



PacTrans

ISSUE 15 | WINTER 2016

University Transportation Center Newsletter

IN THIS ISSUE

- 01 Northwest Transportation Conference
- 02 Annual TRB meeting
- 03 STAR Lab in the Media
WA House Transportation Committee
- 04 ITE/IMSA Annual Meeting
Smart Cities Regional Workshop
- 05 BoD Meeting
BoD/EAB Meeting
NSF Smart Communities Workshop
- 06 NIAC Workshop on Urban Science and Engineering
Safety Summit
- 07 Safety and Connected Vehicle Data and Technology
- 08 Rural Multi-Modal Infrastructure Safety
- 09 Commercial Parking and Cycling
- 10 Kamilah Buker
Jason Anderson
- 11 Xianzhe Chen
Prospective Student Visit
OSU student leadership summit
- 12 Seminar Series: Yahong Rosa Zheng
Seminar Series: Charlie Howard
- 13 Seminar Series: Basile Chaix
- 14 Green Roads Bootcamp Project Update
Unmanned Aircraft Project Update
Tourist Info Signs Project Update
- 15 Storm Water Runoff Project Update
Wireless Sensing Data Collection Project Update
- 16 PacTrans Board of Directors and External Advisory Board
- 17 Upcoming Events
About Pacific NW Transportation Consortium

PacTrans Sponsors and Co-Organizes Northwest Transportation Conference

Northwest Transportation Conference

"Transportation Tools You Can Use on the Job"

March 15th - 17th, 2016
CH2M-HILL Alumni Center
Oregon State University
Corvallis, Oregon



PacTrans is resolved in its mission to produce practical and applied research, and equip our students for a robust and thoughtful career in transportation engineering. For this reason, PacTrans co-sponsored and co-organized this year's Northwest Transportation Conference. This past March 15 through 17, Oregon State University and the Oregon Department of Transportation hosted the biennial conference on OSU's campus in Corvallis, Oregon. With more than 400 transportation professionals from throughout Oregon and the Pacific Northwest in attendance, this event touts being the Northwest's premiere transportation event, "Since its inception in 1949, the Northwest Transportation Conference has served as a forum for engineers, designers, builders, operators, planners, and other transportation officials."

ODOT Research Manager and PacTrans External Advisory Board Member, Michael Bufalino, chaired this year's event. The theme was, "Transportation Tools You Can Use on the Job." Thus the 20+ sessions, discussions, and events offered throughout the conference were all geared at equipping the

professionals in the audience with practical, applicable knowledge and tools that they could take home and begin using today.

[READ MORE →](#)



LEFT: External Advisory Board Member Michael Bufalino (ODOT); RIGHT: PacTrans Associate Director Dr. David Hurwitz (OSU)

CONTINUED FROM PAGE 1



Here are some of the highlights:

1. PacTrans Associate Director and PI, David Hurwitz, moderated a session on innovations in right-of-way (ROW) design in which he also presented his research on right-hook crashes at intersections with bicycle traffic.
2. PacTrans PIs, Michael Olsen and David Hurwitz, accompanied two of their student researchers, Alireza Kashani and Kamilah Buker, in a presentation on 3D virtual sight distance analysis using mobile LIDAR data.
3. PacTrans PI Haizhong Wang moderated a session on systemic safety and disaster simulations in which he also presented research on post-earthquake life safety and mobility. Dr. Wang also presented research on integrated analysis of bicycle ridership, bicycle level of traffic stress, and bicycle crashes for safety and planning considerations in another session later in the conference.
4. PacTrans partner Adrian Pearmine from DKS Associates, hosted a fascinating conversation about the evolution of mobility. More specifically he invited three professionals who work closely with the subject of Connected and Autonomous Vehicles to update us on the current state of “driverless vehicle,” and discuss some of their main opportunities and challenges.

PacTrans was not only excited to sponsor and attend this year’s conference but we were also very proud to see the ways our steadfast investments in research, education, and workforce development are playing in integral part in the trajectory of transportation engineering and planning in the Pacific Northwest.

PacTrans Showcases Research at 2016 Annual Transportation Research Board Meeting

The Transportation Research Board (TRB) 95th Annual Meeting was held this past January 10–14, 2016, at the Walter E. Washington Convention Center, in Washington, D.C. The event attracted more than 13,000 transportation professionals from around the world. Those professionals hosted more than 5,000 presentations in nearly 800 sessions and workshops. This year’s meeting had a spotlight theme of Research Convergence for a Multimodal Future, and three additional “hot topics” of: Transformation Technologies, Resilience, and Transportation and Public Health.

With policy makers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions in attendance, the TRB annual meeting continues to be an excellent forum for PacTrans to demonstrate our abilities, expertise, innovation, and research, as one of the country’s leading regional University Transportation Centers (UTCs).

PacTrans student and faculty researchers were in attendance from all five of our consortium institutions (Oregon State University, University of Alaska, Fairbanks, University of Idaho, University of Washington, and Washington State University). In total, PacTrans researchers had over 100 papers accepted to, and presented at, the meeting; and those researchers participated in over 120 lecterns, poster sessions, workshops, committees, and subcommittees.

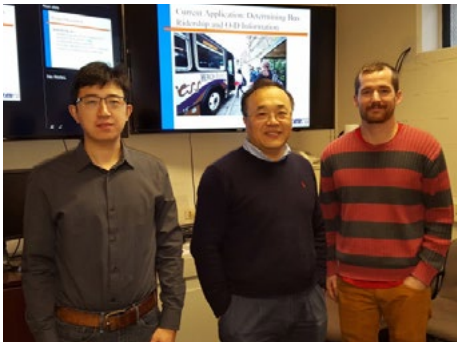
During this year’s trip to DC, PacTrans hosted its annual TRB Meeting Reception. On the night of January 11, 2016 faculty, researchers, students, and industry professionals gathered at the Walter E. Washington Convention Center. We would like to thank all of our regional and consortium partners who attended and for your continuing support.

To read more check out our Special Edition TRB Meeting newsletter [here](#)



Left to Right: Dr. Yin Hai Wang (UW), Billy Connor (UAF), John Ash (UW), Andrea Mather (OSU), Maria Bayya (UW), Dr. Ahmed Abdel-Rahim (UI)

A Mobile Sensing Technology Developed by the PacTrans STAR Lab Generates Broad Interests



Researchers at the PacTrans STAR Lab have been developing a system for collecting trip distribution data that uses Wi-Fi and Bluetooth signals from passengers' mobile phones and devices. This method would enable the gathering of data about where transit users enter and exit the system, how many people use a given stop, and even how long they wait to transfer to another bus/train/light rail. This technology has already been used to estimate vehicle travel times on highways and roads, but this is among the earliest attempts to investigate its possible use for collecting passenger origin and destination data on a transit system.

The PacTrans research team of Dr. Yin Hai Wang, Kris Henrickson, Matthew Dunlap, and Zhibin Li tested the system in May 2015 by installing these sensors on the South Lake Union Shuttle and Health Sciences Express buses. "We were able to prove the concept and demonstrate that it's much cheaper to collect data this way," Wang said. "This is really just at the beginning stage, but this technology is going to become more universal in the age of smart cities."

This research has been gaining international interest with groups from China, Brazil, and the Netherlands all expressing interest.

Read more at [ASCE Civil Engineering Magazine](#), [Geekwire](#), [UW Today](#), or [King 5 News](#)

PacTrans' Director Invited to Introduce ITS and Transportation Technology at WA House Transportation Committee Workshop

PacTrans director, Dr. Yin Hai Wang, was invited to join John Toone, IT Project Manager at King County Metro, and Tim Streck, Director of Channel Development with INRIX, on January 27th at a Washington State House of Representatives Transportation Committee Workshop. Committee Chair Judy Clibborn (D-Mercer Island) expressed that Intelligent Transportation Systems (ITS) and transportation technology are subjects that the committee needs more information about but has no credibility. ITS Washington was asked to bring three representatives to help fill in those gaps.

The three, representing public, private, and academic sectors, gave a 45-minute presentation on why ITS matters, who it affects, and what the potential benefits are to investing in its development. Dr. Wang had the opportunity to highlight many of the great endeavors promoted by PacTrans and in collaboration with local partners. He discussed: near miss data collection, UVA-based video data collection, bus collision avoidance systems, and DRIVE Net.

This was a great opportunity for Dr. Wang to reinforce our Center's theme, "Developing Data Driven Solutions and Decision-Making for



Safe Transport in the Pacific Northwest." It made our abilities better known to the policy-making community and continue to strengthen our perception as the region's premier technologies research hub in the transportation industry.

Dr. Yinhai Wang Keynote at ITE/IMSA Annual Meeting on Smart Cities



Each year the Washington Section of the Institute of Transportation Engineers (ITE) and the

Northwest Section of International Municipal Signal Association (IMSA) cohost a joint meeting and vendor exhibition. This year it was held on Monday, February 8th at the

Doubletree Hotel on International Boulevard in SeaTac, WA.

This year our very own director, Dr. Yinhai Wang, had the privilege of being the keynote during the lunch hour. Being a member on the IEEE Smart Cities Steering Committee Dr. Wang spoke about smart cities at the highest level, touching on all of the different sectors that are currently engaged in smart city initiatives. He spoke more specifically about

transportation issues faces our growing world. He challenged the room not to be afraid of companies like Uber, who some feel are upsetting the established order, but instead to seek partnerships with cutting edge technology companies. Dr. Wang outlined what he believed to be the keys to making our transportation systems more intelligent: from sensors, to big data, and intelligent analytics.

PacTrans Contributes to the Regional Smart Cities Workshop hosted by Microsoft

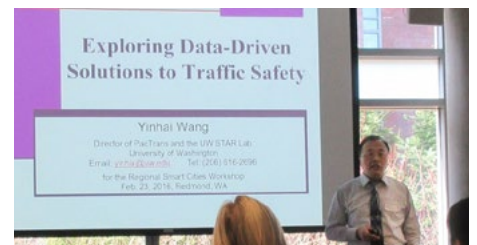
Dr. Yinhai Wang, director of PacTrans as well as the STAR LAB in the Civil and Environmental Engineering Department at the University of Washington, had the privilege to present at the Regional Smart Cities Workshop hosted by Microsoft. The one-day event, organized by the City of Bellevue, City of Redmond, Microsoft, Verizon Wireless, eCityGov Alliance, and Community Connectivity Consortium, sought to bring together local municipalities, technology developers, engineers, and smart city experts for a day for discussion and collaboration.

Dr. Wang spoke about how transportation involves human, infrastructure, vehicle, and environmental interactions and is therefore a very complicated system. “Traditionally, transportation has been studied through classical methods, typically with ideal assumptions, limited data support, and poor computing resources,” says Dr. Wang, “While the theories (such as traffic flow

and driver behavior models) developed through these efforts provide valuable insights in understanding transportation-related issues, they are often ineffective in large-scale transportation system analysis with massive amount of data.” Also, he notes that transportation activities have been found to affect public health, air quality, etc., but our understanding in these relationships is far from complete.

With recent advances in sensing, networking, and computing technologies, more and more transportation-related data and computational resources become available. Dr. Wang asserts that these new assets are likely to bring in new opportunities to understand transportation systems better and address those critical transportation issues in a faster, more accountable, and more cost-effective way. To take advantage of big data, he argues a new theoretical framework and its supporting platform are clearly

needed to integrate the quickly growing massive amount of data, typically from numerous sources of varying spatial and temporal characteristics, into the large-scale transportation problem solving and decision making processes. This set the stage for Dr. Wang to share about several of the cutting edge endeavors that PacTrans and the STAR Lab are currently engaged in, such as Bluetooth sensing and DRIVE Net.



NEWS AND EVENTS

PacTrans Board Meets: Discusses Upcoming UTC RFP and Multi-Institutional Project Abstracts

On Wednesday, February 24th, the PacTrans Board of Directors (BoD) met at the University of Washington. Present were Board Members: Chris Bell and David Hurwitz from Oregon State University, Billy Connor of University of Alaska Fairbanks, Ahmed Abdel-Rahim of the University of Idaho, Yinhai Wang (director) and Mark Hallenbeck from the University of Washington, and Ken Casavant from Washington State University; and Staff Members: Maria Bayya and Cole Kopca.

The board spent some time discussing the strategic director of PacTrans and emerging challenges and opportunities. Finally, the Board took the opportunity to recognize Dr. Chris Bell for his years of service acting as Oregon State University's PacTrans Associate Director. He has been slowly transitioning out of this role as he passes his baton to David Hurwitz. Dr. Bell will be retiring at the end of this school year and fully stepping

down from his role as PacTrans Associate Director. We want to extend him a huge thanks and wish him all the best in retirement.



Left to Right: Dr. Yinhai Wang (UW), Dr. Ken Casavant (WSU), Dr. Chris Bell (OSU), Billy Connor (UAF), Dr. David Hurwitz (OSU), Dr. Ahmed Abdel-Rahim (UI), Maria Bayya (UW)

Joint Board of Directors/External Advisory Board meeting



Left to Right: Dr. Yinhai Wang (UW), Wayne Kittleson (Kittleson and Associates), Carolyn Morehouse (ADTPF), Billy Connor (UAF), Ned Parrish (IDOT), Scott Drumm (Port of Portland), Dr. David Hurwitz (OSU), Maria Bayya (UW), Dr. Anne Vernez Moudon (UW), Chris Bell (OSU)

PacTrans would like to extend a huge thanks to those who joined us (in person or by phone) on Friday, March 25th, for our joint board of directors/external advisory board meeting. We had a great time and got a lot of valuable insights as we begin crafting our proposal to continue representing federal region 10 as its University Transportation Center. We are so fortunate to have such a strong and diverse group of state and local DOTs, and other public and private groups partnering to make PacTrans a premier UTC in the country.

PacTrans Contributes at NSF Smart Communities Workshop

Smart city leaders from around the world are gathered at UW's Seattle campus for a two-day workshop called the "NSF Visioning Workshop on Smart and Connected Communities Research and Education" to discuss the future of smart and connected communities on January 13-14, 2016. The UW Department of Electrical Engineering organized and hosted the workshop, on behalf of the

National Science Foundation, with the goal of facilitating dialogue between stakeholders, including municipalities, states, cities, universities, industry, federal government and private foundations. PacTrans director, Dr. Yinhai Wang, had the opportunity to share PacTrans unilateral endeavors toward making smart cities a reality.

PacTrans Contributes at NAIC Workshop on Urban Science and Engineering



Cities house more than 70% of the U.S. population; provide essential services for states, regions, and the nation; and are hubs for innovation. Yet, cities also face enormous challenges. They consume a major portion of the nation's energy, produce a corresponding amount of greenhouse gases, are saddled with aging infrastructures, and are plagued with traffic congestion. Cities are also vulnerable to major

disruptive events (e.g., earthquakes, tsunamis, hurricanes, disease outbreaks, and cyber-attacks) for which they are often ill prepared. In addition, all cities must cope with the changes wrought by climate change.

Advances in computing, communications, and sensor technologies offer the possibility of dramatically advancing our understanding of the behavior of cities, as well as

fuel hopes that such knowledge can help enhance a city's efficiency, sustainability, resiliency, and livability. February 2 and 3, 2016 the Northwest Institute for Advanced Computing hosted a workshop on urban science and engineering to discuss the emerging urban trend of the Smart City. PacTrans director, Dr. Yin Hai Wang, had the opportunity to share PacTrans efforts on the subject.

PacTrans Participates in 2nd Annual UTC Safety Summit

PacTrans participated in the second annual Safety Summit of USDOT University Transportation Centers hosted by Carnegie Mellon University in Washington DC on March 30 and 31. The summit brought together all of the UTCs whose current focuses are in safety with an attendance of 70 participants. The objectives included creating a community to highlight requirements and domain of transportation safety and for UTCs to get to know each other and leverage one another's activities. It was great hearing from panelists and their perspectives from government, industry and community. Presentations made by the different UTCs on active

and completed research, workforce development and outreach were very informative, interesting and at best, exciting, ranging from emerging technologies, sensors, connected vehicles, automation, crash data, big data, and many more.

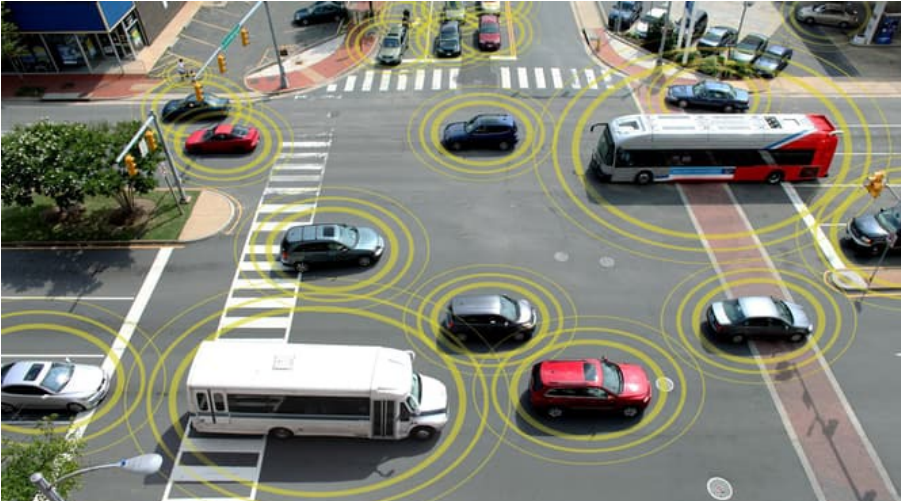
PacTrans Director, Yin Hai Wang, gave one such presentation on some of the research projects PacTrans is involved in such as STAR Lab's DriveNet, unmanned aircraft systems, collision avoidance technologies and collaboration with agencies and private sector such as Microsoft, Verizon Wireless, eCityGo-VAlliance and others on smart cities regional workshop. The takeaway



was getting UTCs' programs aligned with USDOT priorities on safety research. Top on the list of USDOT priorities as named by the panelists on government perspective included: data and systems, human factors, connected vehicles deployment and impact, automated vehicles technology and impacts, safety management systems, and data collection and analyses.

RESEARCH HIGHLIGHTS

Enhancing Safe Traffic Operations Using Connected Vehicles Data and Technologies



In 2012, there were more than 5.6 million crashes, including almost 31,000 fatalities, and more than 1.6 million injuries on U.S. roads as the result of vehicle crashes.

These figures call for developing and implementing effective methods to reduce the number and severity of crashes on US roadway system to move towards zero fatalities in the future.

Connected Vehicle technology presents great potential to increase the safety of our roadway system by increasing driver situational awareness and reducing or eliminating crashes through vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I), and vehicle-to-device systems (V2X) communications. According to a

U.S. Department of Transportation (DOT) report, combined V2V and V2I systems potentially address about 81% of all-vehicle target crashes; 83% of all light-vehicle target crashes; and 72% of all heavy-truck target crashes annually. Connected vehicles will also help roadway users (e.g. vehicle drivers, pedestrians, and bicyclists) to either avoid crashes or reduce their severity.

In a connected environment, road users (drivers and pedestrians/ bicyclists) will receive warnings that inform them of potential hazards

through visual displays, audible warning messages, etc. These warnings will increase roadway users' awareness of hazards and other dangerous situations they may not otherwise be aware of. As a result, drivers for example, can be alerted to imminent crash situations such as head-on collisions or rear-end crashes. Furthermore, when going through an intersection, roadway users can be alerted about another system user who has failed to observe the right of way so that these roadway users can take necessary actions to avoid traffic crashes.

This past June four researchers from the University of Washington and Washington State University, with joint sponsorship from PacTrans, UW, and WSU, began to study the enhancement of safe traffic operations using connected vehicles data and technology. Dr. Ali Hajbabaie (WSU), Dr. Yinhai Wang (UW), Dr. Leila Hajbabai (WSU), and Dr. Zhibin Li (UW) intend to use connected vehicles (CVs) data and technologies to improve traffic safety on mixed-use roadway networks (e.g., freeways and intersections).

RESEARCH HIGHLIGHTS

Mixed Use Safety on Rural Facilities in the Pacific Northwest

All terrain vehicles alone account for approximately 100,000 injuries in the United States, while snow machines contribute over 14,000 injuries and 200 deaths annually.

In the United States, one in twelve households as well as 13% of those who are old enough to drive do not own a personal automobile. Trips by these individuals are being made in/on one of many other possible modes, creating the need to “share space” between many forms of travel. Public right-of-way is just that, for the public, and it is meant for moving people and goods, not just single occupant, owner occupied vehicles. The nature of travel on mixed-use roads and facilities places varying modes of travel that have disparate capabilities and performance in close proximity to each other. This jeopardizes the safety of users in the mixed-use environments in several ways. In many rural locations, particularly those with recreation possibilities, this often creates conflicts between motor vehicles, non-traditional vehicle modes (e.g., all-terrain vehicles and snow machines), and non-motorized transportation modes (e.g., bicycles, pedestrians, and dogsleds) since separated facilities are simply not available. All-terrain vehicles alone account for approximately 100,000 injuries in the United States, while snow machines contribute over 14,000 injuries and 200 deaths annually.

In many cases, formalized facilities and roadway crossings for non-traditional and non-motorized modes do not exist, which jeopardizes the safety of these users. All-terrain vehicles and snow machines are often the only travel option and fulfill basic mobility needs for remote and isolated locales (e.g., villages and tribal lands). The difficulty of regulating and enforcing laws and rules for non-traditional modes exacerbates the issue by allowing

poor behavior and operating practices to go unchecked and forcing some towns to consider outright bans on ATV use (Carpenter, 2014). Non-traditional vehicles are also frequently used by “underage” operators who may lack proper training and be unaware of safe and lawful operation practices.

These factors create a pervasive and systemic nationwide safety issue. Though the overall magnitude of the problem is beginning to be understood with better records of fatalities and injuries, we lack the proper knowledge to develop strategic and targeted engineering and policy decisions. Better data on these non-motorized and, in particular, non-traditional transportation modes is needed on miles traveled, the nature and frequency of mode use, and the characteristics and locations of injuries and fatalities (similar to those used for motor vehicle travel on highways) in rural areas so that problem areas can be better identified and safety issues more appropriately addressed.

Beginning in January of 2015, PacTrans jointly funded (along with the University of Alaska Fairbanks and the University of Idaho) Dr. Nathan Belz (UAF), Billy Connor (UAF), Byron Bluehorse (UAF), Dr. Kevin Chang (UI), Dr. Ahmed Abdel-Rahim (UI), and Dr. Mostafa Hegazi (UI), for an 18-month project to explore providing safe accommodation, limiting the improper use of public rights-of-way, and maintaining mobility, and provide future guidelines for design, education, and enforcement for mixed-use rural facilities.



RESEARCH HIGHLIGHTS

An Examination of the Impact of Increasing Commercial Parking Utilization on Cyclist Safety in Urban Environments

As traffic congestion grows in U.S. urban areas, many cities are encouraging bicycling as an alternative to using cars. Bicycling has the advantage of being less infrastructure-intensive than public transportation, and it has a significantly longer range than walking. Seattle, Portland, and many other U.S. cities have plans to increase their bicycle mode share. Seattle, for example, has a goal of tripling the amount of bicycle commutes between 2007 and 2017 (SDOT, 2007).

However, as bicycling grows in popularity, conflicts between bicycles and other vehicles have become increasingly problematic. Conflict with freight vehicles is an especially notable problem because of the limited visibility of trucks and the highly severe consequences of bicycle-truck collisions. In 2012, 726 bicyclists were killed in traffic in the U.S. (NHTSA, 2014). Of those deaths, 59 (8.1 percent) involved trucks (NHTSA, 2014). However, in 2012 trucks made up only 5.2 percent of registered vehicles in the U.S. (FHWA, 2014). Similar data from Norway showed that trucks accounted for only 3.2 percent of registered vehicles but were involved in 21 percent of bicyclist fatalities (Drescher 2015).

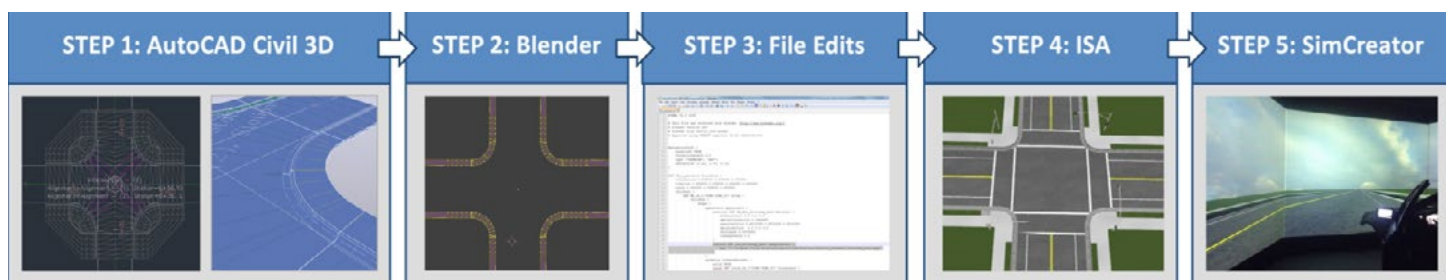
The problem is more pronounced in urban areas, where 70 percent of U.S. bicyclist deaths occur (NHTSA, 2014). Of course, trucks are necessary for urban areas to operate and are ubiquitous in most all cities. For example, one study of grocery stores in the Puget Sound region found that each store, of which there are hundreds, generated 18 truck trips per weekday (McCormack and Bassok, 2011). However, a 2005 study found that while trucks in New York City accounted for only 5 to 17 percent of traffic volume, they were involved in 33 percent of bicyclist fatalities (NYC Dept. of Health, 2005). Transport for London stated that “HGVs [Heavy Goods Vehicles] are disproportionately represented in cyclist fatalities in [London],” and indicated that of the 14 bicyclist deaths that occurred in London in 2013, nine involved HGVs (Transport for London, 2015).

The National Association of City Transportation Officials’ (NACTO) Urban Bikeway Design Guide recommendations for a conventional bike lane are a 6-foot-wide lane on the right side of the roadway (NACTO, 2013). This may be next to the sidewalk or shoulder, or may be between general purpose lanes and an 8-foot-wide parking lane. This



practice encourages bicyclists to ride to the right of trucks, often putting cyclists in the truck’s largest blind spot. Without a bike lane, cyclists using the same roadways may be more likely to ride in the traffic lane, placing them to the front of the truck, where they are more visible to the driver, or behind the truck, where they are unlikely to be in a position that conflicts with a truck’s maneuvers, particularly where trucks enter or exit loading zones.

With PacTrans joint funding (along with Oregon State University and the University of Washington), Dr. David Hurwitz (OSU), Dr. Ed McCormack (UW), and Dr. Anne Goodchild (UW), have begun an 18-month exploration of the issues outlined above. The overarching goal of this project is to improve both cyclist safety and commercial parking utilization in urban environments.



STUDENTS

Congratulations to OSU Graduate Transportation Engineering Student Researcher Kamilah Buker

Kamilah Buker is a student of transportation engineering in Oregon State University's Master's program. Kamilah was recently awarded first place in the Oregon Section of the Institute of Transportation Engineers (ITE) Bill Kloos Memorial Scholarship.

This scholarship is named after William C. Kloos, who was the Signals and Street Light Manager at the City of Portland for 25 years. Bill was a talented leader, innovative problem solver and mentor to many throughout his career. One of Bill's unique talents was public speaking and presenting technical information

to a wide range of audiences. This scholarship was developed in order to promote the innovative thinking and communication skills of the future transportation professionals.

This year, Kamilah created a children's book titled *Traveling Safely to School*. This twelve page short story told the epic journeys of three elementary school kids getting safely to school; one walking, one biking, and one taking the bus. The book showed the important role of the traffic engineer in this process. But don't let me spoil the whole story, read it [here](#).



Congratulations Kamilah, job well done!

Congratulations to OSU Graduate Transportation Engineering Student Researcher Jason Anderson



Jason Anderson is a student of transportation engineering in Oregon State University's Master's program. He is graduating this

spring with his M.S. and beginning the PhD program in the fall. His current research utilizes econometric methods to evaluate commercial vehicle crashes based on road classification. Jason was recently awarded a Coral Sales Company Scholarship as well as receiving 2nd place in the North America PCI Big Beam Contest.

Coral Sales is a regional distributor for national manufacturing firms. Established in 1979, Coral Sales Company specializes in supplying safety and maintenance products to the transportation industry in the Pacific Northwest. The Douglas P. Daniels/Coral Sales Company Scholarship fund was established to help support Transportation engineering students at universities in the Pacific Northwest. Since its inception in 1987, we have had the pleasure of recognizing nearly 700 recipients. Coral Sales Scholars excel in both leadership and interpersonal communications. These distinguished achievers are destined to become the front runners in the transportation industry.

The Big Beam Contest, sponsored by SIKA Corp., is a competition where teams of students fabricate and test a precast/prestressed concrete beam with the help of local precast concrete Producer Members. Prizes are awarded to the top performers in each zone in consideration of efficient design, highest load capacity, and other categories.

Congratulations Jason!

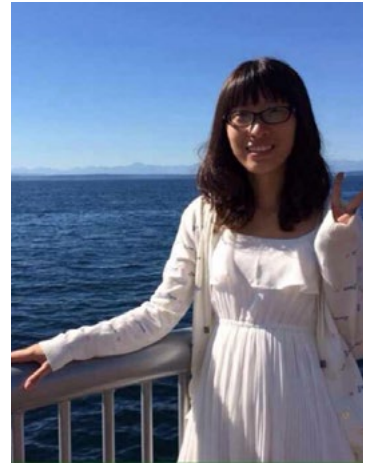
STUDENTS

PacTrans STAR Lab Researcher Chen Receives Women's Transportation Seminar Helene Overly Scholarship

PacTrans would like to congratulate STAR Lab researcher Cherie (Xianzhe) Chen for receiving the Women's Transportation Seminar (WTS) Helene M. Overly scholarship. Congratulations!!! Chen is a second year graduate student majoring in Transportation Engineering at University of Washington. Originally from Shanghai, China, it is her goal to become a professional transportation engineer with hopes of being involved in planning, analyzing, designing and operating transportation systems.

The Helene M. Overly Scholarship was established in 1981 to honor the first Executive Secretary of WTS for her dedicated service to the organization in public service, organizational abilities and a spirit of determination that helped WTS nearly double its membership in two years. To be eligible for this \$10,000 scholarship, applicants must meet the above criteria and be enrolled in a graduate degree program in a transportation-related field such as engineering, planning, finance or logistics.

Congratulations Xianzhe!



Prospective Graduate Transportation Engineering Students Meet with PacTrans STAR Lab



February 5, 2016 a group of about twenty prospective graduate transportation engineering students camp to the University of Washington to see the campus, the department, the labs, and meet with the faculty.

Dr. Yin Hai Wang, representing both PacTrans and the STAR Lab (he is the director of each), spent about 45 minutes with the prospectives; highlighting our strong partnerships, abilities, technologies, and projects.

OSU Students as the Student Leadership Summit

Born in the Western ITE district, the Student Leadership Summit (SLS) is an opportunity for students to organize and host a large scale event. In the process, those that attend are able to develop strong leadership skills that will lead to better careers, by listening to leaders in the transportation industry from around the region.

The 3rd annual SLS was hosted by Cal Poly Pomona January 22nd -24th. With In-N-Out Burger symbols in their eyes, four Beavers set sail for The Golden State: Liz Rios, Zach Barlow, Amber Meeks, and David Covey. For each of them, it was their first time in attendance. The second day included technical presentations, Zaki Mustafa (LADOT) during lunch, and mock speed interviews and design projects captured students until dinner. A "Hollywood Red Carpet" themed banquet was the night's entertainment. On the third day, students presented for the design competition for a parking design around the Cal Poly campus. David Covey's team secured a 2nd place victory among the 12 teams present.



PacTrans Seminar Series: Dr. Yahong Rosa Zheng on Bridge Scour Monitoring

On Friday, January 29th, 2016, Dr. Yahong Rosa Zheng gave an invited PacTrans seminar on the UW Seattle Campus. Dr. Zheng came from Missouri University of Science and Technology (MUST) where she is a professor in the Department of Electrical and Computer Engineering.

While Dr. Zheng's connections with Civil and Environmental Engineering (CEE) and PacTrans may not appear immediately obvious, she has a history of collaboration with CEE faculty at her university and gave a highly relevant talk about possible means to monitor structural health. Specifically, she discussed a system that can be used to monitor bridge scour and communicate such information to necessary authorities (e.g., bridge operation and maintenance crews) via underwater communications. Scour, a process which

involves movement of rocks/sediment away from portions of bridge piers located underwater, can cause structural failure due to instability and thus is an issue which needs to be frequently monitored. By placing communications equipment within man-made "rocks" near the bridge piers, Dr. Zheng and her colleagues at MUST have developed a system capable of dispatching key information on scour as it occurs.

Besides the development of the system itself, Dr. Zheng discussed some of the issues that make underwater wireless communications significantly more complicated and prevent conventional technologies such as Bluetooth and WiFi from being used. Ultimately, it seems that development of systems to monitor the health of structures, such as highway bridges, with portions of



the structure located underwater or underground in a low-cost and effective manner is not far from widespread use!

PacTrans Seminar Series: Charlie Howard Seminar Sets a Great Backdrop for Current Region Transportation Climate

Yesterday afternoon, Thursday March 10th, Charlie Howard, Director of Planning at the Puget Sound Regional Council (the Puget Sound Region's MPO), gave a great PacTrans sponsored talk to over 100 students, faculty/researchers, and industry practitioners. Mr. Howard, an urban planner, speaking in front of a room full of engineers, spent the majority of his time discussing the general trends and current climate in which we find out region's transportation system. He discussed growth, issues of congestion, and

Washington State's unique situation with the Growth Management Act that enables urban growth boundaries, beyond which development is discouraged.

As he spoke about our regional transportation needs he outlined the region's comprehensive transportation plan and budget, which lead him to speak briefly about funding gaps for future transportation investments. Finally this brought Mr. Howard to what he sees as the major issues facing our future transportation workforce:

He discussed currently failing and potential new funding sources for transportation infrastructure, the broken state of our High Occupancy Vehicle (HOV) lanes, right-of-way (ROW) prioritization, and the ultimate importance of community engagement and education in emerging operations and technologies.



PacTrans Welcomes Walker-Ames Scholar: Dr. Basile Chaix



On the evening of Thursday March 31, 2016, a crowd of about 175 people, choosing to forego the first truly nice Seattle spring evening, packed into the Kane Hall lecture auditorium on the University of Washington's Seattle campus to hear from

Basile Chaix, at this month's Walker-Ames Lecture.

Dr. Chaix, currently the research director at Inserm (the French National Institute of Health and Medical Research), was invited by a host of interdisciplinary faculty at the UW to spend a week having meetings, discussions, seminars, and this seminal lecture.

Much like PacTrans associate director Dr. Anne Vernez Moudon's Urban Form lab, Dr. Chaix's lab seeks to take immense amounts of data, stemming from a wide array of fields, including some from the built environment, and perform analyses in an effort to make meaningful observations about the way the built environment affects the rest of our lives as humans. More specifically his group is interested in the neighborhood's effect on health and the relationship between transport and health.

During his presentation, Dr. Chaix gave a thorough overview of many of the projects he's been working on to this end and highlighted some of the more interesting correlations that they have found:

- Those who shop in low-cost supermarkets are twice as likely to be obese as those who shop in expensive supermarkets
- Those who are unemployed spend significantly less time outside of their "neighborhoods" than those who are employed
- Density of services and green spaces show positive correlations with increase in walking mode split, increase in societies walking/public transport mode split increases physical activity of that society. Thus higher density of services and green spaces make for healthy communities.

Dr. Chaix went on to highlight that his group's upcoming work will explore air pollution and noise related to personal transport behavior and their effects on cardiovascular and respiratory health, and the physical environment's effects on depression.

TECHNOLOGY TRANSFER

In our last newsletter, we presented each of the seven success stories that we identified to receive additional PacTrans funding for Technology Transfer. In this section we will give you an update on the progress made with these projects.

Green Roads Bootcamp Project Update

This project involved the University of Washington's American Public Works Association (APWA) Student Chapter hosting an event called, Greenroads Bootcamp. Thus on January 28th, 2016, this full-day training event involved: (1) a 1-hour general audience lecture about roadway sustainability and Greenroads, (2) a 2-hour in-depth training session on how to use the Greenroads Rating System to rate roadway projects, (3) a 1-hour information session with interested students, and (4) free passes for any in attendance wishing to take the Greenroads professional accreditation exam (STP Exam).

More than 50 students attended the lunchtime general audience lecture session. Further 14 graduating seniors and a few grad students stuck around for the extended Greenroads 201 session, where we learned about how certification works and what kinds of things to look for on a project to make it greener, and what things lend to better success.

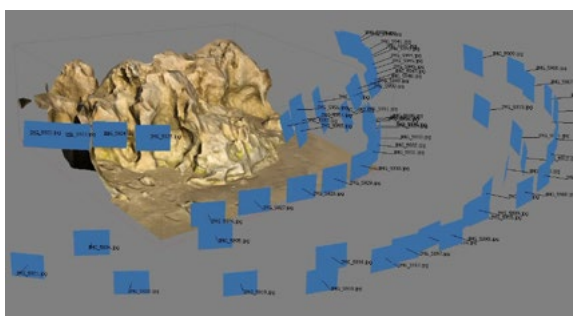
Check it out by clicking [here](#)



Unmanned Aircraft Landslide Assessment Project Update

The project involved using unmanned aircrafts to better assess landslide risk. Their additional funding for tech transfer was to be used to make a promotional video to better disseminate their findings that their new drone methodology worked better, in many cases, than previous methods. The promotional video is complete.

Check it out by clicking [here](#)



Interactive Tourist Information Sign Website Project Update

This project involved the study of traffic sign understandability. The tech transfer funding given was for two purposes: (1) to provide a mechanism for sharing the literature review, experimental methods, results, and findings of the project; and (2) to provide an interactive interface that will enable users from around the world to populate a geospatial database with images and descriptions of information signs in different contexts. For both of these components a website was to be created. We are excited to announce that that website has been completed!

Check it out by clicking [here](#)



Green Stormwater Infrastructure Research Facility Project Update

This project involved the creation of a Green Stormwater Infrastructure Research Facility for the study of stormwater runoff. The tech transfer funding given was for three purposes: (1) development of education materials, and collaborate with University of Washington to collect initial data and apply for the facility to be Technology Assessment Protocol – Ecology (TAPE) certified, (2) development of a web-based monitoring portal that will be made available to the community for monitoring these rain gardens in real-time and measure their performance via an embedded modeling framework, and (3) delivery of presentations to local stormwater utilities and water managers about the facility and research conducted at the facility.

The presentation to local stormwater utilities and water managers about the facility and research conducted at the facility, was made recently at the 5th Annual Mid-Willamette Erosion Control and Stormwater Management Summit, January 26th, 2016, Keizer, OR. Check

out the other two items by clicking the links below:

- a. The web portal for the facility can be accessed [here](#)
- b. The web portal for the monitoring data can be accessed [here](#)



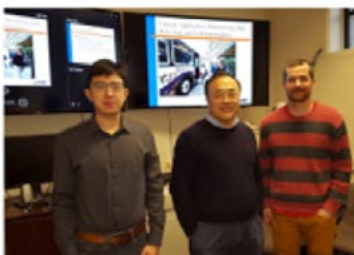
Wireless MAC Address Sensing in Transport Data Collection Project Update

This project involved leveraging current data collection efforts to obtain more complete travel demand information, and introducing new methods that have the potential to reduce cost and

improve the quality and coverage of transportation data. The tech transfer funding given was for a single purposes: the development of a short film explaining this unique data collection paradigm to the

non-engineering public, with the aim of addressing common complaints regarding privacy and safety.

This film has recently been completed and can be found [here](#)



PacTrans Board of Directors



Yinhai Wang, PhD
Professor, Transportation Engineering
 Department of Civil & Environmental Engineering
Director, Pacific Northwest Transportation Consortium (PacTrans), Region 10, UTC
Director and Founder, Smart Transportation Applications and Research (STAR) Laboratory
 University of Washington



Chris A. Bell, PhD
Associate School Head and Professor
 Department of Civil & Construction Engineering
Associate Director, PacTrans
 Oregon State University



Linda Ng Boyle, PhD
Professor and Chair, Department of Industrial & Systems Engineering
Professor, Transportation Engineering, Department of Civil & Environmental Engineering
Associate Director of Research, PacTrans
 University of Washington



Billy Connor, PE
Director, Alaska University Transportation Center (AUTC)
Associate Director, PacTrans
 University of Alaska - Fairbanks



Anne Vernez-Moudon, PhD
Professor, Urban Design and Planning
Professor, Architecture
Professor, Landscape Architecture
Adjunct Professor, Civil & Environmental Engineering
Adjunct Professor, Epidemiology
Director, Urban Form Lab (UFL)
Associate Director of Education, PacTrans
 University of Washington



Ahmed Abdel-Rahim, PhD
Associate Professor of Transportation
 Department of Civil Engineering
Associate Director, PacTrans
 University of Idaho



Mark E. Hallenbeck, MS
Director, Washington State Transportation Center (TRAC)
Associate Director of Outreach, PacTrans
 University of Washington



Kenneth L. Casavant, PhD
Professor and Agricultural Economist
 School of Economic Sciences
Associate Director, PacTrans
 Washington State University
Adjunct Professor, UGPTI,
 North Dakota State University
Director, Freight Policy Transportation Institute

PacTrans External Advisory Board



Rhonda Brooks
 Director, Research
 Research Manager
 for Design, Safety,
 Environment & Safety
 Washington State
 Department of
 Transportation
 (WSDOT)



Charlie Howard
 Director
 Integrated Planning for
 Puget Sound Regional
 Council (PSRC)



Carolyn Morehouse
 Chief of Research
 Development &
 Technology Transfer
 Alaska Department of
 Transportation & Public
 Facilities (AKDOT&PF)



Michael Bufalino
 Research Manager
 Oregon Department
 of Transportation
 (ODOT)



Wayne Kittelson
 Principal
 Kittelson & Associates,
 Inc.



Ned Parrish
Research Program Manager
 Idaho Transportation
 Department (ITD)
 Jerry Whitehead
 President & Owner
 Western Trailers
 Boise, ID



Scott Drumm
 Manager, Department
 of Research and
 Strategic Analysis
 Port of Portland



Frank Breust
 Vice President
 Government and
 External Affairs, BMW
 Group Representative
 Office, California



Jerry Whitehead
 President & Owner
 Western Trailers
 Boise, ID

SAVE THE DATE

Regional Transportation Conference
October 14, 2016 @ UW Campus

Student Transportation Conference
October 15, 2016 @ UW Campus

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 coalition of transportation professionals and educators from Oregon State University (OSU), the University of Alaska Fairbanks (UAF), University of Idaho (UI), University of Washington (UW), and Washington State University (WSU). With dual themes of safety and sustainability, 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 solutions that we develop will meet the needs of the region and provide direction for the five strategic goals of the U.S. Department of Transportation.

- Safety
- State of good repair
- Livable communities
- Environmental sustainability
- Economic competitiveness

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. Yinhai Wang
University of Washington
More Hall, Room 112

Email: PacTrans@uw.edu
Phone: (206) 685-0395
Find us on Twitter @PacTrans UTC

Contributors

Maria Bayya, UW
Cole Kopca, UW
Melanie Paredes, UW
Weibin Zhang, UW

PacTrans.org