Engineering from the University of Iowa, May 2023

M.S. in Industrial and Systems Engineering from the University of Iowa, December 2022

B.A. in Psychology from the University of Iowa, December 2018

Preferred Career after Graduation

Emily is open to career in the public or private sector after receiving her doctorate.

Broad Research Interest

Intelligent transportation systems

Specific Research Areas

Conditional automation, human-machine interaction, attention, and human-machine interfaces

Primary Mode

Road

Top Accomplishment in 2022

In 2022 Emily received the Human Factors and Ergonomics Society (HFES) Student Member with Honors Award.

Research Title and Summary

"Maintaining Attention with Enhanced HMI in Level 3 Driving"

With conditional automation (i.e., SAE level 3), the driver is permitted to engage in tasks other than operating the vehicle while the automation is within its operational design domain (ODD). However, once the automation exits the ODD, the driver is responsible for turning back to the driving task, both cognitively and physically, to take back control of the vehicle. Beginning at a theoretical level, Emily's research has investigated how drivers shift their attention, and what methods may facilitate that shift. Further, with the human-machine interface (HMI) being the primary communication link between automation and driver, Emily has investigated varying levels of HMI feedback in facilitating the driver's return of attention to the driving task.

Josue Vaglienty

San Jose State University

Mineta Consortium for Transportation Mobility (MCTM)

josue.vaglienty@sjsu.edu

Bio

Josue Vaglienty holds a B.S. in Civil Engineering from Cal Poly, San Luis Obispo, and is pursuing an M.S. in Transportation Management from the Mineta Transportation Institute at San Jose State University. He has 19 years of experience in both the private and public sectors, specializing in highway and fixed-rail transportation corridors, while also integrating Complete Streets and Active Transportation. Josue is currently a Senior Project Manager in the Capital Programs Division at the Orange County Transportation Authority, where he manages the planning, environmental, design, and construction phases of transportation infrastructure projects.

Degree and Anticipated Graduation Date

M.S. in Transportation Management from San Jose State University, May 2023

B.S. in Civil Engineering from California Polytechnic State University, San Luis Obispo, June 2003

Preferred Career after Graduation

Josue intends to continue his career in the public sector.

Broad Research Interests

Transportation planning; infrastructure systems; infrastructure systems

Specific Research Area

Multimodal transportation

Primary Mode

Multimodal

Top Accomplishment in 2022

In 2022 Josue was elected to a three-year term as President-elect, President, Past President of the Los Angeles Section of the American Society of Civil Engineers (ASCE). This section, which includes 8,000 members, is the second largest in the country.

Thesis Title and Summary

"Resilience and Climate Change Adaptation of Intercity Rail Corridors"

The research question: How effectively are the California Transportation Plan goals and policies that are related to safety, climate, and infrastructure being balanced with emergency closures on the LOSSAN Rail Corridor?

Jade Williams

University of Idaho (UI)

Center for Safety Equity in Transportation (CSET) led by the University of Alaska Fairbanks

jadedawnw@gmail.com

Bio

Jade Williams grew up in a rural farming town in southern Idaho and continued onto a local community college. There she found a passion for STEM and engineering. Upon transferring to the University of Idaho, she entered the Civil Engineering program and obtained her bachelor's degree in Spring 2021. Throughout her schooling, she was able to intern in various positions. She decided to pursue her master's degree in Civil Engineering in order to pursue a career in the private sector.

Degree and Anticipated Graduation Date

M.S. in Civil Engineering from the University of Idaho, December 2022

B.S. in Civil Engineering from the University of Idaho, May 2021

Preferred Career after Graduation

Jade will be starting a full-time position in January 2023 as a transportation and construction engineering intern (EI) with HMH Engineering.

Broad Research Interest

Intelligent transportation systems

Specific Research Area

Future technologies in transportation engineering, with current focus on opinions of autonomous vehicles in rural areas

Primary Mode

Road

Top Accomplishments in 2022

Jade served as UI ITE Chapter President for the 2022 school year, joined a student conference planning committee for PacTrans, and received a Women's Transportation Seminar (WTS) scholarship recognizing her as a woman who has demonstrated leadership in the transportation industry.

Thesis Title and Summary

"The Perception of Autonomous Driving in Rural Communities"

In rural communities across America, the accessibility and adoption of new technology, such as access to high-speed internet, typically occur sometime after when their urban counterparts experience this (Parker, et al., 2018). This can be attributed to a number of factors, including a lack of infrastructure or resources. It can also be due to a reluctance by rural citizens and communities to incorporate change in their lives, particularly if there does not seem to be an immediate need to so. In other words, if it ain't broke, why fix it? This project seeks to explore these rural viewpoints, particularly as they relate to autonomous and self-driving vehicle capabilities. This project examines (1) the extent to which rural community members might adopt self-driving capabilities for personal travel; (2) their confidence in such technology; and (3) how this technology might influence their current lifestyle. The research findings will help state and local transportation officials, planners, and engineers responsible for managing regional highways and roadways in rural communities by expanding the collective understanding of current and future transportation and technology demands in rural communities. The feedback will also help to shape policy and guide future education and outreach efforts.

U.S. Department of Transportation
Office of the Assistant Secretary for Research and Technology