PacTrans Leads ASCE Pacific Northwest Student Conference

PacTrans teams took the top five General Excellence Award titles in Corvallis, Oregon at the 2013 ASCE Pacific Northwest Student Conference. In rank order, they are:

1st: University of Alaska Fairbanks
2nd: Washington State University
3rd: University of Washington
4th: Oregon State University
5th: University of Idaho

Seventeen teams from Alaska, Idaho, Montana, Oregon, Washington, and British Columbia competed in multiple events, which were averaged to produce a 1-5 General Excellence score. Teams also took part in steel bridge, concrete canoe, technical paper, and engineering knowledge competitions.

Within the steel bridge competition, teams were judged on multiple categories, including efficiency, economy, stiffness, lightness, speed, and display to produce an overall bridge score. Teams pre-rehearsed and competed in a timed construction of their steel bridge; once complete, the bridges were load tested to 2,500 pounds to measure their stiffness and strength. Leading the steel bridge competition in order were the University of Alaska Fairbanks, Washington State University, and the University of British Columbia respectively.

Sponsored by the American Society of Civil Engineers, the event took place April 25-27 on the Oregon State University Campus. The 2013 National Student Steel Bridge Competition will be held at the University of Washington on May 31-June 1.

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About Pacific NW Transportation Consortium

The Pacific Northwest Transportation Consortium (PacTrans) is the new Region 10 University Transportation Center (UTC) established in January 2012 with a $3.5 million grant 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 transportation 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 US 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 sustainable solutions for the diverse transportation needs of the Pacific Northwest.

The UW serves as the lead institution. The PacTrans Center is located at More 112 on the UW campus. Dr. Yinhai Wang, Professor of transportation engineering in the Civil and Environmental Engineering Department, serves as Director of PacTrans.

Student Activities

PacTrans Sponsored University of Idaho Team Cleans Up at the Clean Snowmobile Challenge in Houghton, Michigan

The University of Idaho’s Clean Snowmobile Challenge Team won a record number of awards at the 2013 Society of Automotive Engineers Clean Snowmobile Challenge competition held in Houghton, Michigan in March. The 13-member team took third place overall and won 10 out of 21 possible awards, including recognitions for snowmobile design, project display, safety, value and innovation, and winning $1,000 in prize money. The team was also one of only six to complete the competition’s 85-mile endurance run.

This year at the competition, the engineers were tasked to design a snowmobile that would run on flex fuel, which can be anywhere from 40 to 70 percent ethanol. They also had to create two modes for the sled, so it could switch between running at optimum power and running more cleanly and quietly. The UI team’s snowmobile uses a two-stroke engine like traditional snowmobiles, but runs about 20 times cleaner than the machines commonly in production just 10 years ago.

The team also won an award for Excellence in Technical Presentation on April 26th at the UI 20th Annual Engineering Design Expo.
Awards and Recognition

WTS Gala in Seattle

The 2013 Women’s Transportation Seminar (WTS) Gala was held on March 19th at the Westin in downtown Seattle. Cathy Xiao Yue Liu, Ph.D candidate at the University of Washington, received the Helene M. Overly Memorial Graduate Scholarship. Tingting Wang, Ph.D candidate at the University of Washington, received the Senator Scott White Memorial Scholarship.

Right: UW Transportation professionals at the 2013 WTS Gala. From left: Tingting Wang, Mallory Wilde, Yingqian Mei, PacTrans Assistant Director Meghan Mackrell, Cathy Liu, Carmen Kwan, Sonia Xiao Erica Miller, and Professor Cynthia Chen

NIATT Employees Win Outstanding Staff Awards at the University of Idaho

Debbie Foster and Tami Nobel each received a 2013 college of Engineering outstanding staff award from the University of Idaho. Tami and Debbie both work under Dr. Karen Den Braven, PacTrans Associate director at the University of Idaho and Director of the National Institute for Advanced Transportation Technology (NIATT).

Tami is the Assistant to the Director of NIATT. She has been with NIATT for three and a half years and prior to that was with the Civil Engineering Department for four years. She has multiple strong skills in financial management and in working with people. Her knowledge of administrative requirements helps the center stay afloat in a sea of forms and procedures. She takes great pride in providing support to faculty and staff and is always willing to go the extra mile when needed.

Debbie earned an Associate’s Degree in Bookkeeping from Lewis Clark State College and a Bachelor’s Degree in Office Administration and Minor in Accounting from the University of Idaho. She also has over 16 years of experience working at the University of Idaho. She has worked in the National Institute for Advance Transportation Technology since June of 2003 as a Finance Technician and has also been performing financial related duties for the College of Engineering Dean’s Office since December of 2011. She enjoys working with multiple budgets and performing a wide variety of financial duties. When not at work, she enjoys reading, watching movies, and spending time with family and friends.

Cathy Liu Won the 2nd Best Paper Award at the TRF Contest

Cathy’s paper “System-Wide Cost Benefit Analysis of Optimal Integrated Corridor Management (ICM) Strategies” has been selected as the 2nd best paper for the 2013 Transportation Research Forum (TRF) Student Paper Contest. She was invited to attend and present the paper at the conference on March, 2013 at Annapolis, Maryland. Congratulations to Cathy!
Current Research

UW Graduate Student Develops Mobile Device-Based Pedestrian Data Collection System

A novel travel data collection system has been developed and patented by Dr. Yegor Malinovskiy and Dr. Yinhai Wang of the Department of Civil and Environmental Engineering at the University of Washington. This method involves the use of mobile device GPS and short-range communication capabilities to identify unique MAC addresses of Bluetooth or WiFi enabled mobile devices. This app-based technology requires the owner of a mobile device, i.e. the observer, to download an app, which runs continuously in the background to scan for surrounding unique device addresses. Pedestrian travel trajectories and patterns can then be extracted using the system, from the MAC address sightings and their GPS coordinates, providing data not only about the app users but also about all Bluetooth-visible devices incident to them.

Visualization of popular pedestrian paths on the UW Campus using Bluetooth pedestrian tracking system

The greatest advantage of this app-based technology is cost-effectiveness. There is no need to install, administer and maintain a network of sensors, which significantly reduces infrastructure costs. This technology is also independent of telephone companies and other data providers, as all data is collected by the users directly. Compared to most location-based services on the market, this invention can provide many benefits to users and service providers. While this app-based sensing technology can automatically obtain location and trajectory information from wireless devices, additional information can also be obtained by analyzing which types of devices prefer to interact, thus allowing one to make plausible guesses about the type of activity the user is engaged in. Multi-target applications that involve multiple users may also be developed using this technology, in which location-based notifications can be sent to users within an area and not just to a single user.

The location tracking capability provided by this innovation represents a fundamental component of future location-based services. Although the full potential of this innovation may be far on the horizon, the inventors envision applications in the fields of Urban Planning, Retail, Entertainment and Emergency Services.

For more information contact Dr. Yinhai Wang   email: yinhai@uw.edu   phone: (206) 616-2696

UW Researchers Study “Food Deserts” in King County, Washington

Food deserts are areas where low-income people have limited access to low-cost, nutritious food. Imagine a family of four relaying on only one car, or even having no car at all, without a low-cost supermarket within walking distance. Professor Anne Vernez Moudon of the Urban Design and Planning at the University of Washington researches identifying food deserts within urban settings. Moudon and her colleagues use a complex approach in evaluating supermarket access, which takes into account multi-modal transportation, classifying supermarkets by low, medium, and high cost, and identifying the vulnerable populations. This research will help facilitate city planners and public health authorities to work together in reducing health disparities and improve access to nutritious food sources for all.

For more information contact Dr. Anne Vernez Moudon   email: moudon@uw.edu   phone: (206) 685-4057
Current Research

PacTrans Researchers Develop Digital Dissemination Platform for Transportation Educational Materials

Substantial national interest exists to improve engineering teaching methods and preparation of engineers for a dynamic and innovative workforce. Tens of millions of dollars have been spent by such organizations as the National Science Foundation developing innovative and effective teaching materials and methods to help students learn engineering. The impact of such efforts is hindered in large part by the lack of an efficient and effective means to share developed materials and methods. Compounding this concern is the tremendous amount of time and effort it takes to develop or modify courses. The purpose of this project, headed by Shane Brown at Oregon State University, is to develop a web-based system where innovative teaching materials can be uploaded and where course instructors can easily search and browse for materials as they develop and revise their engineering courses. David S. Hurwitz (OSU), Michael Kyte (U. of Idaho), Mark Hallenbeck (UW), & Robert Perkins (UAF) are co-Pls for this project.

The long-term goal is for the system to house materials from diverse transportation engineering areas and levels of expertise. Educational materials will be gathered from transportation faculty and from workforce development experts from state DOT’s. The research team has collected approximately 200 different exercises, homework problems and sets of course notes, with a particular focus on transportation faculty who are recognized as national leaders in educational innovation and effectiveness.

In the long run, this project is expected to have a substantial impact on the effectiveness of transportation teaching methods by providing easy access to a diverse set of materials and that it will make the course refinement and development process much more efficient for faculty. The system will be usable by the summer of 2014.

For more information contact Dr. Shane Brown email: shane.brown@oregonstate.edu phone: 541-737-1759

PacTrans Seminar Series

Dr. Chris T. Hendrickson
Electric Vehicles and Life Cycle Assessment

Chris Hendrickson is the Duquesne Light Company University Professor of Engineering and Co-Director of the Green Design Institute at Carnegie Mellon University. The University of Washington hosted Dr. Hendrickson on February 27th for his lecture “Life Cycle Assessment of Electric Vehicles.” This lecture was well attended by UW students, faculty, representatives from local transportation agencies, and community members.

Dr. Hendrickson discussed the importance of considering the full life cycle environmental implications of widespread adoption of electric vehicles, including earlier lead acid battery versions and new battery chemistries. Barriers to widespread adoption were also discussed. Dr. Hendrickson also fielded questions related to his recent work on electric vehicle life cycle assessment.

A reception at the UW STARlab followed Dr. Hendrickson’s lecture, attended by UW faculty, staff, students, and others.
Highlights From the 92nd Annual Meeting of the Transportation Research Board

PacTrans played an active role during the 2013 TRB Annual Meeting by hosting a Region 10 UTC reception, delivering 38 technical presentations (or posters), and actively supporting UTC related activities.

The PacTrans reception, co-sponsored by AUTC, TranLIVE, and OTREC, was attended by professionals, public officials, and students from all over the world. During the reception, Portland State student Kristina Curran was presented with the Michael Kyte Region X Outstanding Student Award.

PacTrans was also represented at the Council of Urban Transportation Centers (CUTC) banquet, where Oregon State student Joshua Swake was presented with the PacTrans student of the year award.

Top: Kristina Curran receives the Michael Kyte Region 10 Outstanding Student Award,
Bottom left: Joshua Swake receives the PacTrans Region 10 Outstanding Student Award, and
Bottom right: PacTrans Director Dr. Yinhai Wang addresses a crowd at the PacTrans reception at the 92nd annual meeting of the Transportation Research Board

Upcoming Events

Save the date for these upcoming PacTrans sponsored events! More information will be on the way as plans are finalized.

PacTrans External Advisory Board Meeting
Where: University of Washington Campus in Seattle
When: Thursday, Oct. 17th

Region 10 Transportation Conference
Where: University of Washington Campus in Seattle
When: Friday, Oct. 18th

Region 10 Student Transportation Conference
Where: University of Washington Campus in Seattle
When: Saturday, Oct. 19th
Meet the PacTrans Board of Directors

Yin hai Wang, Ph.D.
Director
University of Washington

Linda Boyle, Ph.D.
Associate Director of Research
University of Washington

Anne Vernez-Moudon, Ph.D.
Associate Dir. of Education
University of Washington

Mark Hallenbeck, M.S.
Associate Director of Outreach,
University of Washington

Chris A. Bell, Ph.D.
Associate Director at Oregon
State University

Billy Connor
Associate Director at the
University of Alaska, Fairbanks

David McLean, Ph.D.
Associate Director at
Washington State University

Karen R. Den Braven, Ph.D.
Associate Director at the University
of Idaho

Meet the PacTrans External Advisory Board

Jerry Whitehead
Chairman of the
Idaho Transportation Department

Ned Parrish
Research Program Manager for the
Idaho Transportation Department

Clint Adler, P.E.
Alaska Dept. of Transportation &
Public Facilities

Edward Mantey
Vice President of
Toyota Vehicle Planning, Corporate
Strategy, Technical Administration

Wayne Kittelson
Kittelson & Associates

Charlie Howard
Dir. of Integrated Planning for Puget
Sound Regional Council (PSRC)

Leni Oman
Director of Research and Library Services
Washington State Department of Transportation

Barnie Jones, Ph.D.
Research Section Manager, Oregon
Department of Transportation

Scott Drumm
Mgr., Research & Strategic Analysis
Dept. at the Port of Portland, Portland, Oregon

For contact information and Board member bios see PacTrans website