



# PacTrans

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University Transportation Center Newsletter

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## PACTRANS RESPONSE TO COVID-19 PANDEMIC

Early this spring, as reality began to set in about the severity and timeline of the COVID-19 pandemic and ensuing quarantining/stay at home orders, PacTrans' Board of Directors met to identify a number of adaptations to our normal activities that we would implement over the coming months. Three general categories of activities presented themselves as needing to be addressed: research, seminars, and student support.

### Research

The first major addition to our current operations was the addition of a request for proposals that was outside the normal PacTrans research cycle. The call was specifically for quick projects related to transportation mobility and safety in response to COVID-19. Leadership provided several general topic suggestions including: protection guidelines from COVID-19 when using public transportation services, taxi, or ride-hailing services, collection or acquisition of "perishable" mobility, safety, and/or behavior data related to COVID-19, analysis of and insight from the collected (perishable) data related to COVID-19; but did not limit submissions to those specific suggestions. For more information on the selected projects, see the research section of this newsletter.

### Seminars

During normal circumstances, PacTrans endeavors to facilitate a handful of seminars each quarter, that are open to both faculty and students, but also to the community at large. These seminars have been geared toward a variety of priorities including: workforce development, technology transfer, leadership development, and knowledge sharing, among others. During this time of COVID-19 with physical distancing requirements and campuses shutting down, PacTrans board still found it incredibly important that we continue to use this mechanism to support our researchers, our students, and our partners. We therefore launched a PacTrans Webinar series with new webinars every two to three weeks, utilizing the Zoom webinar platform to deliver this content to hundreds of attendees. For more information and recordings of the webinars, please visit our website at: [depts.washington.edu/pactrans/category/education-and-workforce-development/webinar/](https://depts.washington.edu/pactrans/category/education-and-workforce-development/webinar/)

CONTINUES

## PacTrans partners up on Pandemic Urbanism Symposium



In late May, PacTrans partnered with a number of current and recently graduated doctoral students from the University of Washington's College of the Built Environment, who organized an event titled, "*The Pandemic Urbanism Symposium*."

This one-day virtual event brought together more than 50 academics, researchers, practitioners, and activists to share their thoughts on the emerging state of pandemic urbanism. With over 1200 registrants, the symposium offered three plenary sessions and eight breakout sessions on a variety of subjects, all geared at answering questions such as: What does COVID-19 mean for city life? What are the implications of this pandemic for urban form, mobility, sociability, and politics?

PacTrans assisted with the promotion of this event, both for the call for proposals for presentations, as well as for attendees to the general event. One University of Washington PacTrans student researcher, Parastoo Jabbari, was successfully selected to present during the breakout session on mobility. She presented recent longitudinal survey results having to do with perceptions of shared mobility before and during the COVID-19 quarantine/physical distancing orders.

PacTrans' role also included utilization of our Zoom Webinar account and a staff person to host one of the two breakout session virtual rooms. For more information on the event, visit their website: [pandemicurbanism.com/](https://pandemicurbanism.com/)

## Dr. Anne Goodchild received UW CEE Department Mentoring Award

This year's CEE Department Mentoring Award goes to Dr. Anne Goodchild, Professor of Transportation Engineering, as well as an Adjunct Professor of Industrial & Systems Engineering at the University of Washington.

Dr. Goodchild currently serves as the director of the Supply Chain Transportation & Logistics Center, and the academic director of the Master of Supply Chain Transportation & Logistics degree program.

This recognition of Dr. Goodchild's exceptional work was made possible by the multiple, and thoughtful student nominations that were made on her behalf.



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### Student Support

Since its inception, PacTrans has offered a graduate student fellowship each year to a handful of students interested in pursuing a Master's Degree in a transportation-related field before either entering, or returning to practice. This fellowship offers students a world class education along with internship experience while being connected

with our partner network. This year, with the onset of COVID-19 during the 2020 – 2021 school year admissions process, many students and prospective students are having to weigh new options with regard to shrinking job markets, primarily virtual education, and so on. Because all courses have moved to remote learning for the remainder

of the spring and summer, and most of our consortium partner universities will likely have a hybrid approach come fall, PacTrans faculty are developing alternative education plans to provide convenience to students while ensuring education quality. This included, for example, an extension in the PacTrans Graduate Fellowship offer deadline.

## PacTrans Funds Research Projects Centered Around COVID-19

In mid-March, PacTrans put out a request for proposals for a special round of research funding specifically aimed at quick turn-around projects investigating various aspects of COVID-19 implications to our transportation system. Leadership provided several general topic suggestions including: protection guidelines from COVID-19 when using public transportation services, taxi, or ride-hailing services, collection or acquisition of “perishable” mobility, safety, and/or behavior data related to COVID-19, analysis of and insight from the collected (perishable) data related to COVID-19; but did not limit submissions to those specific suggestions. The PacTrans board ultimately selected three projects for funding as follows:

### Measures of Freight Network Resiliency: A Pacific Northwest Expanded Data Capture and Analysis of Truck Drivers and Support Services under Pandemic Distress

PRINCIPAL INVESTIGATOR: Sal Hernandez • UNIVERSITY: Oregon State University



The economic and human losses generated from pandemics have been steadily increasing over the last 30 years. However, while state and local governments have allocated significant amounts of resources

to build physical and social infrastructures that mitigate the consequences of natural disasters, pandemics affect at a much broader scale, requiring coordination of all affected areas. The purpose of this COVID-19 proposal

is to coordinate data collection efforts with freight and fleet telematics companies who are not currently collecting such data and whom we have current relationships with (EROAD, Geotab).

Movement data gathered through this COVID-19 project would advance several relevant COVID-19 related research questions: (i) How does the current lack of available and safe truck parking affect the ability of drivers and fleet operators to route and deliver supplies for pandemic response? (ii) What is the tradeoff between relaxed HOS regulations to provide

faster delivery of critical supplies and potential increases in unsafe driving conditions? (iii) How are current supply chain networks shifting operations to meet increased demand for pandemic response and recovery supplies? (iv) In what ways can we incorporate driver and driver support systems into disaster planning and modeling? Overall, the data collected in this project will provide a platform to study the multi-faceted role of drivers, fleet operators, truck stop operators, and state and federal transport agencies within pandemic response and recovery practices.

### Analyzing the Long-term Impacts of COVID-19 Disruption on Travel Patterns

PRINCIPAL INVESTIGATOR: Don MacKenzie • UNIVERSITY: University of Washington



Due to the rapid spread of the COVID-19 pandemic, Washington State and all other States in the PacTrans region have issued stay-at-home orders that include school closures, telecommuting, bars/restaurants

closures, and group gathering bans, among

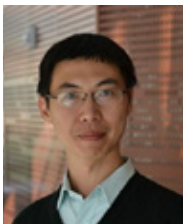
others. These actions create significant changes to daily life and while some travel patterns will gradually restore by the end of the outbreak, some may remain changed for a much longer period.

Behaviors that may see a lasting response include commuting, grocery shopping, business meetings, and even social interactions. The goal of this research is to understand

how COVID-19 disruption has affected people’s activity and travel patterns during the pandemic, and how these changes may persist in a post-pandemic era. This is in line with PacTrans’ COVID-19 topics of interest covering collection of perishable mobility and behavior data related to COVID-19 and analysis of and insight from the collected (perishable) data.

### Tracking, Mapping, and Modeling Mobility Changes and Business Recovery Amid the COVID-19 Pandemic in the Pacific Northwest Region of the United States

PRINCIPAL INVESTIGATOR: Haifeng (Felix) Liao • UNIVERSITY: University of Idaho



Given the lack of vaccines or an effective cure, the ongoing COVID-19 outbreak has prompted state and local governments in the U.S. to implement a range of behavioral, clinical, and other non-pharmaceutical interventions to mitigate the pandemic.

As of April 7, 2020, all four states in the PacTrans region have urged residents to stay at home. Other travel and work restrictions, most notably limiting large-group

gatherings and the closure of restaurants, bars, and schools, have also been imposed.

Using data on smartphone GPS signals, it is inferred that from March 1 to April 9, people’s daily mobility might have plummeted by 97.3% in King County, Washington. However, given the substantial economic and social costs of these restrictions, mobility confinement strategies are likely to change on a location-by-location and day-to-day basis. Against this backdrop, the overarching goal of this project is to compile a series of “perishable” datasets and to track and map cases of COVID-19,

mobility changes, and business recovery in the PNW region amid the pandemic. The aim is to better understand the role played by travel restrictions and mobility changes in mitigating the ongoing spread of COVID-19. Additionally, in collaboration with the COVID-19 Geographic Information Systems (GIS) Hub at ESRI, a leading software company in the GIS industry, an interactive web-based dashboard will be created called PacTrans PNW-COVID-19 Map to more effectively communicate information on the rapidly changing situations in the PNW to the public.

## PacTrans Webinar Series Presents: Eric Shimizu's on Managing Sudden Change



In the wake of this global pandemic brought on by COVID-19, PacTrans hosted a webinar featuring Eric Shimizu last April titled, "*Managing Sudden Change*," a presentation directed at those anxious about COVID-19, those anticipating grief, those worried about the future, or those just trying to see the proverbial glass as half-full.

Two years ago, Shimizu's life changed completely after suddenly losing his wife from an aneurysm just after her 50th birthday, leaving behind three kids: Ryan, 19, a Freshman at UW; Sydney, 16; and Ty, 13.

Through sharing this personal story, Shimizu hoped to provide insight on some of the habits, knowledge, and perspective he has gained from his experience in managing sudden change and that

it may be of value to anyone feeling uncertain or insecure due to changes and news coverage associated with COVID-19.

Shimizu is a Principal at DKS Associates and holds a Bachelor's and Master's Degree in Civil Engineering. He has over 26 years of specialized experience in transportation design build, corridor design, transit and traffic engineering.

Shimizu has led traffic, illumination, signals, and ITS design on some of the most complicated design build projects in the Puget Sound area including WSDOT Everett I-5 HOV DB, WSDOT ATMS Variable Speed Limit Signs, and I-405 Bellevue to Lynnwood HOV. His ability to deliver high quality projects is enhanced with his expertise from planning level concept to PS&E, and through construction.

## PacTrans Webinar Series Presents: Online Teaching and Learning



Early last June, PacTrans presented another addition to its webinar series. This one focused on on-line teaching and learning, a new territory for most students and educators, but for some, the digital space is a familiar one. The webinar featured Elisabeth McBrien, an instructional designer for OSU's Ecampus, and Ed McCormack, a research associate professor and director of the Sustainable Transportation Online Master's Degree at UW. The webinar was also moderated by OSU's Michael H. Scott, a professor of Civil & Construction Engineering.

Over these past months, many of us have been thrust into the world of on-line teaching and learning. It appears that this will continue, to one degree or another, into the foreseeable future. Thus far, we have navigated these waters with varying degrees of success. But we forget that many of our colleagues have been engaged in on-line teaching and learning for years.

This webinar brought together several experienced online teachers to engage in a discussion on the subject of on-line content delivery. They shared what they have learned over the years, what works, and what doesn't.

McBrien is an instructional designer at Oregon State University Ecampus, where she collaborates with subject matter experts in the design of on-line courses, mainly in STEM disciplines. Before joining OSU Ecampus, she taught courses at Oregon State

University, Rogue Community College, Southern Oregon University, and abroad.

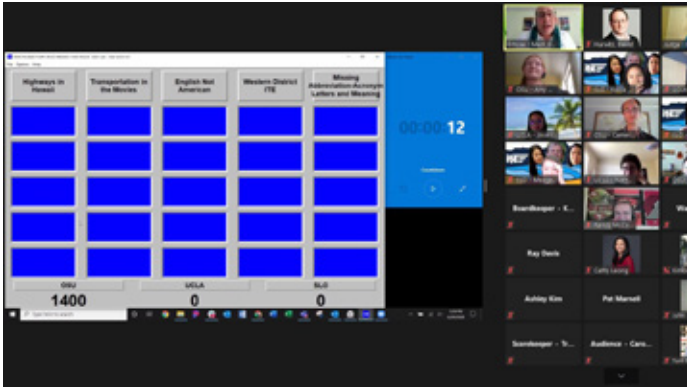
Having taught both domestically and internationally in a variety of contexts, McBrien brings a deep appreciation and enthusiasm for quality course design that meet both students' and instructors' needs. Before she began teaching and designing courses, McBrien spent several years working in forestry at the Portland Forestry Science Laboratory. Outside of work, she is an avid gardener, and she also enjoys hiking and camping with her husband and their son.

McCormack is a Research Associate Professor in Civil and Environmental Engineering (CEE) at the UW. He has over 35 years' experience researching and studying a range of transportation issues. McCormack has been teaching graduate level courses since 2003. He has taught both classroom and on-line classes in freight transportation, critical infrastructure analysis, pedestrian planning, transportation and climate change, and sustainable transportation.

Since 2017, he has been the Director of the online Master of Sustainable Transportation Program in CEE. This program has 10 instructors and about 60 students. McCormack received his master's degree in Civil Engineering and Ph.D. in Geography from the University of Washington.

# STUDENTS

## OSU Student Chapter Takes Home Several Awards



### 2020 ITE Student Traffic Bowl

OSU earned the first place title at this year's ITE Student District Traffic Bowl, beating out Cal Poly SLO and UCLA for the top spot. The Traffic Bowl traditionally takes place at the ITE Annual Meeting which, due to the pandemic and the need for social distancing, was held virtually. The event was also held jointly between the Western and Mountain Districts.

### Dam Distinguished Awards

The OSU ITE Student Chapter was recognized for two Dam Distinguished Awards this year: the Community Impact Award and the Inclusive Excellence Award.

The Community Impact Award is traditionally given to, "a club that has made the greatest impact in a community off-campus," according to the [Dam Distinguished Awards page](#). It was given to OSU ITE for their collaboration with the City of Corvallis' transportation department, in which they helped gather two-hour traffic counts at eight different intersections along Circle Boulevard, as well as performed traffic analysis with the collected data to help assess planned roadway modifications in the area.



### 2020 Western District Student Chapter Award

Student Chapter President, Cadell Chand, was awarded this year's Western District Student Chapter Award and was responsible for leading this year's submission of the annual report that was recognized. Chand is

a recent graduate, obtaining his MS degree in Civil Engineering with a transportation focus earlier this year. Early this summer, he joined Fehr & Peers in their Tacoma, WA office as a full-time member of their team.

The Inclusive Excellence Award recognizes the amount of diversity and inclusion that is promoted within the club. This year, OSU ITE was involved with a number of events related to promotion of diversity and inclusion, including: an Implicit Bias Training, which all officers were required to participate in; organizing a panel on coming out in a professional environment as a part of OSU's Coming Out Day; organizing a meeting between all CEE club leaders, the first of its kind, in order to improve inter-club cooperation; leading a K-12 Women in STEM outreach event that emphasized the need for more female representation in the field; and holding multiple other social events.



### 2020 Western District Outstanding Student Award

This year's Outstanding Student Award was given to Travis Larson. Another recent graduate of OSU, Larson received his MS degree in Civil Engineering, his thesis titled, "An Evaluation of Dynamic Passive Pedestrian

*Detection with a Framework for Future Applications.*" Up until his graduation, he had been a part of the Hurwitz Research Group since 2019 and has since gained a full-time position at DKS Associates in their Salem, OR office, which he began working this past July.

## Student Spotlight: Tristan Sayre



University of Alaska Fairbanks Graduate Research Assistant, Tristan Sayre, recently defended his Master's thesis, titled, "*Safety Analysis of Off-Highway Vehicles Use Within Public Rights-Of-Way in Alaska*," a project that was funded in part by ParTrans.

"Off-highway vehicles (OHVs) are an essential mode of transportation for Alaskans living in rural villages where often the only infrastructure connecting villages are trails and the high costs of shipping and fueling a conventional passenger vehicle prevent many residents from owning one," Sayre said. "Meanwhile, OHVs are frequently used for recreational riding in higher population communities. Yet current legislation does little to address these discrepant needs with the placement of a general ban preventing OHVs from operating on roadways. While local jurisdictions may allow OHV use on their roads, the needs of many residents remain unmet. Alaskans are not allowed to operate OHVs in towns such as Barrow, Galena, or Tanana despite the fact that

many residents rely on OHVs for transportation in these locations. Even in towns where OHV use is legal, users cannot operate on state-owned roadways leaving users with the option to not access certain areas or to operate on the road unlawfully.

"On-road OHV use has resulted in a significant number of crashes in Alaska. There have been on average 80 crashes including five fatalities per year involving OHVs on roads between 2000 and 2016. Rates have not changed significantly over this period. These crash rates have resulted in the placement of on-road OHV crashes in the Alaska State Highway Safety Plan as an area of concern. This motivated the research to quantify the on-road OHV use rates and trends in crashes.

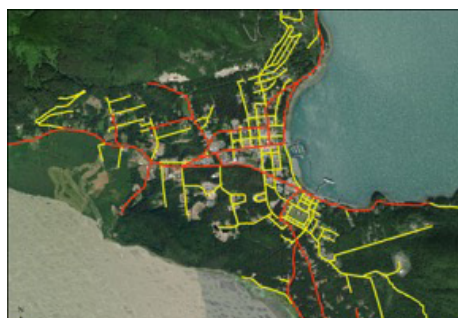
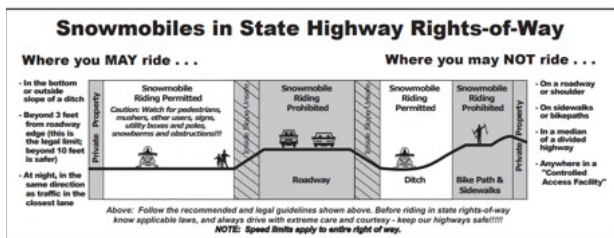
"The research consisted of three areas of focus: a pilot field observation study of OHV use on or near roadways, an analysis of crash parameters on crash severity outcome, and a spatial analysis of crashes. The field observation study results indicate that the most frequent use and highest rates of risk-tolerant behaviors (lack of helmet use, passengers riding without a seat, and unlawful on-road use) occur in the jurisdictions which allow on-road use. These risk-tolerant behaviors were frequently observed in all locations including users riding without helmets and vehicles carrying passengers without

a designated seat an average of 70 and 20 percent of the time, respectively. Additionally, over half the OHV users were observed to be riding unlawfully on the road. Overrepresented risk factors for high crash severity incidents

included riding at night, in summer, on unpaved roads, on local roads or collectors, in rural areas, for single-vehicle crashes with the occupant not using safety equipment (e.g. helmet, seat belt), and riding under the influence of alcohol. Crashes were observed to be clustered around towns with the highest densities occurring near town centers."

"PacTrans was crucial in enabling me to complete my research and attend graduate school," Sayre said. "I received research funding through Grant #DTRT13-G-UTC40 to investigate off-highway vehicle safety and equity concerns for Alaskans. This opportunity allowed me to practice and improve on my research skills and improve my understanding and skills in transportation engineering. I intend to pursue a career in the transportation industry which is largely due to the exposure to the practices which I have received during my graduate schooling. Additionally, the opportunity to attend graduate school allowed me to compete as a collegiate cross-country skier for one more year, which I am very grateful for."

Sayre is currently in the process of finishing his masters degree in civil engineering, with a concentration in transportation engineering at UAF. He entered the masters program last fall with the continuation of research he worked on with Dr. Nathan Belz - an associate professor of Civil and Environmental Engineering at UAF - as an undergraduate student on obtaining a better understanding of on-road, off-highway vehicle use in Alaska. Sayre was awarded the 2019 UTC Student of the Year award for CSET for this research.



# STUDENTS



## PacTrans Graduate Student Researcher Awarded Department Chair's Award

This year's CEE Department Chair's Award was awarded to Dr. Zhiyong Cui. Many educators have been challenged this year, as most of us have moved to an online platform in order to continue learning and teaching in response to the COVID-19 pandemic. This award recognizes that Cui has not only been able to adapt to these changes, but also excels in creating an environment in which students can succeed academically, even from home. Cui is a recent graduate of the UW, earning his PhD in Intelligent Transportation and Machine Learning this year. He was one of two individuals being recognized for this award, the other recipient being Dr. Mohammad Malakoutian.

# TECHNOLOGY TRANSFER



## PacTrans Technology Transfer Webinar Presents: Learning from Network-wide Traffic Sensor Data

Last May, PacTrans Director and UW professor of transportation engineering, Dr. Yin Hai Wang, spoke on, "*Learning from Network-wide Traffic Sensor Data: Vehicle Travel and Traffic Performance Changes under the Influence of COVID-19*," at a PacTrans hosted webinar.

The COVID-19 pandemic has caused a profound impact on our daily lives. Over the past several months, Washington State implemented several countermeasures against COVID-19, including state-wide school closures on Mar. 13, shutting down all restaurants and bars on Mar. 15, a stay home and stay safe order on Mar. 23, etc. These measures have affected travel demand and road transportation conditions across our network.

Quantifying travel and traffic performance changes associated with these countermeasures is extremely valuable for transportation professionals and

policy makers. With support from PacTrans, the Smart Transportation Applications and Research (STAR) Lab at the University of Washington recently developed an online platform called Traffic Performance Score (TPS) website, that quantifies and visualizes traffic performance in real time or at predetermined times at either the segment or network level for the central Puget Sound area freeway network. In this webinar, Wang shared interesting observations on vehicle travel and traffic performance changes under the influence of COVID-19 using the publicly accessible functions with this online tool.

Dr. Wang is a Professor of Transportation Engineering at Civil and Environmental Engineering and Adjunct Professor of Electrical and Computer Engineering at the University of Washington (UW). He is also the founding director of the UW STAR Lab and has served as PacTrans' Director since 2012.

Dr. Wang is the 2018-2019 president of Transportation & Development Institute (T&DI) at American Society of Civil Engineers (ASCE). He started the ASCE Connected and Autonomous Vehicle Impact Committee in 2017 and co-chaired the 2018 and 2020 ASCE International Conference on Transportation and Development (ICTD).

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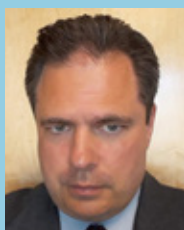


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## About Pacific NW Transportation Consortium

The Pacific Northwest Transportation Consortium (PacTrans) is the Region 10 University Transportation Center (UTC) established in January 2012 with funding from the US Department of Transportation (USDOT).

PacTrans is a combined effort of transportation professionals and educators from the University of Washington (UW), Oregon State University (OSU), the University of Alaska Fairbanks (UAF), the University of Idaho (UI), Washington State University (WSU), Boise State University (BSU), and Gonzaga University (GU). With two active centers focusing on both Safety and Mobility, PacTrans serves as an engine and showcase for research, education, and workforce development in the Pacific Northwest.

The goal of PacTrans is to create an environment where consortium universities and transportation agencies within Region 10 work together synergistically. The PacTrans program

focuses on the USDOT-identified priority of Improving the Mobility of People and Goods. This priority includes the following nonexclusive topic areas:

- Increase access to opportunities that promote equity in connecting regions and communities, including urban and rural communities;
- Smart cities;
- Innovations to improve multimodal connections, system integration, and security;
- Assistive technologies for those with physical or cognitive disabilities;
- Data modeling and analytical tools to optimize passenger and freight movements;
- Innovations in multi-modal planning and modeling for high growth regions;
- Novel (non-traditional or alternative) modes of transport and shared use of infrastructure; and
- Regional planning and setting of transportation priorities.

The Pacific Northwest offers a unique blend of opportunities to examine a variety of transportation issues, including those related to urban centers, rural communities, diverse geographic features (e.g., coastal plains, mountain ranges), and a growing population of pedestrians and bicyclists. This diversity makes the Pacific Northwest a natural laboratory in which to investigate transportation solutions that are applicable both locally and nationally.

PacTrans is dedicated to collaborating with transportation agencies, companies, and research institutions to jointly develop safe and sustain-able solutions for the diverse transportation needs of the Pacific Northwest.

Contact: Dr. Yin Hai Wang University of Washington More Hall, Room 112

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