PacTrans Transportation Conference

University Transportation Center Newsletter

SPECIAL ISSUE
FEBRUARY 2017

IN THIS ISSUE

PacTrans 2016 Regional Transportation Conference Attracts Record Turnout

The Pacific Northwest Transportation Consortium (PacTrans) held its fourth annual conference on Friday, October 14, 2016 at University of Washington's Lyceum Room in the Husky Union Building. The conference focused on transportation safety and technology with the theme of "Inclusive Technology for Tomorrow's Transportation."

With over 220 in attendance, it was by far the most successful conference to date. This year was not only a success because of general attendance numbers, but also because speakers and audience members were well represented from all four states and five consortium universities in the Pacific Northwest. The conference had a great mix of academic researchers, government agencies, and private industry professionals; and each of the thirteen speakers gave excellent presentations on a broad range of interesting topics.

Sessions covered the following topics: A research focus session on Mobility, a session on Technology Transfer and the transition of successful research results into professional practice, a session on Workforce Development, and finally a session on research hot topics of the future. Following the overall aim of the conference, PacTrans principal investigators and students submitted a total of 32 posters for the conferences annual poster session.

AGENDA

8:00 AM **Registration Check-in**

8:30 AM **Welcome** Yinhai Wang, *Professor, Transportation Engineering and Director of the Pacific Northwest Transportation Consortium (PacTrans) and of the STAR lab, Civil & Environment Engineering, University of Washington (UW)*

Sally J. Clark, *Director, Regional & Community Relations, External Affairs (UW)*

8:40 AM **Keynote Address** Marc Luiken, *Commissioner, Alaska Department of Transportation and Public Facilities*

9:15 AM **Session 1** (Research Focus Area: Mobility)

Don MacKenzie, Moderator
Assistant Professor, Civil Engineering, UW

Thaisa Way, *Professor, Landscape Architecture, UW*

Jennifer Eskridge and John Stowman, *Co-founders, Fairbikes*

Franz Loewenherz, *Senior Transportation Planner, City of Bellevue*

10:30 AM **Break**

10:45 AM **Session 2** (Technology Transfer)

Nathan Belz, Moderator
Assistant Professor, Civil & Environmental Engineering, University of Alaska Fairbanks

Duer Reeves, *Senior Vice President, Weathercloud*

Peter Brink, *Director of Engineering, PolySync*

Brant Zwiefel, *Director and Architect, Microsoft Worldwide Public Sector*

12:00 NOON **Lunch**

1:00 PM **Session 3** (Workforce Development)

Haizhong Wang, Moderator
Assistant Professor, Civil & Construction Engineering, Oregon State University

Wayne Kittelson, *Principal, Kittelson & Associates, Inc.*

Sarah Amador, *HR Manager, BNSF Northwest Division*

Rhonda Young, *Associate Professor, Civil Engineering, Gonzaga University*

2:15 PM **Poster Session Elevator Pitches**

2:30 PM **Break/Poster Session**

3:15 PM **Session 4** (Research Hot Topics: Looking Ahead)

Eric Jessup, Moderator
Research Associate Professor, School of Economic Sciences, Washington State University

Charlie Howard, *Director, Integrated Planning, Puget Sound Regional Council*

Scott Drumm, *Manager, Research & Strategic Analysis Department, Port of Portland*

Torgeir Vaa, *Senior Principal Engineer, Norwegian Public Roads Administration*

4:30 PM **Closing Thoughts**
Kevin Chang, *Chair, Conference Planning Committee, Assistant Professor, Civil Engineering, University of Idaho*

4:35 PM **Social Hour and Networking**

WELCOMES

Welcoming Remarks

Watch Video

Dr. Yinhai Wang, ***Professor of Transportation Engineering at the UW; Director, the Pacific Northwest Transportation Consortium (PacTrans); Director, the Smart Transportation Application and Research (STAR) Laboratory at UW***

In his welcoming remarks, Dr. Wang recognized the contributions of the Board of Directors (BOD), External Advisory Board (EAB), the conference planning committee, and all of the center's partners. He then gave a short overview of PacTrans, what it is and it does, emphasizing its desire to be the research engine, applied technology showcase, education leader, workforce development base, collaboration platform for transportation engineering and education in the Pacific Northwest.

Welcoming Address

Watch Video

Sally Clark, ***Director, Regional & Community Relations, Office of External Affairs, UW***

The University of Washington welcoming representative, Sally Clark, followed with a second welcome address, highlighting many of this generations mobility needs in a rapidly change climate due to advances in technology and innovation.

Keynote Address

Watch Video

Marc Luiken, ***Commissioner, the Alaska Department of Transportation and Public Facilities***

Mr. Luiken, gave the keynote address. Federal region 10, for which PacTrans is the acting regional University Transportation Center, is extraordinarily diverse. Mr. Luiken offered a diverse prospective of the issues that Alaska faces that most of the rest of our region does not. He reviewed a short history of the development of Alaska's transportation infrastructure system and its current status, discussing how Alaska's current system exacerbates the problem of the first and last mile. Mr. Luiken touched on the need for more infrastructure for moving Alaska's wealth of natural resources to market, which is vital to the realization of a robust economy there. He then gave several examples of both first and last mile problems, highlighting the ways that technology and innovation can overcome some of the significant obstacles to a forward moving Alaska.

RESEARCH SESSIONS: MOBILITY

Prof. Don MacKenzie, Moderator
Assistant Professor of Civil & Environmental Engineering
University of Washington

Watch Video

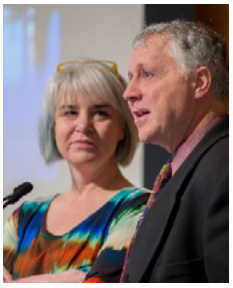
Dr. MacKenzie currently leads the Sustainable Transportation Laboratory at UW. He is a member of the Transportation Research Board's Standing Committee on Transportation Energy, and chairs its Subcommittee on Energy and Demand Implications of Connected and Automated Vehicles. Prof. MacKenzie was the moderator of the Research session, with presentations from Thaisa Way, Jennifer Eskridge & John Stowman, and Franz Loewenherz.

What is Inclusivity in Transportation, and How is Urban@UW Addressing It?

Thaisa Way, PhD, ***Professor, Landscape Architecture, UW***

As cities face the challenges of human and environmental health and wellbeing, it is critical to understand the role of social and economic inequities. Cities are complex systems that require an interdisciplinary approach if we are to truly plan, design, construct, and steward resilient urban communities in the future. Transportation is one essential element in planning for a more resilient future as well as a greener, and healthier environment for communities to thrive. We need to bring new expertise to the table to augment how we think about transportation systems in order to fully realize the potential outcomes of our collective work.

Riding the Learning Curve



Jennifer Eskridge and John Stowman, ***Co-founders, Fairbikes***

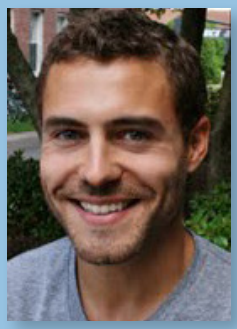
Today, bikeshares are fast becoming a staple in metropolitan areas for commuters and a significant resource for independent travelers and tourists. However, the question remains, can we scale bikeshares to be both sustainable and have a meaningful impact in small or rural communities? This is the question we began with when we pitched FAIRBIKES during a Start Up Weekend Spring 2013 as a for profit business and later launched community-wide in Spring 2016. Today, we will share with you what we have learned, strategies, and innovations we believe applicable to other small or rural communities, and our plans for 2017.

Video Analytics toward Vision Zero

Franz Loewenherz, MUP, ***Senior Transportation Planner, City of Bellevue, WA***

On September 16, 2016, Bellevue, Washington won a USDOT's Mayor's Challenge Award, out of 246 cities participating in the DOT's Safer People, Safer Street Initiative. Bellevue was recognized for its work on a project called Pedestrian and Bicycle Implementation Initiative, which aims to improve safety for people of all ages and abilities who walk and bike. During his presentation, Mr. Loewenherz will speak on video analytics technology development partnership of the City of Bellevue with Microsoft and the University of Washington that can help jurisdictions whose goal is to end traffic deaths and serious injuries on their roadways.

TECHNOLOGY TRANSFER SESSION



Prof. Nathan Belz, Moderator
Assistant Professor of Civil & Environmental Engineering, UAF

Watch Video

Dr. Nathan Belz currently serves on the TRB Roundabout Committee, the TRB Rural Public and Intercity Bus Transportation Committee, the Fairbanks North Star Borough Transportation Advisory Council, and the Chair of the UAF Green Bikes Steering Committee. Prof. Belz was the moderator of the Technology Transfer Session, with presentations from Duer Reeves, Peter Brink, and Brant Zwiefel

Low Cost, High Density RWIS Stations for the Pacific Northwest

Duer Reeves, MBA, *Sr. Vice President, WeatherCloud, Fathym Inc.*

Under a grant from PacTrans and working with the University of Alaska Fairbanks, we set out to develop a Road Weather Intelligence Station (RWIS) that was 10% the cost of existing RWIS stations, was easy to install, was easy to maintain, and met a variety of deployment scenarios. Our WeatherMesh station can be powered by PV, wind, or line power. It takes a couple of hours to install on existing infrastructure. With a wireless modular design, weather sensors can be deployed, for example, on bridge and an underpass from a single base station.

Bridging the Valley of Death

Peter Brink, BSEE, *Director of Engineering, PolySync*

The transition of technology, from research and development to commercialization, has a gap that has recently begun to be referred to as "the valley of death." This presentation examines the mechanisms where we can bridge the gap between research and production, and how both sides of the engineering process can work towards each other to ease the transition of technology transfer from universities to businesses with greater success. This presentation will also examine how to bridge the gap in an environment where the problem exacerbated via safety standards and governmental regulation as with the advent of automated driving.

Trusted Data Collaboratives

Brant Zwiefel, *Director, Architect, Worldwide Public Sector, Microsoft*

In an effort to understand emerging worldwide complexity, researchers often require access to protected and sensitive data across disparate domains and from multiple parties. However, data security and privacy concerns often restrict access to the protected data needed by researchers and analyst to better understand these complex systems. A secure platform is needed to share protected data that empowers data subjects and data owners to control their data and their privacy, while at the same time making data more accessible to researchers, data scientists and analysts who commit to follow good data governance practices.

WORKFORCE DEVELOPMENT SESSION

Watch Video

Prof Haizhong Wang, Moderator
Assistant Professor, Department of Civil & Environmental Engineering, OSU

Dr. Haizhong Wang conducts research in the areas of traffic flow modeling and simulation from both deterministic and stochastic perspectives, transportation system planning and travel behavior analysis, traffic system control and optimization, and intelligent transportation system in particular the impacts of connected and autonomous vehicle on traffic operation and infrastructure management. Prof. Wang was the moderator of the Workforce Development Session, with presentations from Wayne Kittelson, Sarah Amador, and Rhonda Young.

Shaping the Future Transportation Workforce: Views of a Private Consultant

Wayne Kittelson, MST, ***Principal, Kittelson & Associates, Inc.***

Three basic change agents will shape the future transportation workforce: Technology is an obvious major change agent; the academic institutions through which the participants in the profession must pass represent another major change agent; and the personal traits and characteristics that can and should be developed and honed within those workforce participants.

Developing Talent for the Future

Sarah Amador, BA, PHR, ***Manager, HR, BNSF Railway***

Often when people think of the railroad, they do not think of a highly innovative technological company that spends time focusing on training and development for its employees. However, contrary to misconceptions, BNSF is a premier company in training and career development. Innovative technology will continue to drive how we prepare our employees to keep the railroad on track for future sustainability and growth.

Workforce Challenges from a University Perspective

Rhonda Young, P.E., Ph.D., ***Associate Director, Civil Engineering, Gonzaga University***

Transportation engineering has long been recognized as a broad field requiring a diverse skill set. The advances in transportation technology are increasing this breadth rapidly. University educators of transportation engineering professionals need to balance the tradeoffs between covering greater breadth of topics with the increased learning/retention of knowledge that comes with addressing topics in greater depth. This presentation looks at the work of a group of educators that performed a systematic look at the history of university-based, transportation engineering education.

RESEARCH HOT TOPICS SESSION

Watch Video

Prof. Eric Jessup, Moderator
Associate Research Professor and Associated Director, Freight Policy Transportation Institute, WSU

Dr. Eric Jessup has an extensive academic and private sector experience in transportation, freight systems modeling, geo-spatial analysis, and public policy evaluation. He has worked closely with U.S. providers of transportation services and shippers and has addressed a wide range of issues related to freight movements. Prof Jessup was the moderator of the Technology Transfer Session, with presentations from Charlie Howard, Scott Drumm, and Torgier Vaa.

Research Priorities in a Growing Region

Charlie Howard, MA
Director of Planning, Puget Sound Regional Council (PSRC)

The Puget Sound region is experiencing significant growth – both in population and employment. While this growth contributes to the region's economic prosperity, it also brings with it challenges. This presentation will discuss the region's growth, and highlight research that could help resolve problems and move the region forward.

Anticipating One Northwest Port's Future Investment Decisions

Scott Drumm, MUP
Manager, Research & Strategic Analysis Department, Port of Portland

Identify areas where future transportation research is and will be needed from a port perspective. It will include marine and aviation, but will also surface topics related to freight movement across all modes.

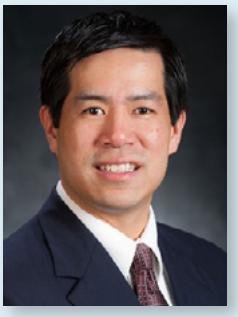
Innovative Projects in Scandinavia

Torgier Vaa, BSCE
Senior Principal Engineer, ITS Department, Norwegian Public Roads Administration (NPRA)

The perspective for the presentation is to highlight some of the ongoing innovative projects in Scandinavia. The Norwegian Public Roads Administration (NPRA) collaborates closely with Universities, research institutes, and the industry, both in the Nordic countries and internationally (European Union and the United States). The collaboration with the University of Washington is an important link to keep an eye on what is happening in the US, and we are concerned about establishing joint project with the US. One of the focus areas in Scandinavia now is connected vehicles and automated driving, and the presentation gives a few examples of ongoing projects and new initiatives within this area. Technology and new data sources for traffic data is another example of prioritized R&D areas in Scandinavia with focus on testing and piloting.

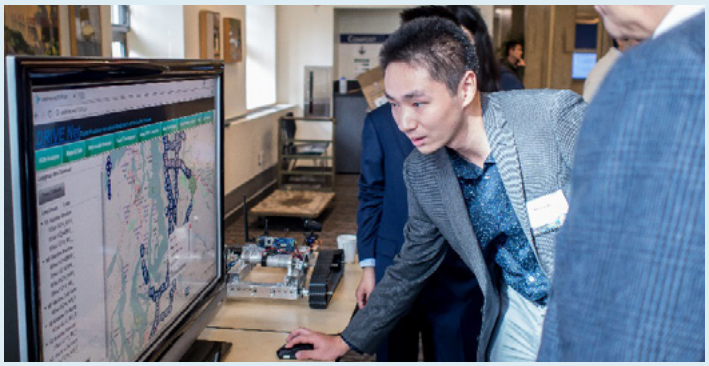
Poster Session and Closing Remarks

Watch Video



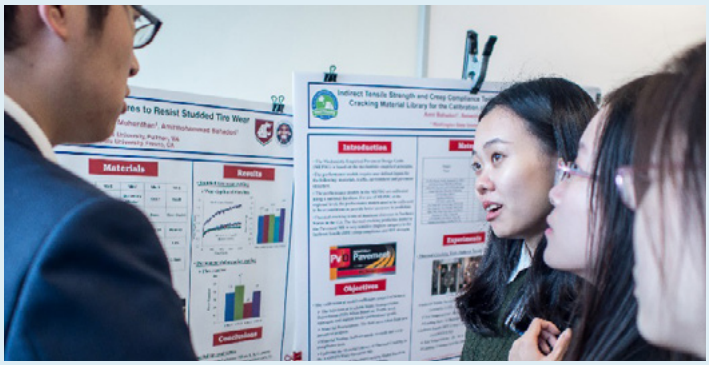
Prof Kevin Chang, Moderador
Assistant Professor, Civil Engineering, UI

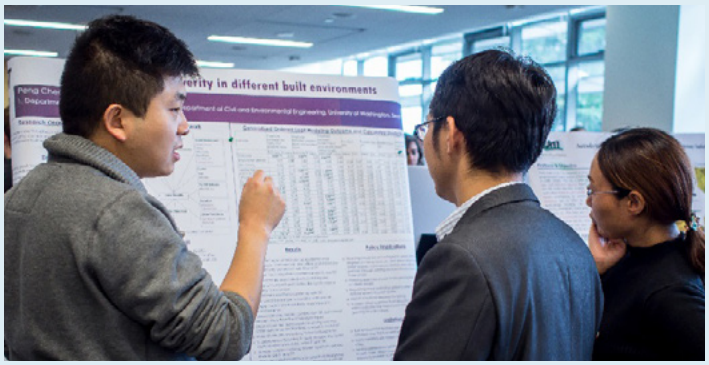
Dr. Kevin Chang has over fifteen years of professional experience in the areas of project management and design, traffic safety and operations, and transportation engineering and planning. He is the current chair of the Institute of Transportation Engineers' (ITE) Transportation Education Council, a member of the Transportation Research Board's (TRB) Safety Management Committee, chair of the TRB School Transportation Subcommittee, and faculty advisor for the University of Idaho's ASCE and ITE student chapters. Prof Chang introduced the annual poster sessions as over thirty researchers gave 30-second elevator pitches of their research posters.



STAR Lab Research Ruimin Ke Showcasing the DRIVE Net Platform to conference presenter Duer Reeves

NIATT (UI) Student Researcher Ahmed Hammad describes research to PacTrans Associate Director Billy Connor (UAF)





Recent UW PhD Graduate Peng Chen outlines research to several visiting scholars from to UW

OSU Student Researcher Merih Wahid discussing his poster to UW Faculty Qing Shen

WSU Student Researcher Mehrzad Mehrabi Pour reviews poster with conference attendee

BOARD MEETING

The PacTrans Board of Directors (BOD) and the External Advisory Board (EAB) convened a meeting on October 13, 2016. The EAB and the BOD normally hold an annual meeting on the day prior to the Regional Transportation Conference. The Board discussed research activities of the five consortium-member Universities, the administrative structure of PacTrans, education and workforce developments, the 2016-2017 implementation plan, with a focus on partnerships, strategic planning, and operations.

The Board of Directors

Yinhai Wang, PhD
Professor of Transportation Engineering, Department of Civil & Environmental Engineering; *Director*, Pacific Northwest Transportation Consortium (PacTrans) Smart TransportationApplication and Research (STAR) Laboratory, University of Washington

Linda Boyle, PhD
Professor and Chair, Industrial &Systems Engineering; *Professor*, Civil & Environmental Engineering Assoc.; *Director of Research*, Pacific Northwest Transportation Consortium (PacTrans), University of Washington

Ahmed Abdel-Rahim, PhD
Professor, Transportation Engineering; Associate *Director*, PacTrans University of Idaho; *Director*, NIATT

David S. Hurwitz, PhD
Associate Professor, Civil & Construction, Engineering; *Associate Director*, PacTrans Oregon State University

Kenneth L. Casavant, PhD
Professor, School of Economic Sciences; *Associate Director*, PacTrans, Washington State University

Billy Connor, MS
Director, Alaska University Transportation Center; Associate *Director*, PacTrans University of Alaska, Fairbanks

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

Anne Vernez-Moudon, PhD
Professor, Urban Design & Planning Architecture, Landscape Architecture; *Associate Director of Education*, PacTrans University of Washington

The External Advisory Board Members

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

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

Michael Bufalino
Research Manager, Oregon Department of Transportation (ODOT)

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

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

Wayne Kittelson
Principal, Kittelson & Associates, Inc.

Carolyn Morehouse
Chief of Research, Development and Technology Transfer, Alaska Department of Transportation and Public Facilities

Ned Parrish
Research Program Manager, Idaho Transportation Department (ITD)

Jerry Whitehead
Chairman, Idaho Transportation Board, *President & Owner*, Western Trailers Boise, Idaho

FACES OF THE CONFERENCE

STUDENT CONFERENCE

The 2016 PacTrans Student Conference was held October 15 at the Husky Union Building (HUB), University of Washington campus. More than 45 students from the University of Washington, Washington State University, Oregon State University, the University of Idaho, and the University of Alaska were in attendance making it one of the best attended student conferences in recent years.

The conference began with a keynote address from Mr. Mustafa Mohamedali, the technology transfer manager for Washington State Department of Transportation (WSDOT); WSDOT also sponsored the conference this year and provided a generous donation used for cash prizes in the student poster contest among other things. Mr. Mohamedali talked about a variety of things, though his two main focal points were current projects WSDOT is working on and what an agency like WSDOT is looking for in young engineers entering the workforce after college. With regard to the former, it was quite interesting to see some of WSDOT's plans for a variety of innovative projects to help improve safety and mobility in one of the country's most congested cities (Seattle), as well as elsewhere across the state, over the next several years. The latter portion of the talk on desirable skills for young engineers was also quite illuminating as the vast majority of conference attendees will end up in the transportation workforce (public and/or private sector) in the next five years. It was really great to get some insight on what large agencies like WSDOT are looking for firsthand from someone who has been in the business as long as Mr. Mohamedali.

Following Mr. Mohamedali's presentation, the second presentation took place and featured two employees of INRIX, Dr. Yegor Malinovskiy and Ms. Myca Craven. For the first half of this presentation, Ms. Craven talked about some of INRIX's exciting work in the realm of GPS probe vehicle data analysis and general data science. It was exciting to see how in this new era of "big data" what types of problems are available for transportation engineers to solve that may not have been feasible previously. Ms. Craven, and Dr. Malinovskiy, also pointed out the importance of general data science skills (e.g., proficiency with statistics, databases etc.) for the modern transportation engineer. After Ms. Craven's portion of the presentation, Dr. Malinovskiy discussed his transition from academia into the private sector, his experience as a young engineer/analyst, and some of the interesting projects he has worked on at INRIX.

After his discussion, the annual student poster competition was held. This year, more than 20 students submitted posters on their current research projects, many of which stemmed from PacTrans projects. The contest

STUDENT CONFERENCE

was judged by both students and the speakers alike, and the authors of the top three posters were awarded cash prizes.

The next part of the conference has also become an annual fixture, that being the panel session featuring recent graduates describing their experience transitioning from school into the workforce as well as taking questions from student attendees. This year's panel was comprised of Mr. Melaku Dubie (Seattle Department of Transportation), Mr. Luka Ukrainczyk (DKS Associates), and Dr. Yegor Malinovskiy (INRIX). All three panelists graduated from transportation engineering programs in Region X within the past three years. Students enjoyed hearing about topics such as their job search process, differences between the public and private sector, useful classes to take in school, and typical daily work assignments among many others.

Yet again, the student conference was a success in terms of both attendance and quality of the program. Students had a great time interacting with the speakers as well as fellow students from around Region X in an environment focusing explicitly on student needs/interests. We look forward to next year's conference!

Student Poster Contest

1st: Hisham Jashami, Oregon State University
2nd: Carrie Sorensen, University of Alaska Fairbanks
3rd: Ahmad Hammad, University of Idaho

Washington State Department of Transportation

PacTrans would like to thank the Washington State Department of Transportation for sponsoring the 2016 Region 10 Student Conference.