NTC Information Highway

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The Nebraska Transportation Center's Information Highway newsletter keeps you up-to-date on the latest in transportation research, news, and events happening right here at NTC. Information Highway is about big ideas, students with big potential, and NTC's big impact on transportation in Nebraska, and beyond.

Fall 2020

From left to right: Nathan Dowler, Andrew Loken, Ryan Bikhaus, Ricardo Jacome, and Luis Rodriguez.

Five NTC MwRSF Students Receive Dwight D. Eisenhower Fellowships for Second Year in a Row

For the second year five individuals have received the Dwight D. Eisenhower Fellowship. This year the awarded students included Ryan Bickhaus and Ricardo Jacome, who also received the award in 2019, as well as Nathan Dowler, Luis Rodriguez, and Andrew Loken.

To be considered for the award, the students must be pursuing a degree in a transportation related discipline. This year's five winners are currently graduate research assistants at NTC's MwRSF, where the mission is to improve safety of public roadways though the design and testing of roadside hardware

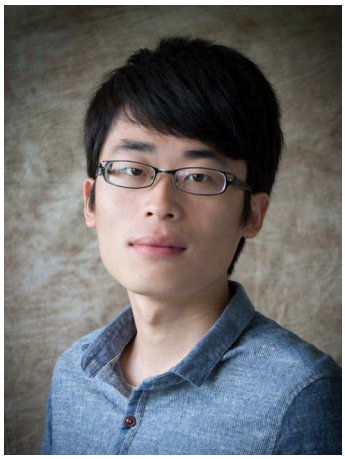
The fellowship is awarded based on merit to 150-200 students a year, making five from the same organization quite an achievement, with the selection process including a national selection panel and university panels. The fellowships are structured to provide funding towards student projects and research they are conducting while in pursuit of their degrees.

Congratulations to Two PhD Students Who Graduated in Summer 2020

NTC congratulates Huiyuan Liu and Ernest Tufuor on graduating with their PhD's in Civil and Environmental Engineering after the Summer 2020 session. Both students have made their mark at NTC throughout the years, participating in valued and innovative research and earning awards for showcasing their accomplishments in that research.

Huiyuan Liu spent his time as a PhD student focusing his research on traffic safety, particularly when it came to highway-rail grade crossings. He has been able to present his research findings through reports and papers, including a paper at the 2020 Transportation Research Board (TRB) conference in which his paper won the Best Paper Award. Although the year has been tough for 2020 graduates, Huiyuan landed a job and is currently working at a transportation data and safety research company as a Data Scientist. He says he "looks forward to applying [his] knowledge acquired from UNL to real world problems," and is glad he can continue contributing to a safer road environment.

Ernest Tufuor



Huiyuan Liu

Ernest Tufuor's research consisted of estimating and forecasting arterial travel time distributions for reliability analysis. This improved upon the current road travel time reliability methodologies published in the 6th edition of the Highway Capacity Manual (HCM6). He was the first researcher to validate this methodology using empirical travel time data on an arterial corridor and received the 2019 best paper by the HCM Committee of the TRB for his peer-reviewed article. He was also the first researcher to analyze the HCM6 component errors and formulate a calibration methodology, on which the paper was awarded one of the 2020 American Society of Engineers Editor's Choice for Transportation and Development. Ernest has also published six articles, two currently submitted, and three more accepted for conference presentation during his collaboration at NTC.

Ernest's future goal is an engineering professor, so he continues his time at NTC as a postdoctoral research associate where he can learn more about effective proposal writing for research grant and funding applications that are key components for tenure-tracked faculty positions.

Serial Award Winner Ricardo Jacome as SAE Doctoral Research Fellow

NTC's Midwest Roadside Safety Facility (MwRSF) graduate student Ricardo Jacome has been selected as an SAE Doctoral Research Fellow, a monetary award to aid in doctoral studies in engineering.

The scholarship, given by the Society of Automotive Engineers, is open to a wide pool of applicants, as anyone pursuing a degree in engineering at a U.S. university and planning to pursue a career in teaching engineering is eligible. Those who are selected have demonstrated strong academic achievement and leadership ability. Ricardo is currently pursuing a PhD in mechanical and materials engineering at UNL while conducting research on autonomous vehicles.

After earning his Bachelors of Science degree in 2017 at the University of Texas-Rio Grande Valley, he has continued his education and research at the University of Nebraska-Lincoln. He has had a significant role in many projects with MwRSF in the past three and a half years, including leading a crashworthiness analysis of a full-scale crash test data and working on a virtual lane-keeping system in the "Smart Barrier Systems" project.

He has been an advocate for MwRSF and an active recruiter for the transportation engineering field. When asked why becoming an educator in engineering is important to him, Ricardo stated "I believe I can help others to aspire success in their lives and specially in the transportation field!"

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Ricardo is the most awarded graduate student at NTC. This year, he has also received the Dwight D. Eisenhower Transportation Research Fellowship—awarded by the US Department of Transportation—for the third time. the Heinz C Pretcher scholarship for automotive excellence, UNL Recruitment fellowship. MATC awarded Ricardo with the Region VII UTC Student of the Year award in 2018, recognizing his achievements working on MwRSF projects.

The SAE Fellowship gives Ricardo a sense of value and recognition to the research he has been doing, and "motivates [him] to move forward with challenging [himself] in the engineering career." Earning this achievement will also work to open doors and collaborations in the future.

Dr. Cody Stolle Joins College of Engineering's NGTC Faculty Fellows

Hosted at the University of Nebraska College of Law, the Nebraska Governance and Technology Center (NGTC) works with personnel from the Colleges of Business, Engineering, and Journalism and Mass Communications. Dr. Stolle joined the group due in part to recognizing the extremely important role law, legislation, and liability will have on the automated and augmented-driving industry.

Working with partners in research and education, the center aims to be a place for uniquely interdisciplinary and forward-looking discussions about the impacts that changing technology is having on society. The center works to study the way law is changing from a "human history" in which actions are constrained by the natural world, to that which is shaped by "our own will, ingenuity, imagination, and mistakes."

As more automated and augmented driving systems are implemented, it becomes more important to explore changes in law, executive enforcement, and culpability as it relates to distributed vehicle ownership models, transportation-as-a-service (TaaS), and questions of liability during accidents. When an automated vehicle is involved in an impact, run-off-road crash, or traffic congestion, the question becomes who is liable during the event if there is no active human in control of the vehicle.

Dr. Stolle also plans on using his faculty fellow to participate in the varied perspective of infrastructure-based monitoring and personal freedom in the public sphere, considering new technologies in face recognition, location tracking, and contact tracing. His specific role will be focused on providing an engineering perspective on law, liability, data exchange, and monitoring, through his knowledgeable background in transportation, safety, and controls. While his principle focus is on vehicles, as part of NGTC Dr. Stolle hopes to "broaden [his] understanding of the intersection between product and system design, usage, and governance."

In addition to vehicular autonomy, the new center plans to discuss and research other emerging technologies, such as CRISPR and low-cost synthetic biology, smart cities and IoT devices that connect to and monitor other IoT devices, swarms of Internet-connected drones that can fly autonomously over hundreds of miles or can stay aloft for years at a time, additive printers and subtractive CNC machines for on-demand small batch manufacturing, AI generated news and entertainment, an increasingly disintermediated media environment, and a society whose laws and norms are adapting to an era of rapid climate change.

The NGTC has a podcast, Tech Refactored, in which they focus on the center's work and what it means to launch a center during the 2020 global pandemic. More can be found on their website at https://ngtc.unl.edu/.

Dr. Laurence Rilett Co-Authors Article on the Impact of COVID-19 on the Transportation System

Civil engineering professor and MATC Director Dr. Laurence Rilett co-authored an ASCE published article on the impact COVID-19 has had on the transportation industry. Dr. Rilett and Dr. Chris Hendrickson, Professor of Engineering at Carnegie Mellon University, aim to discern some lessons for the transportation engineering profession by evaluating its relationship with the coronavirus pandemic and how it can help with future disruptions.

The article expresses the role transportation played in spreading the virus. As the quickly spreading COVID-19 was asymptomatic for many carriers, people traveled during the early stages of the pandemic without any knowledge they were transferring the virus worldwide through air, roadway, and rail transportation. Conversely, the virus also had a significant impact on transportation, as stay-at-home orders were put in place and people practiced social distancing to avoid contact, daily travel significantly decreased.

In turn, the decline in travel affected the economy of the travel industry. Positive effects of less travel included improvement in air quality and the decline of petroleum use. In all, the pandemic has shown how much transportation is connected to the economy, environment, and overall health of the population.

The pandemic brought a new spectrum of research to the transportation field. "Unlike natural disasters and wars, the pandemic did not affect the physical infrastructure of transportation. Rather, it directly affected the human aspect of the transportation system." Instead of focusing on researching new designs to mitigate the impact of earthquakes, floods, and hurricanes, COVID-19 brought attention to the very beings that makes transportation necessary.

The article poses a series of questions for future research in transportation that can only be answered as the world continues to react to the virus. The COVID-19 pandemic has not only brought to light the impact and importance of the transportation industry but has also changed the industry in the way it is used and researched.

The article currently has over 7,200 downloads worldwide, and is available at https://ascelibrary.org/doi/pdf/10.1061/JTEPBS.0000418

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Share your News with NTC!

If you are a student, faculty member, or other affiliate of the Nebraska Transportation Center, we are eager to share news of your work and accomplishments.

Send your information to Madison Schmidt at mschmidt24@unl.edu, and it could appear in the next issue as well as NTC's website, Facebook, and Twitter.

NEBRASKA
TRANSPORTATION CENTER

Contact Us:

2200 Vine Street
262 Prem S. Paul Research
Center at Whittier School
PO Box 830851
Lincoln, NE 68583-0851

NETransportationCtr
@NTCInfoHighway
NETransportationCtr