

NTC Information Highway

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The Nebraska Transportation Center’s Information Highway newsletter keeps you up-to-date on the latest 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.

Spring 2021

Spring 2021 Graduates

The Nebraska Transportation Center is celebrating the graduation of three students from their graduate studies, which included their contribution to projects conducted in concordance with NTC. Their degrees, future plans, and some of their most recent accomplishments are described to show the ways in which they elevated and demonstrated the desire for NTC to foster interest in students in transportation engineering.



Antonio Hurtado Beltran and his family

Antonio Hurtado Beltran obtained a Fulbright-García Robles Scholarship for graduate studies to pursue his PhD in Civil Engineering at the University of Nebraska-Lincoln. Dr. Beltran worked as a graduate research assistant on freight transportation and freeway operations projects, most recently working closely with the Highway Capacity Manual (HCM-6) and its limitations.

In January, Beltran received news of his paper titled “An Alternative Regression Model Structure for the HCM-6 Equal Capacity Passenger Car Equivalency Methodology” being accepted for publication to the Transportation Research Record. The paper takes a closer look at the Highway Capacity Manual (HCM-6) and the nonlinear regression model used to develop the capacity adjustment factor (CAF) to calculate equal-capacity passenger car equivalencies (EC-PCEs).

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This research successfully developed alternative and simpler regression models of CAFs to derive EC-PCE values for freeway and multilane highway segments. It also began the development of new methodologies that would account for connected and automated vehicles the current HCM-6 methodology is not adequate for.

Dr. Beltran's advisor, Professor Dr. Laurence Rilett, co-authored the aforementioned Transportation Research Record publication. Since graduation, Dr. Beltran has taken a position as Professor and Researcher at the Universidad Michoacana de San Nicolás de Hidalgo in Mexico where he previously obtained his undergraduate and Master's Degrees.

During the Spring Graduate Commencement, **Sydney James** graduated with her Master's in Civil Engineering from the University of Nebraska-Lincoln. As a student she worked on transportation research as it pertained to safety for vehicles transporting hazardous material in rural and tribal areas.

Earlier this year, Ms. James was recognized by the U.S. DOT's University Transportation Centers (UTC) Program and the Council of University Transportation Centers (CUTC) as one of their Students of the Year. Due to this year's COVID-19 regulations, they hosted their 30th annual banquet virtually to recognize students from university transportation centers across the nation.

She was chosen by Mid-America Transportation Center to receive the Student of the Year award for her participation in research and outreach at the transportation center. As an undergraduate and graduate student at UNL, James often participated in the MATC Roads, Rails, and Race Cars after school program for middle school students to spark their interests in the STEM fields. She also was a key contributor to the MATC Sovereign Native Youth STEM Leadership Academy and the Native Scholars Program which aim to encourage the STEM fields and higher education in underrepresented groups.

Ms. James is now a Technical Advisor and Partner at Nebraska Accident Reconstruction.

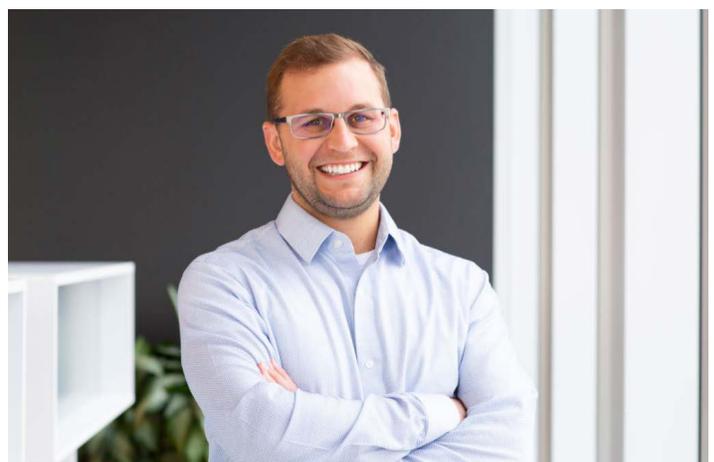
Sean Murphy graduated this semester with a Master's in Civil Engineering. He recently co-authored a paper titled "Arterial Roadway Travel Time Reliability and the COVID-19 Pandemic" published by the ASCE Journal of Transportation Engineering. The paper analyzed the effects of COVID-19 on travel time reliability (TTR). Researchers Sean Murphy, Dr. Ernest Tufuor, and Dr. Laurence Rilett performed a comparative analysis to examine average travel time distributions (TTD) and their associated TTR metrics before and during the pandemic from four urban arterial corridors in Nebraska.

Sean is currently working full time at HDR in Omaha, Nebraska where he has been working for a little over two years. As a traffic EIT he focuses on simulation modeling and traffic analysis and plans to take the PE exam within the next year. When he has time outside his job, he helps his wife in her newly opened local coffee shop, Stir Coffee Bar.

Top: Antonio Hurtando Beltran (right) and Dr. Laurence Rilett in front of the Prem S. Paul Research Center at Whittier School

Middle: Sydney James (left) and Dr. Laurence Rilett (right)

Bottom: Sean Murphy





MwRSF Featured in Fox Sports Story on Safety in Racing

The Midwest Roadside Safety Facility (MwRSF) is a research organization under the University of Nebraska-Lincoln and the Nebraska Transportation Center. The center's main focus is on highway design and safety, which often includes crash barriers. One of MwRSF most well known accomplishments was developed not for the highway of everyday drivers, but the Indianapolis Motor Speedway.

The SAFER (steel-and-foam energy-reduction) Barrier was developed by MwRSF in a project led by Dr. Dean Sickling as part of the "safety revolution" after the three deaths occurring within a six-month span in NASCAR racing in 2000 and 2001. One of these deaths included Dale Earnhardt, seven-time Cup champion known as The Intimidator. February 18 marked the 20th anniversary of Earnhardt's death and the beginning of a series of changes experts estimate has saved dozens of lives. FOX Sports shared a video and written article to commemorate Earnhardt and the safety measures implemented in NASCAR racing during the past two decades, including the SAFER Barrier.

The full story can be found at <https://www.foxsports.com/stories/nascar/dale-earnhardt-daytona-500-death-anniversary>.



NGTC Funding for Stolle Research

At the beginning of the 2020-2021 school year Dr. Cody Stolle joined the Nebraska Governance & Technology Center (NGTC), a coalition of faculty, students, and researchers across the University of Nebraska's colleges of Business, Engineering, and Journalism and Mass Communications. Since then, he has revised a research project to further the group's goal of understanding the impact of technology on legislation and governance and vice versa. This semester Dr. Stolle received funding through the NGTC program for his proposal "Legal Challenges Impeding State DOT Investment in Connected and Automated Vehicle Technologies."

With contributions from Ricardo Jacome and the faculty and staff of the Midwest Roadside Safety Facility, a non-profit academic research institution at Nebraska and part of NTC, Stolle will investigate and prioritize legislative needs, statutes, clarifications, rights, and responsibilities of agencies which perform tasks related to connected and automated vehicle guidance.





MwRSF Part of ENSCO, Inc. Team to Service the Transportation Technology Center

ENSCO, Inc. has been awarded a \$571 million USD contract to support the Federal Railroad Administration (FRA) in its goal to establish the Transportation Technology Center (TTC) as a center for rail and ground transportation innovation. As part of the contract, ENSCO is supported by a team of leading surface transportation research, training, technology, and facilities management organizations focused on next generation technology supporting transportation infrastructure.

The Center for Surface Transportation Testing and Academic Research (C-STTAR), a consortium of eight universities and academic research centers, makes up a portion of ENSCO's team. The University of Nebraska-Lincoln is part of this consortium headed by the University of South Florida Center for Urban Transportation Research. Also included is Colorado State University-Pueblo, Michigan Tech, the University of Hawaii, Michigan State University, Oregon State University, and the Mineta Transportation Institute.

Researchers in the College of Engineering and NTC's Midwest Roadside Safety Facility (MwRSF) will provide extensive and knowledgeable support of the FRA's mission to develop a vibrant, engaging, and modern TTC that fosters innovation, encourages positive change, and creates opportunity. MwRSF's contributions will be largely focused in the areas of vehicle run-off-road containment and occupant crash safety, vehicle stability, control, security and modeling research, and high-energy vehicle disaster prevention.

The transfer of TTC operations to the ENSCO team is expected to be completed by October 2022. They will continue to support the many site stakeholders, including the Association of American Railroads and its members, while also expanding to other modes of transportation with this new team of industry and university research, safety, technology, testing, and training entities.



Dr. Laurence Rilett Receives Esteemed NU Award



The University of Nebraska hosted a virtual ceremony on May 5th to present the President's Excellence Awards ORCA, OTICA, and IDEA to six faculty members across the University of Nebraska at Lincoln, Omaha, Kearney, and the Medical Center. MATC and NTC Director, Distinguished Professor, and Keith W. Klaasmeyer Chair Dr. Laurence Rilett was presented the IDEA, standing for Innovation, Development, and Engagement Award, designed to recognize faculty who share their academic expertise with the broader community through diverse outreach.

The ceremony gave an overview of the programs Dr. Rilett has developed and encouraged as the director of the Mid-America Transportation Center. The ceremony included a short video on Dr. Rilett's accomplishments, mentioning the outreach projects Roads, Rails, and Race Cars after school program, STEM Summer Academy, and MATC Scholars Program. These programs represent the effort to bring STEM knowledge and encouragement to middle school, high school, and college students in diverse groups where "his impact on students and in the community helps develop leaders of the future."

During the virtual ceremony, Dr. Rilett spoke of his gratitude for receiving the award, saying "it represents some of the most rewarding activities that I've done in my career." Dr. Rilett acknowledged the support of a number of key people including Judy gaiashkibos, Executive director of the Nebraska Commission on Indian Affairs, Dr. Judy Perkins from Prairie View A&M University, Dr. Erick Jones from the University of Texas at Arlington, Dr. Stephanie Adams from the University of Texas at Dallas, Dr. Luis Vazquez from New Mexico State University, Dr. Chris Cornelius from Iowa State University, and Dr. Michael Oltrogge, President of Nebraska Indian Community College. Dr. Rilett also acknowledged the NTC and MATC staff for their dedicated work. He identified over 200 people that have participated in these programs and because of time limitations could not name them all.

The programs are made possible through the financial support of sponsors, namely the US Department of Transportation, Nebraska Department of Transportation, The Claire Hubbard Foundation, State Farm, and Union Pacific.

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](#)

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