PacTrans

2016 Special TRB Meeting Newsletter

University Transportation Center Newsletter

IN THIS ISSUE

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 12,000 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.

This special edition newsletter will highlight the PacTrans researchers and research that was presented during the five day convention.

Transportation Research Board 95th Annual Meeting — January 10–14, 2016 • Washington, D.C — Welcome

PacTrans Awarded Two Students of the Year at the Annual Council of University Transportation Center's Award Banquet

The first event of the week was the Council of University Transportation Centers (CUTC) Annual Awards Banquet. The banquet included the 25th Annual Outstanding Student of the Year Awards.

The Banquet began with the evening's keynote, Secretary of Transportation, Anthony Foxx. In his brief remarks, Secretary Foxx challenged the room full of transportation engineers to think more about transportation not only as a means of bringing people from one place to another, but should also create opportunities for the places and people in between. He asked us all to try to think of transportation more in terms of placemaking. Two very specific requests Foxx made were to: (1) think more multimodally; and (2) about whether our efforts help build and restore connections, develop workforce capacity, and catalyze neighborhood revitalization, or if they reinforce the many disparities facing our great nation today. He left us with this, "In the end remember the work you do serves a human purpose."

CUTC president Joel Volinski from the University of South Florida then presented a series of awards. The most prestigious awards were the lifetime achievement awards, once given to a non-academic and the other to an academic. This year's nonacademic award went to former Secretary of Transportation Norm Mineta. This award was timely because, until this year, our nation hadn't passed a comprehensive surface transportation bill since 1991. Mineta was the sitting secretary that got that last bill passed. The academic award went to Dr. Edd Hauser from the University of North Carolina at Charlotte. Dr. Hauser has had a long, long career furthering the CUTC program's mission.

The final part of the evening was the presentation of outstanding students of the year awards. Each year the U.S. DOT honors the most outstanding students from each participating UTC for his/her achievements and promise for future contributions to the transportation field. Students of the Year are selected based on their accomplishments in such areas as technical merit and research, academic performance, professionalism, and leadership.

This year PacTrans was privileged to present two students with outstanding student of the year awards:
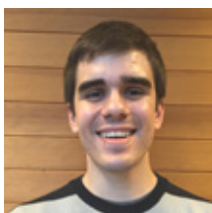
John Ash

John is a second year PhD student in the PacTrans Smart Transportation and Applications Research (STAR) Laboratory at the University of Washington. After receiving his Bachelor's and Master's in Civil and Environmental Engineering from the University of Wisconsin-Madison he came to Seattle 2014. In 2015 John had two papers accepted for presentation: one at the Transportation Research Board Annual Meeting and the other at the Institute of Electrical and Electronics Engineers Smart Cities Conference. Based on his academic achievements and contributions to various educational programs, the Pacific Northwest Transportation Consortium is proud to select him as it 2015 Outstanding Student of the Year.

Andrea Mather

Andrea is a second year graduate student and teaching assistant at Oregon State University, where she is studying transportation engineering. Her Bachelor's in civil engineering also came from OSU. Besides her passion for public service through four internships at the Oregon Department of Transportation, Andrea is also a distinguished leader in the classroom. She is currently president of both transportation students chapters at OSU, and is also active in the Women's Transportation Seminar. A top tier student with the skills and personality to become a leader in the transportation industry, the Pacific Northwest Transportation Consortium is pleased to name Andrea Mather as its 2015 Outstanding Student of the Year.

2016 Annual PacTrans Reception at the TRB Meeting
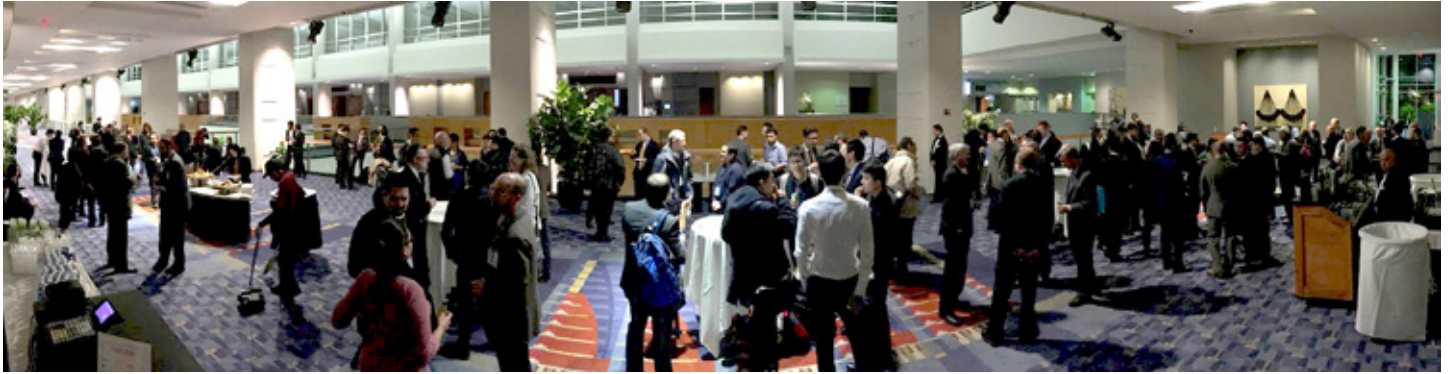
It is customary at the annual TRB meeting for each University Transportation Centers to host a gathering. Each UTC's gathering looks a little different. For some, the primary function of the gathering is for students, staff, and faculty of the hosting UTC to enjoy an evening of social fraternization amongst themselves. PacTrans takes the opportunity to invite, not only Consortium students, staff, and faculty, but also other researchers and professionals in the industry. It is a wonderful occasion for everyone to share ideas and discuss future partnerships.

This year, on the evening of January the 11th, PacTrans hosted over 200 faculty, staff, students, and professionals from consortium universities and the industry at large. Besides discussions and general socializing, PacTrans had two awards to present. First, Professor Ahmed Abdel-Rahim from the University of Idaho presented fellow professor Michael Kyte a plaque in honor of his contribution to Transportation, Academic and Research. He is officially retiring from University of Idaho so this was a small tribute to his contribution to Civil and Environmental Engineering and the University Transportation Center.

Dr. Kyte has made such a substantial contribution to our UTC that we have named a student award after him; the Michael Kyte award. The Michael Kyte Outstanding Student Award seeks to recognize students in University Transportation Center Federal Region 10 with the highest accomplishments in three areas: technical merit and research, academic performance, professionalism and leadership. Students are nominated by their Faculty adviser and go through a series of competitions, first within their institution and then within our UTC at large. Thus, after receiving his award, Dr. Kyte had the privilege of turning around and presenting the Michael Kyte award to University of Alaska, Fairbanks PhD candidate, Anthony Mullin.

As our introductory article states, PacTrans consortium researchers contributed over 100 of the papers presented at this year's TRB meeting. This section highlights some of the student researchers and the work they presented.

Comparison of Confidence and Prediction Intervals for Different Mixed-Poisson Regression Models

University of Washington Researcher: John Ash

Research Summary

This year at TRB I presented a poster on the development of confidence intervals from crash prediction models. The paper that served as the foundation for the poster was a joint effort between a team at UW, consisting of myself, Dr. Yajie Zou (now a professor at Tongji University in China), and Dr. Wang, and Dr. Dominque Lord from Texas A&M University. Essentially, the idea of the paper was to develop a methodology to better understand the uncertainty associated with estimates from crash prediction models.

Put simply, a crash prediction model might say that we could expect X crashes per year on a given roadway segment with certain traffic and geometric characteristics (e.g., lane width, number of lanes etc.). The idea here was to say that instead or predicting just one value, X, for the number of crashes, it might be more useful for practitioners and researchers to be able to get a range of values that the expected number of crashes may be between (i.e., a lower and upper limit) in order to have a better idea of what might happen (in plausible "best" and "worst" cases). Currently, the initial draft of this paper is being revised for submission to a journal.

U.S. Secretary of Transportation, Anthony Foxx, speak at a banquet on the first Saturday of the conference. Secretary Foxx gave a very interesting talk, albeit brief, about some of the key issues (from his perspective) in transportation from a national level. Between Sunday and Wednesday, I attended a variety of poster and lecture sessions on topics ranging from transit to statistics to traffic safety.

To me the poster sessions provided a great opportunity to learn about a variety of topics quickly and more often than not, the authors of the papers were happy to answer questions/explain interesting features of their work. I was also happy to attend a couple of lecture sessions to watch and support fellow UW researchers Dr. Weibin Zhang and Salvatore Biancardo. Outside of the daily events for the conference, I had a great time at a couple of receptions including that hosted by PacTrans and another one hosted by a group representing academic and industry transportation interests in Wisconsin (my home state and the state in which I completed my BS and MS degrees).

Researcher's Experience at TRB

This year marked my fourth consecutive year attending TRB (second during my time at UW) and it was a great experience as always! I am very thankful for the opportunity to attend such a great conference as made possible by the funding support from PacTrans. One of my highlights for this year was seeing the current

GPS-Based Analysis of Built Environment Influences on Bicyclist Route Preferences

University of Washington Researcher: Peng Chen

Research Summary

This study examines the effects of the built environment features, including factors of land use and road network, on bicyclists' route preferences using data from the city of Seattle. The bicycle routes are identified using a GPS dataset collected from a smartphone application called "Cycle Tracks". The route choice set is generated using the labeling route approach. Then a path size logit model is conducted to examine bicycle route choice.

The major findings of this study include: (1) bicycle route choice involves joint considerations of convenience, safety, and leisure; (2) most bicyclists prefer to cycle on short, flat, and well-planned bicycle facilities; (3) a substantial percentage of bicyclists prefer routes surrounded by low floor area ratio; (4) some bicyclists prefer routes with low posted speed limits; (5) some bicyclists prefer routes surrounded by mixed land use, or near waters and parks; and (6) some bicyclists favor routes planted with street trees and installed with street lights. This analysis generates valuable insights into how land use planning and road network design can facilitate efficient, safe, and enjoyable bicycling.

Researcher's Experience at TRB

This is not my first time presenting research at TRB. With accumulated experience, I appear to be more confident to present my research in front of many scholars that share similar interests. I was far calmer in responding to their challenging questions this time. Overall, I feel excited to have seen my growth as a young transportation professional. The last and important thing to acknowledge is my deep appreciation for the generous support from PacTrans.

A Predictive Analysis of Probe Vehicle Data Completeness

University of Washington Researcher: Kristian Henrickson

Research Summary

This year I presented a paper entitled *A Predictive Analysis of Probe Vehicle Data Completeness*. This work is focused on understanding the factors contributing to missing probe vehicle travel time data. There is strong reason to suspect that the missing patterns in such datasets are not random, and are in fact described by a combination of segment length, travel speed, and traffic volume. Thus, any analysis which takes the available data as a "representative" sample is likely to over-represent certain traffic conditions.

In this work, we develop a predictive model for data completeness using the National Performance Management Research Data Set. In this and similar datasets relying on mobile location services, a great number of time periods are not reported for most road segments and, for shorter segments, this occurs even in relatively high volume time periods. Our methodology represents the number of contributing vehicles on a road segment using queuing theory, and applies censored Poisson regression to model their distribution.

The results demonstrate that the missing patterns can be described as a function of travel time and vehicle volume. The idea is that this work will give valuable insight for those applying such data in transportation

analysis, and offer a foundation for further work in quantifying the uncertainty and bias that can result if missingness is not dealt with in a principled way.

Researcher's Experience at TRB

I had a particularly great time at TRB Annual Meeting this year. I attended lectern sessions on a variety of transport topics, including ferry and land-based transit integration, new and emerging data collection technologies, and novel methods for improving transit safety and reliability. One of the things that makes this conference so productive is that every session is a blend of practical and theoretical work. As a result, any given session might bring together an array of practitioners, company representatives, academics, and public agency officials for thoughtful discussion and networking.

I spent a great deal of time in the poster sessions this year which, compared to the lectern sessions and workshops, allows greater interaction and discussions with other researchers and professionals. I presented my work on probe vehicle data quality in a poster session and received great feedback and suggestions from other researchers. I took part in a workshop on new public transit data acquisition technologies, and briefly introduced our PacTrans-funded work on transit passenger origin-destination estimation using mobile MAC sensing. This work attracted significant interest
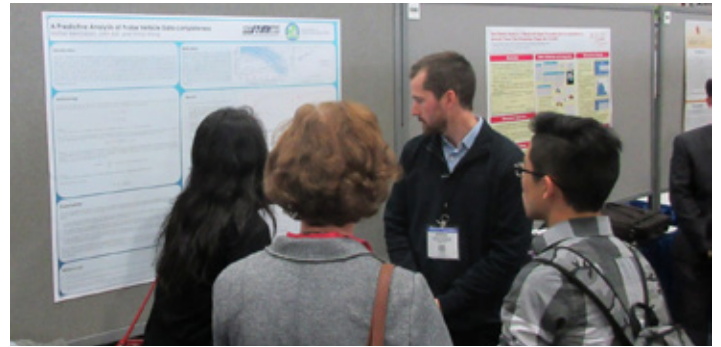
from other workshop attendees, both in the workshop and in the accompanying poster session (presented by Mathew Dunlap).

In addition to the conference events, I attended the PacTrans reception and met with colleagues from other northwest Universities. The PacTrans reception is a particularly meaningful event for me because, having completed my undergraduate degree at the University of Idaho before coming to the University of Washington for graduate study, it is a great opportunity to meet and interact with my previous instructors. I also took part of an afternoon to investigate the DC-area Capital Bike Share facilities (for research!), and took a ride around the mall and downtown area. Washington DC is a lovely town, and I thank PacTrans for their support in attending this annual meeting.

Transportation Network Company Wait Times in Greater Seattle, and Relationship to Socioeconomic Indicators

University of Washington Researcher: Ryan Hughes

Research Summary

My first TRB Annual Meeting was a success. I presented a paper I wrote with Don MacKenzie titled: "Transportation Network Company Wait Times in Greater Seattle, and Relationship to Socioeconomic Indicators". My presentation was part of a very interesting session that included papers on TNC research, a carpooling algorithm, and a mode choice survey related to mobility services. I received some very good questions that highlighted the timeliness of our research.

Researcher's Experience at TRB

I was able to meet with a number of former colleagues from the University of Washington and Saint Louis University, and I enjoyed attending the PacTrans Reception. The student paper presentations were the most enjoyable part of the conference because I was able to take in a lot of research outcomes in a short amount of time. I am very grateful to PacTrans for the support to write this paper and attend TRB.

Efficient Vehicle Detection in Aerial Videos Using Combined Cascaded Classifier and Neutral Network Detector
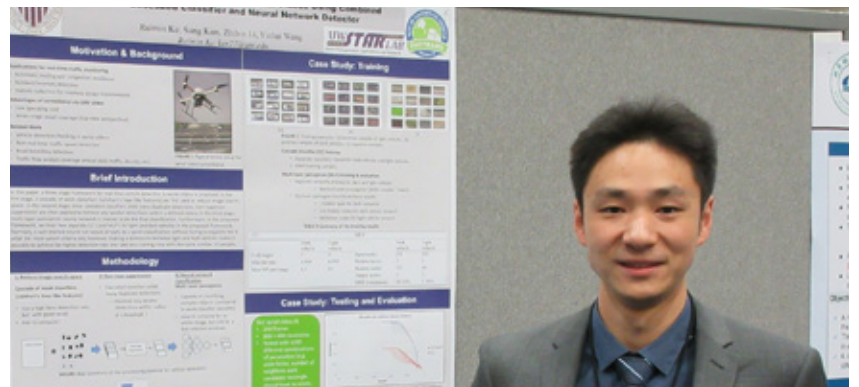
University of Washington Researcher: Ruimin Ke

Research Summary

Recently, unmanned aerial vehicles (UAV's) have become widely available in both the public and private sectors. The availability and low cost of UAV's opens up new opportunities in intelligent transportation systems, for instance with the collection of traffic statistics. Nevertheless, detecting vehicles in a fast and accurate way using aerial videos plays a key role in many applications. In this study, we develop a vehicle detector that combines a cascade of weak classifiers with a multi-layer perceptron neural network.

Since neural networks are computationally expensive in operation, the cascaded classifiers are used to reduce the search space, while the multi-layer perceptron neural network performs final classification on a few sub-windows in the image. Two separate cascaded classifiers (CC's) and multi-layer perceptions (MLP's) to detect light and dark vehicles are trained in our framework. A 240-frame aerial video was used as the test dataset and over 1000 parameter combinations were tested. The results show that the combined cascaded classifier and neural network detector achieves good detection accuracy and significant improvement over single CC. The final detector operates in real-time, reaching an average processing speed of 25.382 frame-per-second. The proposed framework can help improve the performance of UAV based vehicle tracking, traffic parameters extraction and traffic enforcement.

Researcher's Experience at TRB

Thanks for the support from PacTrans. I had great experiences at TRB annual meeting this year at Washington DC. My experiences can be stated from three aspects. In the first place, I presented my research about Unmanned Aerial Vehicle-based traffic information extraction. I presented two posters, both on this topic. One was about estimating traffic flow parameters from aerial videos and another was about building an aerial video-based vehicle detector. These two posters generated lots of interests. From the feedback I got, I feel like this is definitely cutting-edge research and I will continue working on this topic. In the second place, I learned a lot from other researchers, traffic engineers, etc. at TRB. I attended several lecture sessions as well as looking at other posters. By reading, listening and talking with people, not only did I improve my knowledge on transportation, but also I felt that it improved my communication skills. Last by not the least, I met many of my old friends such as Matt Dunlap, who was previously from the same group here at UW. I also made some new friends to expand my social network. By attending TRB, it is clearer to me what the trends are in transportation engineering and what I am going to focus on in the next few years.

Informing Roadway Sustainability Practices Using Greenroads Certified Project Data

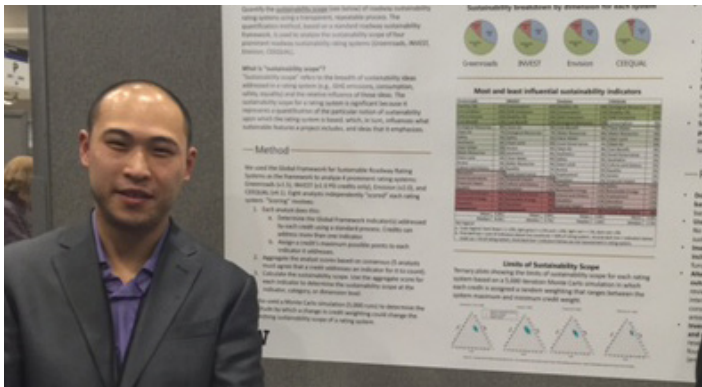**University of Washington Researcher: James Lew**

Research Summary

My research focuses on how sustainability is measured by roadway certification systems (specifically, the Greenroads Rating System) and strategies which project teams adopt in order to achieve these sustainability certifications. Project teams pursue 'credits' or activities (supported by construction documentation) which each address how sustainability can be incorporated into a roadway project.

Our research examines patterns among expected and actual credit achievement rates, project and certification schedules, and the types of credits pursued (or not). As the pressure to develop sustainable infrastructure grows, our research indicates that sustainably certified roadways do more to implement sustainability, but that there is still room for improvement. Project teams generally pursue credits which relate to well established best practices (e.g. roadside vegetation, materials reuse), but they struggle with credits which there is less supporting knowledge or infrastructure (e.g. alternative fuels and equipment) or are generally uncommon in standard practice.

Researcher's Experience at TRB

As a first time attendee of the TRB Annual Meeting, my experience was both informative and valuable in providing opportunities to reach out to the transportation industry professionals and academics. In particular, I appreciated learning how my research fits into the larger body of issues within the transportation industry, and learning what other researchers have done in order to address these issues. By attending a variety of events (sub-committee meetings, poster sessions, project presentations, and receptions), I was able to better understand what the transportation industry prioritizes and by extension, how I can better direct current and future research efforts.

Finally, I appreciated the opportunity to present my work orally and meeting transportation professionals from across the state, country, and globe: colleagues hailing my former institution at Berkeley, authors from an Iowa university whom I have cited, urban planners from the Netherlands interested in my research, and DOT professionals whose needs align with my current research. Ultimately, the TRB meeting was a pleasant mixture of socializing and professional development that provided me with a better context for the emerging needs of the transportation industry. I am very fortunate to have been provided this opportunity by our department.

Spatial Modeling of Sensitivity of On-Street Parking Occupancy to Price Change

University of Washington Researcher: Ziyuan Pu

Research Summary

My research explored the relationship between change in occupancy and change in parking rates. The geographically weighted regression (GWR) method was used to capture the spatial heterogeneity in sensitivity in different blocks. The results showed that there is a significant negative correlation between occupancy change and parking rate change. The sensitivity of on-street parking occupancy to price change has an obvious trend of spatial variation. By capturing the spatial heterogeneity in the dataset, the GWR model achieved higher prediction accuracy than a global model. Variables including time of day, block-level features, and socio-demographic characteristics are also correlated with occupancy change. Based on the GWR outputs, a generalized linear model was estimated to further identify how various factors affect sensitivity in different block areas. Findings of this study can help identify which block is suitable for balancing parking demand and supply by adjusting price and designing optimal parking rates in different block sections to achieve the desired on-street parking occupancy level.
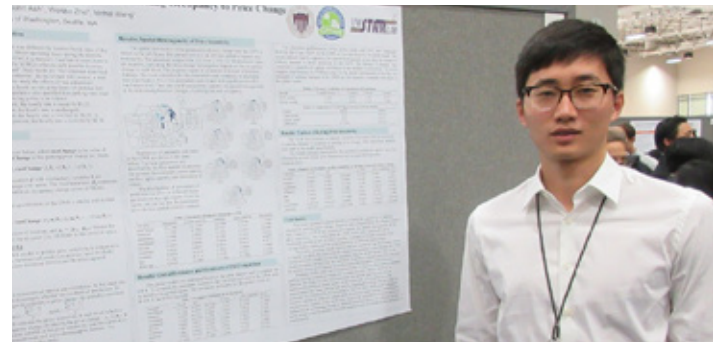

Researcher's Experience at TRB

During my TRB trip in Washington D.C., I attended quite a few presentation and poster sessions which focused on big data analysis in intelligent transportation system. I learned a lot from those, such as frontier analysis theory, advanced and applicable methodology, and new data collection methods. In additional, I met some young professionals during the PacTrans reception. After meeting with them, I found some new potential, attractive and valuable research directions to think about pursuing.

Apps and Battery Efficient Technologies for Smartphone-Based Travel Data Collection – State of the Art

University of Washington Researcher: Hongyuan Liu
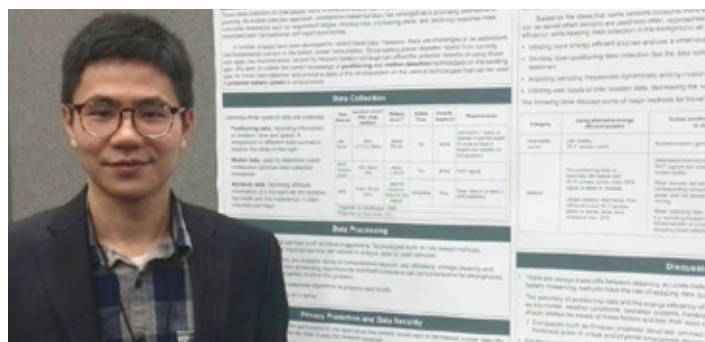
Research Summary

Travel data collection on how people move in time and space has long been an important subject for transportation planning. As a data collection approach, smartphone-based surveys has emerged as a promising alternative to overcome drawbacks such as respondent fatigue, missing trips, increasing costs, and declining response rates associated with the traditional self-report approaches.

A number of apps have been developed to collect travel data. However, there are challenges to be addressed. One fundamental concern is the battery power consumption. Since battery power depletes rapidly from running such apps, the inconvenience caused by frequent battery recharge can offset the potential benefits of using those apps. We seek to update the current knowledge of positioning and motion detection technologies on the existing apps for travel data collection and provide a state of the art discussion on the various technologies that can be used to preserve battery power in smartphones.

Researcher's Experience at TRB

It has been a great experience to attend the TRB meeting in DC where I met and communicated with many intelligent and excellent scholars and practitioners and learned a lot about others' novel studies and ideas. I think the meeting was very successful. It provided a good platform to exchange knowledge and facilitate cooperation. I am honored to have a presentation in the meeting and greatly appreciate the travel fund from PacTrans.

## Assessing the Impacts of Mobile Technology on Project Inspection

University of Washington Researcher: Julian Yamaura

Research Summary

A mobile technology solution, specifically developed for the construction inspection process, is deployed on a limited basis to Washington Department of Transportation (DOT), Minnesota DOT, and Texas DOT. This study quantifies mobile technology impacts by comparing the existing inspection process for each DOT with that using the mobile technology solution over three dimensions typical of software evaluation: productivity, data quality, and data available.

Researcher's Experience at TRB

This was my first year attending the TRB conference and I had a great time networking with industry and academics professionals in transportation infrastructure construction. Adoption of eConstruction processes was a big topic covered in many committee and sub-committee meetings and it was great to be able to contribute to this field of study through meetings, workshops, and a poster session. I hope to contribute more work to the TRB in the upcoming years.
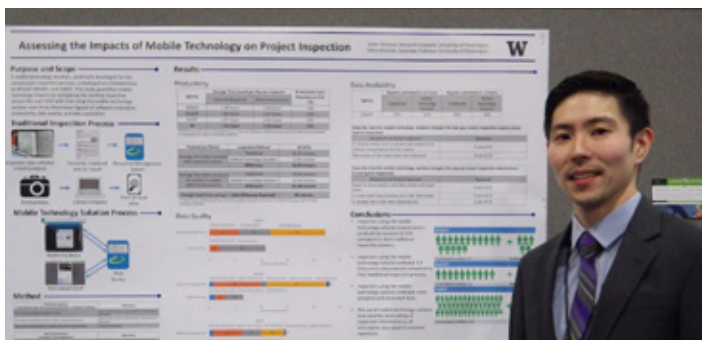
Investigation of Blending Mechanisms for Reclaimed Asphalt Pavement Binder and Virgin Binder in Laboratory-Produced RAP Mixtures

Washington State University Researcher: Kun Zhang

Research Summary

My presentations at TRB focused on the mix design and performance evaluation of asphalt mixes containing reclaimed asphalt pavement (RAP), which contributes to sustainable construction and has great benefits to economy and environment.

One poster, titled "Investigation of Blending Mechanisms for Reclaimed Asphalt Pavement (RAP) Binder and Virgin Binder in Laboratory-Produced RAP Mixtures", proposed a laboratory mixing scheme and conducted performance evaluation to fundamentally investigate the effects of production stages on blending of RAP binder and virgin binder, and consequently on rheological and fracture properties of RAP mixtures.

The other poster, titled "Performance-based Design Method for Asphalt Mixes that Contain Reclaimed Asphalt Pavement (RAP)", has evaluated ten mixes with different percentages of RAP and developed a practical and performance-related RAP mix design method. Both of the researches are towards to ensure the design of well-performing RAP mixes and facilitate the use of high percentages of RAP in asphalt mixtures.

Researcher's Experience at TRB

The annual TRB conference provides great opportunity for academic exchange and social networking among transportation professionals. I have attended and helped to organize the 6th International Association
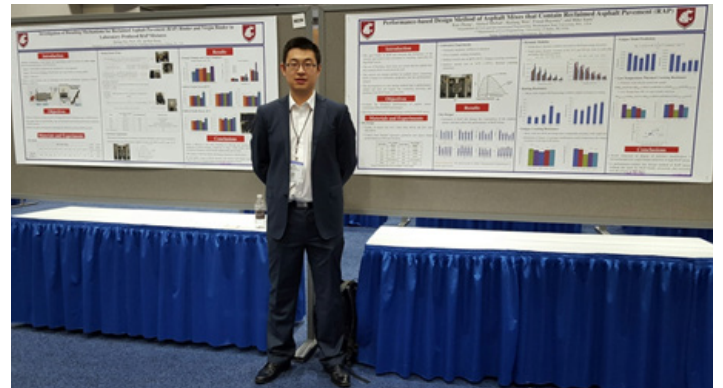
of Chinese Infrastructure Professionals (IACIP) annual workshop during TRB, and participated in competition of student poster session. I have met professors and students from U.S. and Chinese universities and talked about our current research in the forum. And, I have won the 3rd prize of the student poster competition. In addition, I have two posters presented at TRB this year. Both of them have raised great interests from their audiences because the novel method to investigate the blending mechanisms of RAP binder and virgin binder, and the practical method to design well-performing RAP mixes could greatly be beneficial to utilization of high RAP percentage in asphalt mixes. Another impressive event I have attended during TRB was the annual reception from PacTrans; the shrimp and crab were especially delicious. Finally, sincere thanks go to PacTrans for supporting this opportunity for me.

Short-Term Prediction of Vehicle Waiting Queue at Ferry Terminal Based on Machine Learning Method

University of Washington Researcher: Weibin Zhang

Research Summary

Ferry service plays an important role in many cities with waterfront areas. Transportation authorities often need to forecast volumes of vehicular traffic in queues waiting to board ships at ferry terminals to ensure sufficient capacity and establish schedules that meet demand. Several previous studies have developed models for long-term vehicle queue length prediction at ferry terminals using terminal operation data. Few studies, however, have been undertaken for short-term vehicular queue length prediction.

In this study, machine learning methods including the artificial neural network (ANN) and support vector machine (SVM) are applied to predict vehicle waiting queue lengths at ferry terminals. Through time series analysis, the existence of a periodic queue-length pattern is established. Hence, methodologies used in this study take into account periodic features of vehicle queue data at terminals for prediction. To further consider the cyclical characteristics of vehicle queue data at ferry terminals, a prediction approach is proposed to decompose vehicle waiting queue length into two components: a periodic part and a dynamic part. A trigonometric regression function is introduced to capture the periodic component, and the dynamic part is modeled by SVM and ANN models. Moreover, an assembly technique for combining SVM and ANN models is proposed to aggregate multiple prediction models and in turn achieve better results than could be obtained from a lone predictive method.

The prediction results suggest that for multi-step ahead vehicle queue length prediction at ferry terminals, the ensemble model outperforms the separate prediction models and the hybrid models, especially as prediction step size increases. This research has important practical significance to both traffic service management interests and the travelers in cities along waterfront areas.

Researcher's Experience at TRB

TRB conference is a really exciting conference. After the New Year holiday, scientists in field of transportation research gather at the TRB, exchange research ideas, and discuss further study. TRB plays an important role that we can know the latest research progress over the past year, then update ourselves in knowledge and research direction, and meet potential collaboration.

Capacity Modeling and Control Optimization for Two-lane Highway Lane Closure Work Zones

University of Washington Researcher: Wenbo Zhu
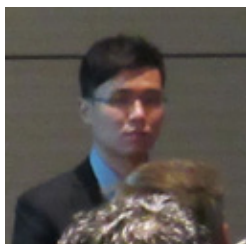
Research Summary

A two-lane highway lane closure work zone is a unique work zone type due to its traffic impact. As one lane of traffic is blocked, it is necessary to implement a traffic control strategy to effectively serve bi-directional traffic. In order to analyze the problem, this study developed two methods: a mathematical capacity and delay model with calculations based on signalized intersection theory, and a VISSIM micro-simulation model calibrated using field observed data. The developed models were applied to optimize two-lane highway lane closure work zone control management.

Researcher's Experience at TRB

I had a great experience at the 2016 TRB Annual Meeting. During my three-day staying at DC, I learned a lot from presentations and exhibits about the state-of-art transportation engineering both in the academic and professional fields. Apart from that, I presented my research in a lecture session and a poster session, and the feedback I received is definitely helpful in my future studies. I also met many old friends and knew more people at different receptions. This year's PacTrans reception was a great success. We had a great time talking with friends and colleagues with delicious refreshments. Thanks a lot to PacTrans for funding me this travel to TRB and preparing such a wonderful reception!

Does the Built Environment Affect Nonmotorized Travel Behaviors Differently for Lower- and Higher-Income People?

University of Washington Researcher: Xi Zhu

Research Summary

Compared to automobile use, non-motorized modes of transportation, mainly including walking and cycling, improve health to individuals and also result in less traffic, pollution, and noise for the community and the whole society. The last decade has witnessed many studies on non-motorized modes, especially walking, and their influencing factors. The role of the built environment has been widely discussed, mainly by identifying a diverse set of built environment factors.

The current study seeks to understand how the built environment may have influenced the non-motorized trips for people with different incomes. With a survey focusing on non-motorized activities, we target the lower- and the higher-income populations specifically and study their possible differential effects in the influences between the built environment and travel behaviors by applying linear regression models. The results confirm our hypothesis. We discuss the implications of the results in understanding travel behavior and policy making in the concluding section.
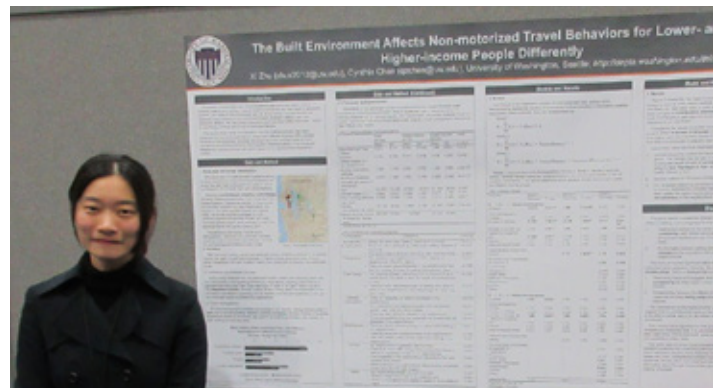
SAVE THE DATE: UPCOMING PACTRANS EVENTS

PacTrans is now soliciting Multi-institutional project proposals under the theme:

"Developing Data Driven Solutions and Decision-Making for Safe Transport"

Full Proposal Deadline: April 18, 2016

For more information go to: http://depts.washington.edu/pactrans/RegionalFull/

PacTrans is now soliciting Small Project proposals under the theme:

"Developing Data Driven Solutions and Decision-Making for Safe Transport"

Full Proposal Deadline: April 18, 2016

For more information go to: http://depts.washington.edu/pactrans/UW_Small2016Apr/

Regional Transportation Seminar Series

We will have an installment of this quarterly seminar this winter

Keep a lookout for the announcement

Engineering Discovery Day

UW Student and Faculty Engineers share their work with peers, teachers, and community

Friday April 22 & Saturday April 23, 2016

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.