



PacTrans

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University Transportation Center Newsletter

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PacTrans Heads to Fairbanks, AK for Annual Region 10 Transportation Conference

The annual Pacific Northwest Transportation Consortium (PacTrans) Regional Transportation Conference was hosted by the University of Alaska Fairbanks (UAF) on October 12, 2018. This was the first time that our conference has ever been held in a location outside of Seattle. Hosting the conference at one of our institutional partner universities outside of Seattle this year, presented the opportunity for many new attendees that have not been able to travel to Seattle in the past.

Practitioners from both public agencies and private industry, as well as elected officials and academics, who attend were exposed to PacTrans funded research projects, listened to ideas from a panel of leaders in transportation technology, learned about Alaska's unique transportation system, and had ample opportunity to network with other transportation professionals from around the Pacific Northwest.

Additionally, UAF organized tours showcasing the unique infrastructure challenges Fairbanks faces with respect to extreme weather events and permafrost. This included a tour of the permafrost tunnel research facility operated jointly by UAF and the United States Army Corp of Engineers. These tours provide attendees a better appreciation for the research community in the Pacific Northwest and broadened perspectives on engineering challenges faced outside of our own respective communities.

You can read more about the event in our conference newsletter!



Randy McCourt recognized as an OSU Alumni Fellow for the COE

Oregon State University had the honor of hosting Randy McCourt for a meeting last fall as he was on campus to accept an award from OSU as an Alumni Fellow! McCourt is an Oregon State alumni, the current ITE International Vice President, and a Principal Engineer for DKS Associates in Portland, which has been a sponsor and provided speakers of many student activities, like the Region 10 Student Conference in the past. OSU was very thankful that McCourt had part of his day partitioned off to visit their chapter!

McCourt led a discussion centered around leadership and career development that utilized the Myers-Briggs personality type test. He had all the participants take the test before he came, and discussed their personality types at the meeting. He talked about his recent experiences learning about how other people function, and

how, as engineers, can become better communicators and collaborators, when we understand others better.

McCourt received his BS in Civil Engineering from Oregon State University and his MS in Transportation Engineering from the University of California, Berkeley. He has been with DKS Associates for 40 years and currently serves as principal.

The new technology, especially those involving connected and autonomous vehicles, that has emerged in recent years, has the power to better connect transportation within itself. McCourt's work heavily focuses on establishing and maintaining these connections, as well as addressing safety and freight issues to improve mobility outside urban areas.



APWA UW Chapter MPAC Night



American Public Works Association (APWA) UW Student Chapter is an organization primarily focused on networking and promoting professionalism by setting up job site visits, planning panels featuring people from various industries, and organizing networking events, such as the MPAC Night. PacTrans provided some of the funding to help make MPAC night possible.

“At least, on the students’ side, it’s viewed as a networking event,” said Michael Dyer, president of APWA UW Student Chapter. “At the professional level, it’s kind of like an “eat dinner and learn” seminar.”

In the end, the chapter was able to get Rob Gannon, the General Manager at King County Metro; Mike Harbor, the Deputy CEO at Sound Transit; and Patty Rubstello, the Assistant Secretary for the Office of Urban Mobility and Access to attend and act as speakers for the night.

MPAC Night had two major goals: 1. bring a great networking opportunity to students on campus, and 2. discuss an interesting topic that other professionals would want to listen to and learn about.

“So, we’re trying to kill two birds with one stone,” Dyer said. “Provide something interesting for the professionals so they will come, and also use that opportunity for students that wanna come and talk to these professionals,

and network, and learn about where all the jobs are at.”

The night, which ultimately turned into a Q&A-style session between the three speakers, later letting the audience join in, saw lively engagement from its 88 participants.

“This was the largest MPAC event jointly done by a UW student chapter and the MPAC committee since our inception, and in history, essentially,” Dyer said. “It’s the largest event that the MPAC committee’s also done themselves, as well. They haven’t had one this big before. That surprised me personally, when I was told that.”

“We’re very grateful that PacTrans was able to monetarily contribute to help pay for the event, and be able to utilize some of their resources with regard to contact and partners for advertising the event,” Dyer said. “It’s just knowing how to reach out to the right people, I think, as well. I think PacTrans did a really good job of that.”

“This is our fourth year since inception, so we’re relatively young, and I know the first year was great and the last two years haven’t been really great for the chapter,” Dyer said. “I’m heavily invested in APWA because I’m pretty passionate. I care a lot because I want to see the chapter succeed.”

OSU ITE wins ORITE Traffic Bowl

The Oregon State ITE Student Chapter competed in the 27th Annual Bill Kloos Traffic Bowl in Portland, Oregon last November, winning 1st place! Traffic Bowl is a jeopardy-style game with transportation questions that is hosted worldwide throughout ITE chapters at the section, district, and even international level. This section-level event included four universities from Oregon, and one from Washington. The OSU team members were Peter Kuskie, Travis Larson, Rachael Oster, and Amanda Riley. Go Beavs!

At the beginning of the final jeopardy round, Oregon State was in 2nd place. The team then got a correct answer to the final question, securing the championship! It was a fun night of challenging questions, active networking, and many laughs for both the students and professional attendees. The event is a highlight every year for the Oregon Section of ITE.

The day after the event, several students were able to take a tour of the Trimet Operations office and Kittelson and Associates Portland office. The Oregon ITE section puts on a selection of company tours every year the day after Traffic Bowl, something most all students love to participate in.

Additionally, PacTrans was able to support the travel of OSU’s student team.



STUDENTS

Gonzaga Students attend Operational Showcase

Gonzaga students attended the Operational Showcase for the USDOT Connected Vehicle Pilot Deployment project in Cheyenne, Wyoming. Students were able to ride in connected vehicles, tour the Traffic Management Center and roadside infrastructure, and meet with project stakeholders.

The trip also included a trip to the University of Wyoming to see how the driver simulator lab is being used to test the projects in-vehicle equipment to warn freight drivers about inclement weather conditions. The Gonzaga students have been working on the pilot deployment project for their senior design project and are part of the team evaluating the effectiveness of the system at

reducing crashes and harmonizing speeds along the 402-mile I-80 corridor.

Last summer, one of Gonzaga's many senior design teams, completed their portion of the work done on the project after a year-long commitment, passing the torch along to the next group of students to take on the reigns and continue the work.

ENSC 16, consisting of Ian Rypkema, Andrew Segren, Dominic Vernon, and Megan Zollars, is currently seeing out Phase III of the project with Rhonda Young, Chair and Professor of Civil Engineering, and a PacTrans constituent. Phase III of the project is focused on maintaining and operating the pilot.



It's a bird. It's a plane! It's a cougar... in space?!

The seniors in WSU's Cougs in Space club hope that a WSU satellite will be looking down on them when they graduate in May.

It's taken club members two years to build a four-inch cube satellite as part of NASA's CubeSat Launch Initiative. The initiative gives universities, high-schools, and non-profits the chance to fly the small satellites they build at upcoming launches.



NASA gives participants grants to help them organize, budget, design, and build their satellites.

If launched, WSU's satellite, Coug-Sat-1, will broadcast from Earth's orbit and notify members of the club every time the phrase, "Go Cougs!" is heard on Earth. The club is currently working on a project exploring the germination of tomato seeds in space.

Even more important than the satellite and what it does, is the experience the students get from building it.

"I'm surrounded by people who have ideas that I would have never thought of, and we're trying to make these ideas work and come to life," said Kenneth Eversole, WSU

computer science major and Cougs in Space president, to the WSU Insider. "It's awe inspiring."

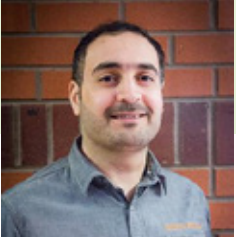
In teams, the members are working on the satellite's structure, thermal properties, power source, systems, and orientation.

"In the real world it takes people with different specialties and background knowledge to create something as complex as a satellite," Eversole told the WSU Insider.

Working with the teams can be a challenge, but the pros definitely outweigh the cons for Eversole. The club has partnered with other organizations on campus, contributing a variety of viewpoints and solutions to the team, including WSU's Amateur Radio Club, who

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Student Spotlight: Hisham Jashami



Hisham Jashami is a Ph.D. student in the School of Civil and Construction Engineering at Oregon State University (OSU).

Born and raised in Iraq, Jashami received his B.S. in Civil Engineering from Al-Mustansiriya University in Baghdad in 2006. He later completed his M.S. in Transportation Engineering from Gaziantep University in Turkey in 2012.

“From the very beginning of my studies as an undergraduate student, I enjoyed transportation engineering because no matter what our job is or where we live, we all need a way to get around,” Jashami said in an email.

As a graduate research assistant, Jashami has worked on several different projects led by Dr. David Hurwitz, associate professor and PacTrans Associate Director at OSU.

Jashami got to work on his first research project in 2015, titled, “Educating Teenage Drivers in the Pacific Northwest Regarding the Dangers of Distracted Driving (Phase II)”. This was also the year Jashami became a member of the Driving and Bicycling Simulator Laboratory, under the supervision of Hurwitz.

The lab’s research focuses on improving our understanding of transportation human factors, and using that knowledge to make informed decisions about how to design and operate transportation infrastructure.

Jashami is currently working on protected-permitted right turn phasing alternatives in collaboration with Portland State University.

“We are trying to develop a design that is more friendly for bikes and pedestrians, warning drivers of their presence in crosswalks of adjacent bike lanes,” Jashami said in an email. “One outcome of this project was the development of a new traffic signal head configuration adopted by ODOT, and I cannot wait to see it implemented across the state.”

Jashami’s partnership with ODOT continues on through various ODOT projects, focused on evaluating quitter shoulder rumble strips, and bicycle detection and feedback assessment.

Jashami’s relationship with PacTrans has grown over the years through his great investment and participation in our consortium. In 2016, he participated in the PacTrans Public Service Announcement competition for preventing roadway departure crashes in the Pacific Northwest. His submission was selected as an award winner from OSU in the college level competition.

In 2018, Jashami helped to collect and analyze data from the OSU bicycling for a PacTrans Tech Transfer Project, “Bicycling Simulator Calibration: Speed and Steering Latency”. A portion of that work was published in the Transportation Research Record.

It’s a bird. It’s a plane! It’s a cougar... in space?!

CONTINUED FROM PG. 4

have been working with to build a communications system for the satellite.

In working on the satellite, students are both gaining valuable skills and creating an object useful to WSU researchers. Additionally, the teamwork students participate in through this experience helps them grow as engineers and leaders, which opens the door to amazing internship and job opportunities.

“When I start my career in manufacturing, I can use the lessons I learned from Cougs in Space,” Cougs in Space’s chief operations officer, Michelle Danese, told the WSU Insider. Danese was recently recruited as an intern for Umbra-group, an aeronautics and industrial manufacturing company.

The club got the chance to host their third annual COUGS in SPACE Day last October. The event welcomed anyone with an interest in a career in the space industry, and invited space industry professionals from Blue Origin, NASA, Raytheon Company, and Lockheed Martin Space System to share with students their experiences and advice on working in the space realm. The event also featured John Fabian, a former NASA astronaut and WSU alum.

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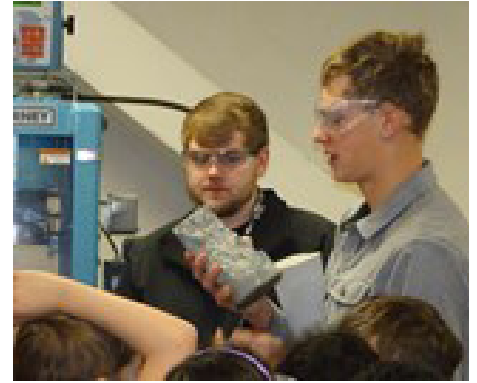
Northstar Elementary School Students Learn about Concrete Mixtures at UAF

The University of Alaska, Fairbanks (UAF) had the opportunity to host third graders from Northstar Elementary School on their campus last November.

The purpose of the visit was to give young students a little more insight into civil engineering and how it works. The elementary schoolers were given the chance to visit UAF's engineering labs, at which a ton of research goes on revolving around energy production, the modeling and testing of various mechanical systems, and environmental engineering and hydrology as well as infrastructure, mining, and petroleum development.

Two UAF students in the Civil and Environmental Engineering department, Tristan and Dylan, gave a presentation on the different types of concrete. A demonstration in which the two students crushed concrete cylinders was meant to show the kids the variances in different concretes' strength.

The younger participating students did a great job of engaging during the demonstration and met the entire event with a lot of enthusiasm, showing excitement towards learning about various concrete mixtures and what differentiates them.



Hisham Jashami CONTINUED FROM PG. 5

Last October, he was invited to serve as a member of the planning committee for the 16th annual Region 10 Student Conference, which took place at the University of Alaska, Fairbanks. This also marked his fourth visit to the annual meeting, where he presented the research that he has been working on during our student poster competition, for which he took home third place.

With PacTrans' support over the last four years, Jashami has been able to attend several conferences, including this year's Transportation Research Board Meeting in Washington D.C.

"I had a great time interacting with the presenters, as well as fellow students from around the world in an environment focusing explicitly on transportation," Jashami said in an email.

Most recently, he took on the responsibility of leading the 2019 Traffic Control Devices challenge team, comprised of three OSU ITE student chapter members to introduce a new design that can improve pedestrian and bicycle safety at signalized intersections. The challenge was sponsored by the Transportation Research Board Standing Committee on Traffic Control Devices (AHB50) and the American Traffic Safety Services Association (ATSSA). Their design was awarded 2nd place in the competition out of 23 teams from around the country.

"I would not have had these exceptional experiences in D.C. without the financial support of PacTrans," Jashami said in an email.

"One thing I am taking away from my graduate studies is the ability to use my skills in statistical modeling and

data visualization to address real-world transportation issues," Jashami said in an email. "I believe that driving and bicycling simulators are helpful tools for developing innovative solutions to transportation's most complex challenges.

"My advisor once said, 'In the safety of a simulated driving environment, we can expose people to very risky crash scenarios without having them encounter the danger that would be inherent in these phenomena.' Thus, my goals are to create my own research group and to help facilitate the success of my students in transportation research and in life, because I truly believe this to be the most impactful contribution that I can make to the transportation discipline, which means so very much to me."

Regional Transportation Seminar featuring: Ram Pendyala



Early last November, Ram Pendyala joined us at the UW to share his thoughts on the built environment and the influences the rising generation has on it. His talk was titled, “It’s All About the Size of the Effects: The Case of the Millennials Difference and the Influence of the Built Environment.”

Ram Pendyala is a Professor of Transportation and the Interim Director of the School of Sustainable Engineering and the Built Environment at Arizona State University. He is also Director of TOMNET, a Tier 1 University Transportation Center of which the University of Washington is a consortium member.

Travel behavior is characterized by the estimation of statistical and econometric models to identify, understand, and quantify the significance of various explanatory factors in explaining the behavioral phenomenon under study.

When a variable is found to be statistically significant, it is generally inferred that the variable plays a significant role in shaping the behavioral choice being modeled. However, test statistics of significance do not necessarily tell the whole story.

Not only is it of value to determine the significance of a variable, but it is also of value to determine the size of the plan for the future. While it is easy to estimate size effects for individual explanatory variables in simple linear regression models, the estimation of size effects is more complex in discrete choice models and simultaneous equations models with mixtures of dependent variable types.

The presentation offered a methodological approach to estimate size effects of different factors that influence a phenomenon under investigation, and demonstrates the application of the approach in two contexts. First, the method is applied to determine the degree to which millennials are truly different in their activity-travel behaviors and second, the method is applied to estimate the size of the built environment effect in shaping household vehicle miles of travel (VMT).



Fall Seminar Series featuring: Ane Dalsnes Storsaeter



Late last October, Ane Dalsnes Storsaeter was present at the UW to give her talk on “Transportation

technology in the Norwegian Public Roads Administration.”

Norway is a small country with a challenging climate and topography. Nearly halving its traffic-related deaths between 2010 and 2017, Norway has one of the world’s lowest rates of deaths per

population (2.2/100 000 people, compared to 10.6 in the U.S.). Safer cars and the promise of cooperative and intelligent transportation can help towards the aim of zero traffic related severe injuries or deaths.

During this seminar, the audience was introduced to how the Norwegian Public Roads Administration uses rapid development and real life testing to gain knowledge and experience with new technologies, and push the industry to deliver services that will work on rural roads and in harsh climates.

Ane is a senior engineer/project manager at the Norwegian Public Roads Administration (NRPA). In 2010 she joined the NPRPA, working with car simulators, and moved on to lead research projects. The last three years have been focused on utilizing the vehicle as a sensor, accessing the vast amount of data produced by cars to give information about traffic and infrastructure.

From 2018 she has started on a PhD, which will address how ADAS and automated driving might impact on physical road design.

Fall Seminar Series featuring: Les Jacobson



Late last November, Les Jacobson was in attendance at the UW campus to give his talk on the “Impacts of

Emerging Technologies on Transportation Operations.”

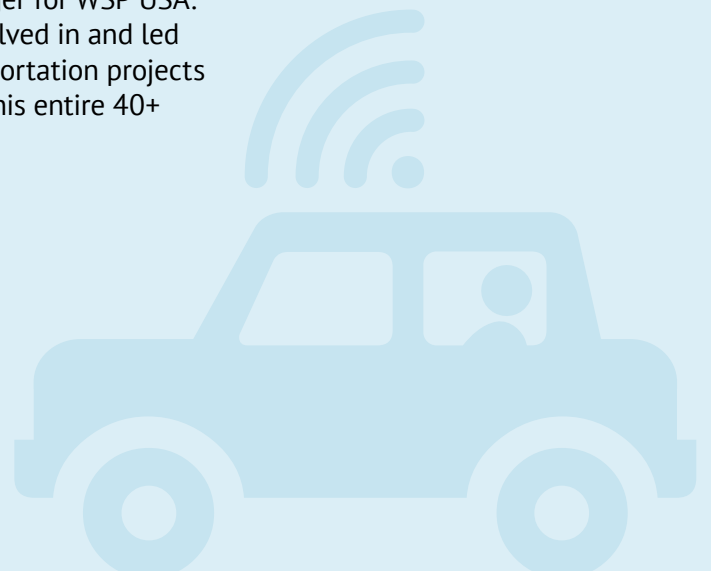
Emerging technologies, including connected and automated vehicles, Mobility as a Service, and “big” data,

have the potential to revolutionize transportation and how we operate the transportation network.

This discussion focused on these emerging technologies, which were described along with some possible impacts on transportation operations.

Les Jacobson is a vice president and Senior ITS Manager for WSP USA. He has been involved in and led innovative transportation projects and efforts over his entire 40+ year career.

Jacobson is working on ITS, Transportation System Management and Operations (TSMO), managed lanes, tolling, and CAV projects. He also taught Traffic Flow Theory at the UW throughout the 1990’s. He is involved in TRB, ITS Alaska, ITE, and AASHTO.



STAR Lab's Smart Road Stickers will keep Cyclists Safe

Researchers out of [Smart Transportation Applications and Research \(STAR\) Lab](#) at the University of Washington have developed smart sensors, which they are calling "[Smart Road Stickers](#)". Last November, three sensors were installed along the Burke-Gilman Trail, near Highway 522 and Ballinger Way Northeast, in order to test the new app-based system, which alerts drivers and pedestrians of each other as they cross paths.

STAR Lab was founded by PacTrans director, Yin Hai Wang, in 2003. The lab serves as a resource for students to rely on, allowing them to further delve into the world of transportation through problem solving, instrument and software training, and networking with transportation agencies offering real-world research opportunities.

Because of the large break where the trail is cut off by the road, drivers and pedestrians have a hard time spotting each other, a feat that becomes even more challenging at night. The Burke-Gilman Trail has been the setting for many bike accidents, with some even leading to lawsuits. In [2017](#), it was reported that 5,977 pedestrians and 783 bicyclists died as a result of crashes nationwide.

STAR Lab's system allows users to be aware of what's just around the corner and what's lurking in the dark. For the sticker to sense pedestrians and cyclists, users need to have downloaded STAR Lab's detection app onto their smartphones. The stickers can detect devices with Bluetooth, so users will be pinged with a safety warning on their phones and drivers will be notified through their vehicles when they are in close proximity to each other.

STAR Lab decided that designing an app was the right move considering a majority of people own smartphones.

Many cars now include devices that can detect other cars and warn drivers when one is too close. However, these detectors fail to recognize pedestrians and cyclists.

The stickers are solar-powered and have been installed onto light poles, leaving them exposed to the sun and allowing them to charge up independently. However, they are able to run off of battery power in the event that the solar recharging function stops working.

Currently, the lab is collecting raw data that will both help them to improve their system's detection algorithm and evaluate their hardware performance, according to Yifan Zhuang in an email, and a lot of progress has already been made to the devices since they've been installed.

"The first one is the improvement on the device communication," Yifan said in an email. "We enhanced the robust and security of our communication to reduce the data loss ratio. The second one is the improvement in the hardware part since the original one still consumed more power than our original design."

Yifan says that the lab has since redesigned their hardware to be more power-efficient.

Two questions STAR Lab is left with as they continue to work on their system are: would users solely rely on the technology and fail to use caution, and does the system leave out those who might not have access to a smart device while on the trail?

The [U.S. Department of Transportation's Volpe Center](#) states that this type of technology could potentially save 800 lives a year, and Toyota has already implemented a safety system that both recognizes pedestrians and reminds drivers to be responsible.

One of STAR Lab's next step is to upgrade their stickers with an installment that alerts users to oncoming cars through audio or vibration. Cyclists, in particular, put more trust in their own senses than they do in their phones, and are unlikely to want to check their phones while on a bike to ensure they avoid a collision, Claire Martini, [Cascade Bicycle Club](#) policy manager, told the [Seattle Times](#).



PACTRANS SUCCESS STORIES

Technology transfer is the intentional practice of taking research conducted with academic rigor and dispersing it to the world of practitioners. Research is not an end unto itself; its ultimate purpose is to improve the state of practice.

This requires a comprehensive plan to disseminate products of research to educators, students, and practitioners. To this end, the institutions of PacTrans emphasize research implementation and technology transfer by licensing and commercializing the products of research, presenting research products in relevant forums, producing a range of publications, managing academic journals, holding and attending meetings and symposia, and communicating via news outlets, social media, and webinars.

One way we encourage our researcher to take meaningful project outputs and make them more implementable to practitioners is through success story funding. Once a sufficient pool of projects has been completed, the

PacTrans will solicit submissions for “success stories.” Success stories are just that, research that merits the added funding and effort to make sure that the findings and conclusions of the project are disseminated to the appropriate entities. Thus PIs will submit proposals on how they would further disseminate and/or apply their findings in thoughtful and useful ways.

This past summer, PacTrans funded a handful of such success story projects. Below is a summary of the outcomes of those projects:

depts.washington.edu/pactrans/category/partnerships-and-tech-transfer/success-stories/

Bicycle Simulator Calibration Manual

PacTrans PI and Oregon State University Associate Professor of Civil & Construction Engineering, David Hurwitz, conducts research in the areas of transportation human factors, transportation safety, and traffic control devices. Dr. Hurwitz has recently utilized PacTrans Technology Transfer Success Story funds to develop the first ever Bicycle Simulator Calibration on Speed and Steering Latency.

This paper proposed a speed calibration procedure to increase the validity of simulated results, by using an independent bicycle computer for comparing the simulator speed. The calibration procedure uses general equations and techniques that can be applied to other bicycling simulators to calibrate speed measurements and improve the consistency of experimental data worldwide.

The study provides framework for transportation researchers to measure steering latency which could be used to minimize the mismatch between the user’s control of the system and the response of the visual simulation.



PACTRANS SUCCESS STORIES

Location and View-Frustum Tracking System of Workers for Safety Applications on Construction Work-zones

“The construction industry is infamous for its hazardous working environments due to workers-on-foot commonly needing to function at dangerous heights and in close proximity to other construction entities such as moving heavy equipment. These hazardous operations result



in an increased risk of worker injuries and fatalities caused by fall hazards and struck-by object or equipment incidents,” says PacTrans PI and Oregon State University Civil & Construction Engineering Assistant Professor, Joseph Louis.

His research interest lies at the intersection of simulation, visualization, and automation within the context of construction operations. Dr. Louis recently utilized PacTrans Technology Transfer Success Story funds to implement the developed framework in a commercially available, “smart-helmet,” produced by Daqri, that is engineered for use in rugged environments and is equipped with its own localization system. His report can be found [here](#).

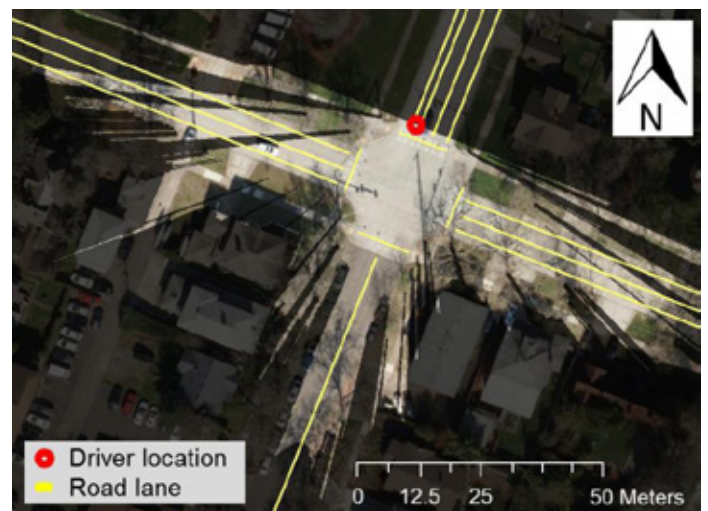
The objective of the technology transfer effort to provide a suitable solution that could enable the tracking of worker position and orientation on the worksite and deliver effective warnings about potential hazards that the workers were in close proximity to, and were not aware of.

3D Virtual Visibility Analysis Program

In 2015, PacTrans funded a project lead by OSU Associate Professor of Civil & Construction Engineering, Michael Olsen, titled 3D Virtual Sight Distance Analysis Using Mobile LIDAR Data. This research project investigated advanced safety analysis methodologies for drivers’ sight distance (SD) based on high resolution data acquired using lidar (light detection and ranging) technology.

While the results of that project developed an algorithm that allowed the research team to successfully analyze a wide range of scenarios, Dr. Olsen believes the developed algorithm has a great potential for supporting evaluation of SD constraints for many transportation agencies worldwide. To promote wider distribution and rapid dissemination of the program, Dr. Olsen and his research team utilized PacTrans Technology Transfer Success Story funds to cleanup, optimize, package, and disseminate the code into an easy to use program with a simple, yet powerful, graphical user interface (GUI) that can readily be used by a typical transportation engineer

in their workflows. With PacTrans’ funds, Dr. Olsen’s team was able to create their software tool, Sight Object Distance Analysis (SODA).



PACTRANS SUCCESS STORIES

Linking the Evaluation of Safety Data Management to Professional Certification



During the course of the second iteration of the PacTrans Center, funded by MAP-21, PacTrans had an ongoing, three-year education project titled Safety Data Management and Analysis: Addressing the Continuing Education Needs for the Pacific Northwest. This project was led by University of Idaho Assistant Professor of Civil and Environmental Engineering, Kevin Chang.

This research group recently leveraged PacTrans Technology Transfer Success Story funds to develop educational tools, in the form of powerpoint style decks, that highlighted the importance and impact of transportation safety. These tools were created and designed for widespread dissemination within the practitioner community. As part of the technology transfer and outreach activities, the powerpoint slide decks were refined to include a written script; this scripting could be adopted by any future presenter or refined, as needed, to suit individual presentation styles.

Vehicle-Pedestrian Near-Miss Detection Using Onboard Monocular Video Data

New algorithms have been produced to identify near miss situations using the footage collected by the video cameras. Near miss data allows collision avoidance systems to be modified to capture situations that they may have otherwise missed.

To better advertise this new technology, STAR Lab researchers leveraged PacTrans Technology Transfer Success Story funds to develop a promotional video, which highlights its power and potential. The team is currently in the process of transferring that system to a real-time onboard near-miss detection system, taking real-time video inputs and generate warning to drivers when any conflict is detected.



PACTRANS SUCCESS STORIES

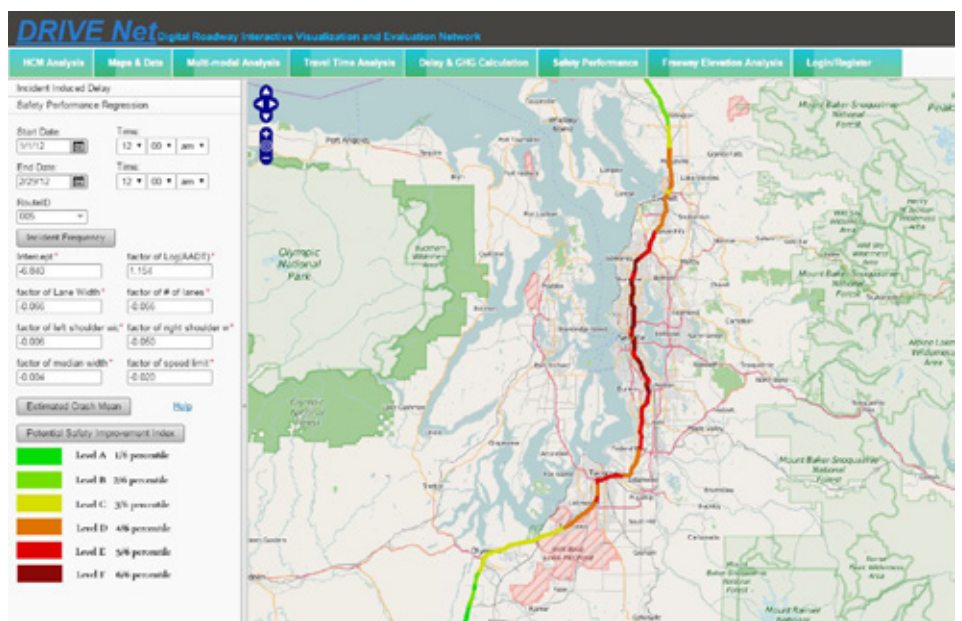
Safety Net: A Transportation Safety Performance Analysis and Visualization Platform

For many years, UW's STAR Lab has been developing the Digital Roadway Interactive Visualization and Evaluation Network (DRIVE Net), which is a region-wide, web-based transportation decision support system that adopts digital roadway maps as a base and provides data layers for integrating and analyzing a variety of data sources.

In its current implementation, DRIVE Net demonstrates the potential to be used as a standard tool for incorporating multiple data sets from different fields and as a platform for real-time decision making for the purposes of prioritizing safety improvements on the roadway network.

The research team has utilized PacTrans Success Story funding for several subsequent tasks, including the development of two promotional videos: one for a SHRP2 reliability

project introduction and tutorial, and the other specifically for Safety Net Training.



Mobile Unit for Sensing Traffic (MUST) version 2

Over the past several years, UW's STAR Lab has been developing a technology called the Mobile Unit for Sensing Traffic (MUST). The MUST Sensor is a multisource traffic sensor, whose main function is to catch the Media Access Control (MAC) addresses of the mobile devices in the surround area of the sensor. By deploying a GPS module, MUST 2 can be installed in mobile object to collect data, like transit vehicle and probe vehicle. MUST 2 is able to send data to remote server in real-time by several wireless communication protocols.

Recently STAR Lab researchers utilized PacTrans Technology Transfer Success Story funding to create media that demonstrates the many capabilities that were discussed above. A promotional video was created for this purpose.



SECTION

The 'Final 50 Feet: Urban Goods Delivery System Tool Kit' for Transportation Professionals

In 2017, researchers from the University of Washington's Supply Chain and Transportation Logistics (SCTL) Center, with PacTrans research funding, facilitated a pilot test with the hopes of reducing the number of failed first delivery attempts in urban buildings. To achieve this, a common carrier locker (much like Amazon's delivery lockers) was deployed in the Seattle Municipal Tower in downtown Seattle.

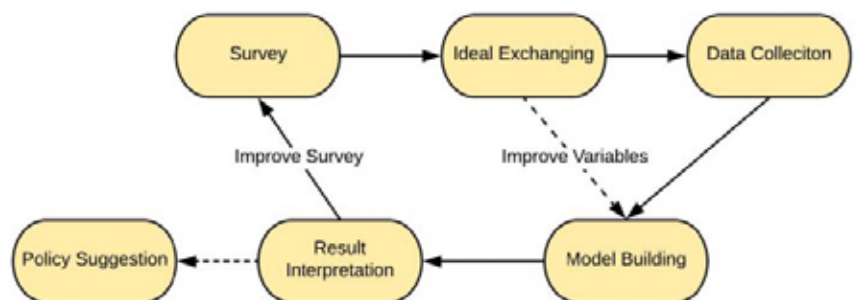
The research group then leveraged PacTrans Technology Transfer Success Story funding to add two new 'how to' tools to the Urban Goods Delivery System Online Tool Kit: GIS mapping and truck feature documentation, and conducting alley truck occupancy studies. With this funding they also built two new modules within the tool kit: a curb occupancy module, and an alley survey module.



Bridging the Gap between Bicycle Research and Practice

PacTrans has funded many projects investigated by OSU Associate Professor of Civil & Construction Engineering, Haizhong Wang, on bicycle safety. Recently Dr. Wang sought PacTrans Technology Transfer Success Story funds to promote the outcomes of these projects and a few other like them.

These funds were used to conduct a questionnaire, sent to local engineers and communities. The questionnaire was designed to collect local engineers' opinion about using a bicycle to evacuate for a disaster, and capture the potential behaviors and choices of communities and using non-motorized vehicles to evacuate. The flow chart above shows the process and idea.



These funds were also used to attend several conferences where these projects were presented. Last year, Dr. Wang traveled to the XI ICTICT Workshop in Vancouver, British Columbia, and to the 7th Annual International Cycling Safety Conference (ICSC) in Copenhagen, Denmark to present his work.

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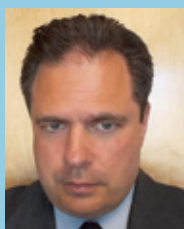


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About Pacific NW Transportation Consortium

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 multi-modal 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 highgrowth 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.

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