

Pacarans Transportation Conference

University Transportation Center Newsletter

SPECIAL ISSUE FEBRUARY 2018

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PacTrans 2017 Regional Transportation Conference Attracts Record Turnout

The Pacific Northwest Transportation Consortium (PacTrans) held its fifth annual conference on Friday, October 6, 2017 at the University of Washington's North Ballroom in the Husky Union Building. The conference focused on transportation mobility and technology with the theme of "Data-Driven Mobility Solutions for the Pacific Northwest."

With over 250 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 fifteen speakers gave excellent presentations on a broad range of interesting topics.

Sessions covered an array of interesting topics including: A research focused PacTrans Research Showcase, a session on Technology Transfer and the transition of successful research results into professional practice, a session on Workforce Development, and finally a listening session on emerging research directions of the future. Following the overall aim of the conference, PacTrans principal investigators and students submitted a total of 40 posters for the conference's annual poster session.

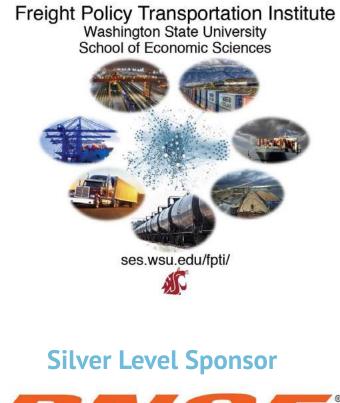
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CONFERENCE SPONSORS

PacTrans would like to first and foremost thank our sponsors this year for their contribution to help make this the most successful Regional Transportation Conference to date.

Gold Level Sponsor





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The conference committee chair, Dr. Don MacKenzie, Assistant Professor of Transportation Engineering at the University of Washington, was joined by Oregon State University Assistant Professor, Dr. Haizhong Wang; University of Alaska Fairbanks Assistant Professor, Dr. Nathan Belz; University of Idaho Assistant Professor, Dr. Mike Lowry; and Washington State University Associate Research Professor, Dr. Eric Jessup, did a wonderful job of inviting distinguished officials from the public and private sectors, including faculty members from various institutions. This conference offered an excellent platform for government officers, researchers, and practitioners to exchange ideas and discuss collaboration opportunities.

SCHEDULE OF ACTIVITIES

8:30 AM Welcome

Donald MacKenzie, Master of Ceremonies and Chair, PacTrans 2017 Regional Transportation Conference

Yinhai Wang, Director, Pacific Northwest Transportation Consortium (PacTrans) & Professor, Civil & Environmental Engineering, University of Washington

Vikram Jandhyala, UW Vice President for Innovation Strategy, Executive Director, CoMotion

8:50 AM Keynote Addresses

Kurt Beckett, *Deputy CEO*, *The Northwest Seaport Alliance*

Hon. Rick Larsen, *Representative of the 2nd Congressional District, State of Washington*

9:50 AM Break

10:10 AM Session 1 (Research Focus: PacTrans Showcase)

Mike Lowry, Moderator, Associate Professor, Civil Engineering, University of Idaho

Michael J. Olsen, Associate Professor of Geomatics, Civil & Construction Engineering, Oregon State University

Xuegang (Jeff) Ban, Associate Professor, Transportation Engineering, University of Washington

Axel Krings, Professor of Computer Science, University of Idaho

11:10 AM Session 2 (Technology Transfer)

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

Aaron Antrim, Founding Principal, President and Lead Developer, Trillium Solutions, Inc.

Elizabeth Sall, Founder and President, Urban Labs

Ted Trepanier, Executive Director, Public Sector, INRIX

12:10 PM Lunch

1:00PM	Session 3 (Workforce Development)
	Haizhong Wang, Moderator, Assistant Professor, Civil & Construction Engineering, Oregon State University
	Paul Mather, Administrator, Highway Division, Oregon Department of Transportation
	Patrick Lynch, Principal, Transpo Group
	Todd Kelsay, General Manager, Lyft, Seattle
2:00 PM	Poster Session Elevator Pitches
2:15 PM	Break/Poster Session
3:15PM	Session 4 (Research: Listening Session)
	Eric Jessup, Moderator, Research Associate Professor, School of Economic Sciences, Washington State University
	Chris Johnson, Modeling Division Manager, Oregon Metro
	Jesse Gastelle, Economist, Transportation Service, Agricultural Marketing Services, Transportation & Marketing Program, US Department of Agriculture
	Angela Konert, VP for Government & External Affairs, BMW California
4:15PM	Closing Thoughts Don MacKenzie, <i>Planning Committee Chair,</i> <i>Assistant Professor, Civil Engineering, UW</i>
4:20 PM	Social Hour and Networking

PACTRANS AWARDS

This year, with PacTrans new grant award and five more years of UTC funding, the Board decided to begin offering three new awards. These awards were, and will continue to be, presented at the regional transportation conference each year.

PacTrans Researcher of the Year Award

Presented annually to investigators for outstanding research with significant outcomes, incorporating meaningful student contributions, and robust community service/ leadership involvement.

Michael J. Olsen, PhD Associate Professor, Geomatics, Civil & Construction Engineering **Oregon State University**

PacTrans Partner of the Year Award

Presented annually to partners for outstanding collaboration in research, sponsorships, mentor/internship opportunities, event participation/facilitation, or assistance with technology transfer initiatives.

Washington State Department of Transportation

PacTrans Lifetime Achievement Award

This is the highest and most prestigious award given by PacTrans. It is presented in recognition of individuals who have had distinguished careers in transportation education in the Pacific Northwest.

Scott Rutherford, PhD Professor Emeritus, Civil and Environmental Engineering University of Washington





Watch Video





WELCOMES

Welcoming Remarks

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 spoke about PacTrans' new focus in Mobility and gave a broad overview of the diverse mobility challenges currently facing our region. "The Pacific Northwest has 25% of the nation's land but only 5% of its population. Meanwhile, Seattle and Portland have consistently been among the top 10 fastest growing urban cities in America for the last decade." These stats highlight both the urban and rural contexts in which we find our mobility challenges.

Watch Video



Welcoming Address

Dr. Vikram Jandhyala, UW Vice President for Innovation Strategy, Executive Director, CoMotion

The University of Washington welcoming representative, Dr. Vikram Jandhyala, followed with a second welcome address, highlighting many of this generation's mobility needs in a rapidly changing climate due to advances in technology and innovation and the relocation of many of our region's largest companies from traditionally suburban places to our urban cores.



KEYNOTE ADDRESSES

Goods Keynote

Kurt Beckett, MBA Deputy CEO, The Northwest Seaport Alliance

When people talk about mobility, we tend to focus on the movement of people and many of us forget about the movement of freight. With the sudden emergence of e-commerce and just-in-time business models, the importance of goods mobility has rapidly come to the forefront of interest. PacTrans focus on mobility includes both the movement of people and the movement of goods. Mr. Beckett gave a historical context for the Northwest Seaport Alliance as well as its ports, Port of Seattle and Port of Tacoma. He then spoke about many of the technologies that have been emerging in the freight sector and how it might affect mobility. He challenged that as urban places get more congested, goods movement has the potential to compound that congestion. Emerging technologies, on the other hand, have the potential to remedy some of those externalities.



People Keynote

Hon. Rick Larsen, Representative of the 2nd Congressional District, State of Washington

Congressman Larsen spoke about the congestion issues facing our country and our region. "It's a simple reality that we cannot have a big-league economy with little-league infrastructure, and it seems like we're always in danger of heading towards that point where our infrastructure will never keep up with our economy." He then spoke a lot about the potential that lies in public-private-partnerships (P3) investment, but that potential is not found in all infrastructures uniformly. He then spoke about how the new emerging technologies can have unintended consequences, such as how traffic routing software can alleviate congestion in some places but then cause more congestion in others, sometimes to places that are not equipped to handle that increase in traffic. He also mentioned concerns about data privacy. These comments were not a stand against new technologies and/or big data and analytics, but just a caution. "It provides a set of issues that are worth studying and finding solutions to. The point is that we can and should embrace new technologies and data analytics but also need to be cognizant of their consequences and other impacts they have on policy issues that we have to consider."



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RESEARCH SESSIONS: PACTRANS SHOWCASE

Michael Lowry, PhD, Moderator Associate Professor, Civil Engineering, University of Idaho

Michael Lowry is an Associate Professor of Civil & Environmental Engineering at the University of Idaho and an Affiliate Researcher for the National Institute for Advanced Transportation Technology, a Tier 1 transportation research center. His research focuses on capital investment decision-making and transportation planning for bicyclists and pedestrians. Lowry teaches courses related to geographic information systems, transportation safety, statistics, and economic analysis. Prof. Lowry was the moderator of the PacTrans Research Showcase Session, with presentations from Michael Olsen, Jeff Ban, and Axel Krings.

The Rocky Road: Proactive management of unstable rock slopes near highways

Michael J. Olsen, PhD Associate Professor of Geomatics, Civil & Construction Engineering, Oregon State University

Landslides and rockfalls are concerns for safety and mobility for highway managers and across the Pacific Northwest. Rock-slope failures are a particularly dangerous type of landslide owing to their potentially large volumes, high velocities, long travel distances, and impact forces. This presentation will look beyond common assessment techniques for landslide safety along transportation corridors, and will discuss the results of an on-going PacTrans-funded research project to develop a suite of tools to enable efficient analysis of dense, detailed, remote sensing data to quantify and visually communicate rockfall hazards.

Transportation Big Data: Promises, Issues, and Implications

Xuegang (Jeff) Ban, PhD Associate Professor, Civil & Environmental Engineering, University of Washington

Big data and related data analytics methods have received much attention recently in transportation for various planning and operational applications. This talk summarizes the promises of big data and illustrates the issues of some commonly used big data sources in transportation. We then briefly discuss the implications of such issues and suggest a pathway that may help address those issues.

The Impact of Data Manipulation on DSRC Safety Applications

Axel Krings, PhD Professor, Computer Science, College of Engineering, University of Idaho

Connected Vehicles using Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) communication use standard safety technologies based on Dedicated Short Range Communications (DSRC). The propulsive factor is improved safety. However, there will be a large amount of data broadcast wirelessly and a sophisticated attacker does not have to manipulate much of this data to potentially cause safety applications to fail. This talk discusses how content and timing manipulations can be used to attack safety applications and what it will take to design such applications so they can survive attacks.





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

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Dr. Nathan Belz is an Assistant Professor of Civil and Environmental Engineering at the University of Alaska Fairbanks. He is also the faculty advisor for the UAF Green Bikes program, faculty member of the Master Planning Committee, and serves on the Fairbanks North Star Borough Public Transportation Advisory Committee and the Non-Motorized Transportation Committee. He is also the Assistant Director of the Center for Safety Equity in Transportation. Dr. Belz's research and expertise primarily surrounds the transportation needs of rural communities. He was the moderator of the Technology Transfer Session, with presentations from Aaron Antrim, Elizabeth Sall, and Ted Trepanier.

Open Source Software and Wikis as Robust Interfaces Between Academia and Industry

Aaron Antrim, BA Founding Principal, President and Lead Developer, Trillium Solutions, Inc.

Open-source software provides venues for academic organizations and industry to mutually benefit from collaboration. Some examples include the OpenTripPlanner and OneBusAway projects, both supported by a coalition of academic and non-profit organizations, private companies, and transit agencies. TransitWiki.org is a collaborative research platform where academics, private consultants, transit agencies, and non-profit organizations all contribute to a shared knowledge base, which accelerates transfer of practice across transit.

Technology Transfer to Government: Who Has the Torch?

Elizabeth Sall, MSCE Founder and President, UrbanLabs, Zephyr Foundation

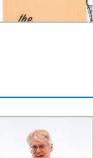
Commercially-viable technology transfer has a relatively straightforward path towards making an impact on society. Civically-necessary, but commercially-unattractive technology has a lessobvious path towards making a positive impact on society. This talk will explore what leads to technology transfer breakdowns in academic and practitioner-led efforts and discuss the potential of third-party intermediaries as the "torch-holder" that makes sure important advances are transferred into societal benefits.

From Research to Commercial Government Services – A View From The Other Side

Ted Trepanier, MCE, PE Executive Director, Public Sector, INRIX

Every year, myriad of new applications are developed by universities across the US. Many focus on localized issues but some have potential to provide maximum benefit when made available at a larger scale. This session explores the elements critical for applications to make the transition from localized research to national commercial services. The presentation includes real world examples of university research that made this transition and a peek at recent research currently making progress toward the next level of public sector services.







WORKFORCE DEVELOPMENT SESSION

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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 Paul Mather, Patrick Lynch, and Todd Kelsay.

Using Data to Shape ODOT's Future Workforc

Paul Mather, MPA, PE Administrator, Highway Division, Oregon Department of Transportation

ODOT is on the cusp of a new future. The Oregon Legislature recently passed a landmark and comprehensive Transportation Bill. This multimodal Bill comes with new positions and new expectations. At the same time, ODOT is experiencing a record number of retirements. All of this is resulting in hundreds of new career opportunities. To be strategic, ODOT is compiling data to catalog the skills and abilities needed in the most critical positions. These are the positions that will be keys in implementing this new legislation as well as using technology to solve tomorrow's transportation challenges.



Career Development at Transpo

Patrick Lynch, AICP, Principal, Director, Public Planning Services, Transpo Group

In these times of rapid change, it is imperative that engineers and planners continuously develop the necessary skills to adapt to the evolving needs within our industry. This presentation walks through the Transpo "wheel of development" that provides opportunities for staff at all levels to holistically grow. The spokes on the wheel are the various skills and characteristics that help staff keep moving forward in their personal and professional development. The spokes represent a variety of technical and soft skills that are important to becoming a key contributor at Transpo and translate to valuable life skills as well. The hub represents the development of the individual and is at the center of all training and development activities that Transpo supports.

Transportation As Service – What Does It Take To Succeed?

Todd Kelsay, General Manager, Lyft

At Lyft and companies like it, what it takes to make a difference is a combination of skills and traits. Todd explored these by discussing Lyft's core values and how they describe the type of individual they are looking for, and how they define how they work towards improving people's lives with the world's best transportation.





RESEARCH LISTENING SESSION

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Eric Jessup, PhD, Moderator Associate Research Professor of School of Economic Sciences, WSU 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 Chris Johnson, Jesse Gastelle, and Angela Konert.

Behavior-based Freight Modeling at Portland Metro

Chris Johnson, Modeling Division Manager, Oregon Metro

Chris Johnson presented a behavior-based freight model being developed at Oregon Metro. This model will replace Metro's current truck model with a hybrid freight model that both represents multimodal freight flows through elements of national and regional supply chains and simulates the movement of individual trucks and shipments on local networks. Model estimation and calibration will also require collection of behavioral data from shippers and receivers representing a wide range of industries, common and contract freight carriers, business that operate non-freight commercial vehicles, warehouse managers, and logistics agents.



A Federal Perspective on Research Priorities on the Freight Needs for Agriculture

Jesse Gastelle, PhD, Transportation Services Division (TSD), Agricultural Marketing Service, Transportation & Marketing Program, US Department of Agriculture

USDA's Agricultural Marketing Service (AMS) supports domestic and international agribusinesses by providing market reports, economic analysis, technical assistance, and outreach to industry stakeholders on the movement of agricultural products by the major modes, including truck, rail, barge and ocean. As part of this mission, AMS sponsors research via cooperative agreements to better understand the freight needs of the agricultural industry. The presentation covers perspectives on future research needs for enhancing the competitiveness of the agricultural sector.

Research and Innovation at BMW

Angela Konert, MPA

Vice President, Government & External Affairs, BMW Group Representative Office, California

Angela Konert coordinates corporate positioning with all relevant stakeholders in the fields of environmental, mobility, and sustainability policies in California, Oregon, and Washington. Prior to this, Ms. Konert was responsible for coordinating the political communication of the BMW Group in Munich with regards to human resources-related issues, as well as sustainability engagements and electric mobility. In collaboration with the markets worldwide, Ms. Konert managed the communication activities with key opinion leaders, government representatives, as well as city officials to promote policies fostering the uptake of electric vehicles.





POSTER SESSION AND CLOSING REMARKS

Poster Session and Closing Remarks

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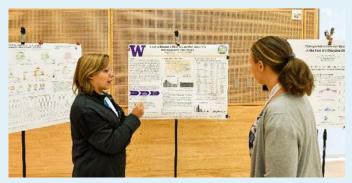


Don MacKenzie, PhD Chair, 2017 PacTrans Regional Transportation Conference Planning Committee Assistant Professor, Civil & Environmental Engineering, University of Washington

Dr. Don MacKenzie is an Assistant Professor of Civil and Environmental Engineering at the University of Washington. He leads the Sustainable Transportation Lab, which develops and evaluates technical and policy solutions for making our transportation system more economically viable and environmentally benign, while providing access to opportunities for all. Professor MacKenzie holds a PhD in Engineering Systems and SM in Technology and Policy, both from the Massachusetts Institute of Technology, and a BASc in Chemical & Biological Engineering from the University of British Columbia. 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.



Posters Exhibit



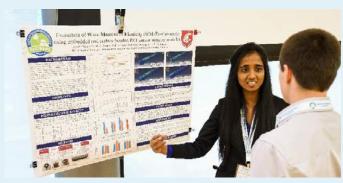
UW PhD student Rochelle Starrett (left) presenting first-mile-last-mile bike share research



UI PhD student Regan Hansen (back) presenting rural driver passing behavior research



OSU PhD student Masoud Ghodrat Abadi (right) presenting cyclist-truck parking safety research



WSU PhD student Ayumi Manawadu (left) presenting PZT sensor/actuator research

BOARD MEETING

The PacTrans Board of Directors (BOD) and the External Advisory Board (EAB) convened a meeting on October 5, 2017. 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) Director, Smart Transportation Application and Research (STAR) Laboratory University of Washington

Xuegang (Jeff) Ban, PhD

Associate Professor, Civil & Environmental Engineering; Affiliate Associate Professor, eScience Institute; Associate Director of Research, PacTrans, University of Washington

Ahmed Abdel-Rahim, PhD

Professor, Transportation Engineering; *Director,* NIATT; *Associate Director,* PacTrans; University of Idaho

David S. Hurwitz, PhD

Associate Professor, Civil & Construction Engineering; Director, OSU Driving and Bicycling Simulator Laboratory; Associate Director, PacTrans; Oregon State University

Eric Jessup, PhD

Research Associate Professor, School of Economic Sciences; *Associated Director*, Freight Policy Transportation Institute; *Associate Director*, PacTrans, Washington State University

Billy Connor, MS

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

Anne Vernez-Moudon, PhD

Professor Emeritus, Urban Design & Planning; Architecture, Landscape Architecture; *Associate Director of Education*, PacTrans, University of Washington

The External Advisory Board Members

Angela Konert, MPA Vice President, Government and External Affairs BMW Group Representative Office, Sacramento, California

Rhonda Brooks, MPA Director, Office of Research and Library Services; Washington State Department of Transportation (WSDOT), Advisory Board Member

Michael Bufalino, MURP Research Manager, Office of Research, Oregon Department of Transportation, Research Advisory Committee **Scott Drumm**, MUP *Director*, Research and Strategic

Analysis, Port of Portland Charlie Howard, MS

Director, Integrated Planning for Puget Sound, Regional Council (PSRC)

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

Carolyn Morehouse, PE

Chief of Research, Development & Technology Transfer, Statewide Design and Engineering Services, Alaska Department of Transportation & Public Facilities

Ned Parrish, MPA

Research Program Manager, Idaho Transportation Department

Jerry Whitehead

President and CEO, Western Trailer; *Chairman*, Idaho Transportation Board, Idaho Transportation Department

REGION X TRANSPORTATION CONSORTIUM



As the regional University Transportation Center (UTC) for the Pacific Northwest, PacTrans is tasked with facilitating coordination among UTCs and their activities and initiatives across the region. To ensure effective collaborations among all UTCs in Region 10, PacTrans regularly hosts informal meetings of the Region 10 Transportation Consortium (RXTC), which is a group comprising of a representative from all UTCs that have consortium partners in Region 10 along with the research office directors of the four state DOTs.

In coordination with the Regional Transportation Conference, PacTrans hosted one such gathering on Saturday, October 7, 2018. In total, fifteen representatives were present, representing PacTrans, the national UTC housed as Portland State University (NITC), five Tier One UTCs, and two of our State DOTs. During this meeting representatives from each of the UTCs had an opportunity to give brief presentations about their respective centers, specifically the kinds of activities and initiative they are currently focusing their efforts and moneys on.

Subsequent to these presentation, there was a round table discussion about ways that our region can better coordinate our efforts as well as opportunities for collaboration. Several highlights of that discussion include broader circulation and participation in the annual Region 10 Michael Kyte Student of the Year Award, as well as the annual Student Conference, which is held the day following the Regional Transportation Conference.

Workforce development has also become a significant focus among many of our DOT partners and there was broad consensus during discussion that this is an excellent opportunity for all RXTC member to pool resources and initiatives that focus on this important task. PacTrans would like to thank all of the UTCs and DOTs that made time to be at this meeting and we look forward to more discussion in the future.

FACES OF THE CONFERENCE













STUDENT CONFERENCE



The 2017 PacTrans Student Conference was held October 7 at the Husky Union Building (HUB), University of Washington campus. This year's student conference was one of our most successful to date, and we had over 50 students (both graduate and undergraduate) come to attend from the University of Washington, Oregon State University, University of Idaho, and the University of Alaska Fairbanks.

PacTrans Annual Student Conference aligns well with the goals of an educational organization, and at a more personal level, the student conference provides students with a more comfortable opportunity to share their research and network. The event held keynote speakers from SoundTransit and ReachNow, a panel session featuring recently-graduated transportation professionals, and a student research poster competition!

Mr. Robert Nichols, Design Engineer at Sound Transit posed an informative and exciting talk showing how big of an undertaking a project such as the construction of the Brooklyn Avenue Link extension can be. Our second keynote speaker was Pete Dempster who leads strategy and market development for ReachNow. Pete challenged the attendees with an interactive and interesting discussion about realworld problems of his day-to-day job. Pete invited attendees to design creative solutions for the operations of a carsharing service, while thinking about innovations with great disruptive potential such as electrification and shared mobility.

In the Student Panel with recent graduates, Carmen Kwan and Matt Palzkill, two University of Washington alumni who are now working as private consultants, shared with the audience their experience of transitioning from the academic environment to consulting companies. Attendees engaged in Q&A session with the panelists, who generously shared their stories from years of practices, and offered valuable career advices to students.

STUDENT CONFERENCE

Student Poster Contest



1st place: Masoud Ghodrat Abadi (OSU)

The student research poster competition featured 15 posters showing a great mix of exciting research and passionate students. Attendees learned from the



2nd place: Rochelle Starrett (UW)

presenters and asked them lots of questions. Based on an attendees vote, the winners of the 2017 PacTrans Annual Student Conference were Masoud Ghodrat Abadi (OSU),



3rd place: Dylan Horne (OSU)

Rochelle Starrett (UW) and Dylan Horne (OSU), who were awarded 1st, 2nd and 3rd place respectively.



Conference organizers are extremely grateful to our sponsor DKS Associates, who pledged \$300 to help the student conference! Special thanks to all the participants for their interest and making the conference a great knowledge-sharing experience!