



## QIAN WANG

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### EDUCATION

- Ph.D. Transportation Engineering. Rensselaer Polytechnic Institute. August 2008.
- M.S. Transportation Engineering. Tongji University. March 2003.
- B.S. Transportation Engineering. Southwest Jiaotong University. July 2000.

### PROFESSIONAL EXPERIENCE

- Assistant Professor, Civil, Structural & Environmental Engineering, University at Buffalo, August 2008 – Present.
- Research/Teaching Assistant, Civil & Environmental Engineering, Rensselaer Polytechnic Institute, August 2003 – August 2008.
- Traffic Analyst, Goldway Intelligent Transportation Systems Co., Ltd., Shanghai, China, March 2003-August 2003.
- Research Assistant, College of Traffic and Transportation Engineering, Tongji University, July 2000 – March 2003.

### HONORS AND AWARDS

- United University Professions (UUP) Individual Development Award, 2009
- Selected participant of NSF funded PASI-TS (Pan-American Advanced Studies Institute on Transportation Sciences), 2005
- Best Student Paper in the ITS-NY Eleventh Annual Meeting and Technology Exhibition, June 17-18, 2004.
- Science and Technology Progress Award in Shanghai for the research project “Design Regulations for At-grade Intersections on Urban Streets in Shanghai,” China, 2001.
- Research Assistant Scholarship and Teaching Assistant Scholarship, Department of Civil and Environmental Engineering, Rensselaer Polytechnic Institute, 2003-08.
- Research Assistant Scholarship, School of Traffic and Transportation Engineering, Tongji University, China, 2000-03.



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## **AREAS OF PROFICIENCY**

### **Freight System Modeling**

Strong background in planning, forecasting and managing freight travel demand, and extremely interested in commercial vehicle flow operations and freight logistics. Develop the first closed form model of urban freight travel demand that explicitly considers trip chaining behavior of commercial vehicles in urban areas. Develop models that capture travel demand changes of freight transportation under multi-hazard situations.

### **Transportation Planning/Travel Demand Forecasting**

- Strong background in the use of demand models for policy analysis and transportation system planning. Develop innovative travel demand forecasting procedures that address trip chaining behavior of travelers as well as the linkage between travel demand forecasting and activity-based micro-simulation. Develop the first closed form model of urban freight travel demand that explicitly considers trip chaining behavior of commercial vehicles. Teach classes related to travel demand forecasting and activity-based travel demand modeling.

### **Transportation Economics**

- Strong background in transportation economics, having performed the economic evaluation of more than five projects, including land use projects, transit projects, freeways, primary arterials, rail projects, and toll roads. Has conducted research on two large-scale congestion pricing evaluation projects for FHWA.

### **Traffic Engineering**

- Proficient in traffic engineering and traffic flow theory. Experience in intersection control, traffic signalization and coordination. Participated in more than six traffic signal coordination studies and two projects in bus scheduling.

### **Infrastructure Planning, Design and Management**

- Strong background in the areas of: highway design, demand forecasting and economic analysis of urban highways and rural roads. Participated in planning and designing one freeway, three primary arterials, one rural road, and one railway project in China.

## **RESEARCH ACTIVITIES**

### **Currently Funded Research Projects**

1. Principal Investigator. "Freight Travel Demand Modeling under Multiple Hazard Situations." Phase II. Funded by Federal Highway Administration through the



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- Multidisciplinary Center of Earthquake Engineering Research (MCEER). July 2010-June 2011. Funding: \$20,000
2. Principal Investigator. "Freight Travel Demand Modeling under Multiple Hazard Situations." Phase I. Funded by Federal Highway Administration through the Multidisciplinary Center of Earthquake Engineering Research (MCEER). July 2009-June 2010. Funding: \$35,000
  3. Co-Principal Investigator (with Adel Sadek at University of Buffalo). "Reducing Vehicle Miles Traveled Through Smart Land-Use Design." Funds approved by New York State Energy Research and Development Authority (NYSERDA). May 2009- April 2011. Funding: \$106,000.
  4. Co-Principal Investigator (PI: Dr. Adel Sadek at University of Buffalo). "A Prototype Decision Support System for Optimally Routing Border Crossing Traffic Based on Predicted Border Crossing Times." Funded by the University Transportation Research Center (UTRC) Region II. March 2010- March 2011. Funding: \$100,000.
  5. Co-Principal Investigator (PI: Dr. Adel Sadek at University of Buffalo). "Transportation Systems Risk Management under Multiple Hazard Situations." STAGE 3, Funded by Federal Highway Administration through the Multidisciplinary Center of Earthquake Engineering Research (MCEER). July 2010-June 2011. Funding: \$20,000
  6. Co-Principal Investigator (PI: Dr. Adel Sadek at University of Buffalo). "Transportation Systems Risk Management under Multiple Hazard Situations." STAGE 2, Funded by Federal Highway Administration through the Multidisciplinary Center of Earthquake Engineering Research (MCEER). July 2009-June 2010. Funding: \$65,000
  7. Co-Principal Investigator (PI: Dr. Adel Sadek at University of Buffalo). "Transportation Systems Risk Management under Multiple Hazard Situations." STAGE 1, Funded by Federal Highway Administration through the Multidisciplinary Center of Earthquake Engineering Research (MCEER). June 2008-June 2009. Funding: \$55,500

### **Proposals Selected but not Funded**

1. Principal Investigator. "Impact of Smart Growth on Metropolitan Goods Movement. Submitted to the National Cooperative Freight Research Program (NCFRP). Funding: \$249,984. Submission date: May 30, 2010

### **Project Involvement**

1. *Freight Travel Demand Modeling under Multiple Hazard Situations*. Funded by Federal Highway Administration through the Multidisciplinary Center of Earthquake Engineering Research (MCEER). 2009-2011.



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2. *Reducing Vehicle Miles Traveled Through Smart Land-Use Design*. Funded by New York State Energy Research and Development Authority (NYSERDA). 2009- 2011.
3. *A Prototype Decision Support System for Optimally Routing Border Crossing Traffic Based on Predicted Border Crossing Times*. Funded by the University Transportation Research Center (UTRC) Region II. 2010-2011.
4. *Transportation Systems Risk Management under Multiple Hazard Situations*. Funded by Federal Highway Administration through the Multidisciplinary Center of Earthquake Engineering Research (MCEER). 2008-2011.
5. *Tour-Based Urban Freight Travel Demand Models*. Funded by NSF-CAREER-0245165. 2005-2008.
6. *Evaluation Study of Port Authority of New York and New Jersey's Time of Day Pricing Initiative*. Funded by Federal Highway Administration Value Pricing Program. 2003-2005.
7. *Evaluation Study of New Jersey Turnpike Authority's Time of Day Pricing Initiative*. Funded by Federal Highway Administration Value Pricing Program. 2003-2005.
8. *Development Plan of the State Key Fundamental Research – “Advanced Urban Traffic Control and Management System.”* China. 2002-2003.
9. *Planning of Urban Adaptive Traffic Control System in Xiamen*, Funded by Xiamen Urban Planning and Design Department. China. 2002-2003.
10. *Traffic Adaptability Analysis and Treatments of Design and Operation on Urban Streets of China*. Funded by National Science Foundation of China through General ‘Science Research Foundation’ Funded Program. China. 2001-2002.
11. *Design Regulations for At-grade Intersections on Urban Streets in Shanghai*. Funded by the Roadway Design Department of Shanghai Government. China. 2001-2002.

## **PUBLICATIONS**

### **Scientific Publications**

1. Ph.D. Dissertation: *Tour-Based Urban Freight Travel Demand Models*. Rensselaer Polytechnic Institute. July 2008. Advisor: Professor José Holguín-Veras
2. Master Thesis: *Analysis of Characteristic Parameters in Urban Traffic Control Systems*. Tongji University. February 2003. Advisor: Professor Xiaoguang Yang
3. Bachelor Thesis: *Optimal Signal Setting and the Signal Coordinate Control Plan for the Arterial Roads in Large Cities*. June, 2000. Southwest Jiaotong University. Advisor: Professor Jin Zhang



### **Refereed Journal Publications**

1. **Wang, Q.** and S. Peng (2011). "Analyzing the Impact of Smart Growth on Travel Choices: An Enhanced Travel Demand Forecasting Approach." *ASCE Journal of Urban Development and Planning*. (Forthcoming)
2. **Wang, Q.** and J. Hu (2011). "Commercial Vehicle Travel Patterns in Urban Areas: Findings and Implications from the Denver Metropolitan Area." *ASCE Journal of Urban Development and Planning*. (Forthcoming)
3. Tracy, A., P. Su, A. Sadek, and **Q. Wang** (2011). Assessing the Impact of the Built Environment on Travel Behavior: Case Study of Buffalo, New York. *Transportation*, Vol. 38, Issue. 3, pp. 427.
4. Holguín-Veras, J., **Q. Wang** (2011), N. Xu , K. Ozbay, and M. Cetin. The Impacts of Time of Day Pricing on General User Behavior: Findings from the Port Authority of New York and New Jersey's Initiative. *Transportation*, doi : 10.1007/s11116-010-9307-8.
5. Holguín-Veras, J., **Q. Wang** (2011). Behavioral investigation on the factors that determine adoption of an electronic toll collection system: Freight carriers. *Transportation Research Part C: Engineering Technologies*, Volume 19, Issue 4, Pages 593-605.
6. **Wang, Q.**, and J. Holguín-Veras (2008). Investigation of Attributes Determining Trip Chaining Behavior in Hybrid Microsimulation Urban Freight Models. *Transportation Research Record: Journal of the Transportation research Board*, No. 2066, pp. 1-8.
7. Holguín-Veras, J., N. Xu, **Q. Wang**, K. Ozbay and J.C. Zorrilla (2007). New Jersey Turnpike's Time of Day Pricing Initiative's Behavioral Impacts: Observed Role of Travel Distance on the Underlying Elasticities. *Transportation Research Record 2010*, pp. 53-61.
8. Holguín-Veras, J., **Q. Wang**, N. Xu, K. Ozbay and J. Polimeni (2006). The Impacts of Time of Day Pricing on the Behavior of Carriers in a Congested Urban Area: Implications to Road Pricing. *Transportation Research Part A*, Vol. 40, pp. 744-766.
9. **Wang, Q** and X. Yang (2002). Impact of Bus Stops on the Delay and Capacity of Shared Approaches at Signalized Intersections. *China Civil Engineering Journal*, Vol. 10 (Traffic Engineering Fascicule).

### **Conference Proceedings**

1. Hu, J., and **Q. Wang** (2011). Commercial Vehicle Travel Patterns in Urban Areas Findings and Implications from the Denver Metropolitan Area. *Transportation Research Board 90<sup>th</sup> Annual Meeting*. Washington, D.C., USA.



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2. **Wang, Q.**, P. Su, A. Sadek, and A. Tracy (2011). Analyzing the Impact of Smart Growth on Travel Choices: An Enhanced Travel Demand Forecasting Approach. The 11<sup>th</sup> International Conference of Chinese Transportation Professionals. Nanjing, China.
3. Tracy, A., P. Su, A. Sadek, and **Q. Wang** (2011). Assessing the Impact of the Built Environment on Travel Behavior: Case Study of Buffalo, New York. Transportation Research Board 90<sup>th</sup> Annual Meeting. Washington, D.C., USA.
4. **Wang, Q.**, and J. Holguín-Veras (2009). Tour-based Entropy Maximization Formulations of Urban Commercial Vehicle Movements. The 18th International Symposium on Transportation and Traffic Theory (*ISTTT18*). Hong Kong, China.
5. **Wang, Q.**, and J. Holguín-Veras (2009). The Impacts of Time of Day Pricing on Car User Behavior: Findings from the Port Authority of New York and New Jersey's Initiative. CD-ROM. The 88th Annual Meeting of the Transportation Research Board, Washington, DC, USA.
6. **Wang, Q.**, and J. Holguín-Veras (2009). Tour-based Entropy Maximization Formulations of Urban Commercial Vehicle Movements. CD-ROM. The 88th Annual Meeting of the Transportation Research Board, Washington, DC.
7. **Wang, Q.**, M. Jaller, and W. Bequette (2008). Solving Dynamic Traffic Routing Problems Using Advanced Process Control Algorithms. XV Panamerican Conference.
8. Holguín-Veras, J., **Q. Wang**, N. Xu , K. Ozbay, M. Cetin, J. Polimeni, and J.C. Zorrilla, 2007. Impacts of Time of Day Pricing on Travel Behavior: General Findings from the Port Authority of New York and New Jersey's Initiative. CD-ROM. The 86th Annual Meeting of Transportation Research Board, Washington, DC, USA.
9. Holguín-Veras, J., and **Q. Wang** (2005). On the Attitudinal Factors Explaining the Use of Electronic Toll Collection Technologies by Freight Carriers. CD-ROM. The 84th Annual Meeting of Transportation Research Board, Washington, DC, USA.
10. **Wang, Q.**, and J. Holguín-Veras (2004). Attitudinal Analysis of Trucking Companies towards the Use of Electronic Toll Collection (E-ZPass), XIII Panamerican Conference.
11. **Wang, Q.** (2004). Attitudinal Analysis of Trucking Companies towards the Use of Electronic Toll Collection (E-ZPass). The Best Student Paper in the ITS-NY Eleventh Annual Meeting and Technology Exhibition.

### **Conference Presentations**

1. **Wang, Q.**, and J. Holguín-Veras (2010). A Tour-Based Urban Freight Transportation Model Using Entropy Maximization. Innovations in Freight Demand Modeling and Data: A Transportation Research Board SHRP 2 Symposium. Herndon, VA, USA.



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2. **Wang, Q.**, and P. Su (2010). A Travel Demand Forecasting Framework for Assessing Smart Growth Strategies. Transportation for Livable Communities Conference. Washington D.C., October 18-19, 2010.
3. **Wang, Q. (2010)**. Behavioral Analysis of Freight Carriers' Attitudes to Toll Pricing: Insights and Implications from the PANYNJ's Time of Day Pricing Initiative. 2010 TRANSLOG Conference. McMaster University, Canada. June 15-16, 2010.
4. **Wang, Q.**, and J. Holguín-Veras (2009). Tour-Based Origin-Destination Synthesis Formulations of Urban Commercial Vehicle Movements. The 3<sup>rd</sup> METRANS National Urban Freight Conference, Long Beach, CA, U.S.A.
5. **Wang, Q.** (2009). Transportation System Risk Management under Multiple Hazard Situations. The Institute of Transportation Engineers (ITE) New York Update Conference. Canandaigua, NY, U.S.A.

### **Published Technical Reports**

1. *Evaluation Study of Port Authority of New York and New Jersey's Time of Day Pricing Initiative. Technical Report. No FHWA/NJ-2005-005.* Funded by USDOT Value Pricing Program. Play major role in analysis and writing for Chapter V and VII.
2. *Evaluation Study of New Jersey Turnpike Authority's Time of Day Pricing Initiative. 2005. Technical Report. No FHWA/NJ-2005-0012.* Funded by USDOT Value Pricing Program May 2005. Work on the data analysis and report preparation.

### **Invited Seminars**

1. Wang, Q., 2010. Behavioral Impacts of the Port Authority of New York and New Jersey's Time of Day Pricing Initiative. Department of Civil Engineering, University at Toronto. October 08, 2010.
2. Wang, Q., 2009. Tour-based Urban Freight Travel Demand Models. Department of Industrial and Systems Engineering, University at Buffalo. November 13, 2009.

## **ACADEMIC ADVISING**

### **PhD Students Funded**

- Jinge Hu. Research Assistant in the Department of Civil, Structural and Environmental Engineering. Fall 2009-Current.
- Peng Su. Research Assistant in the Department of Civil, Structural and Environmental Engineering. Fall 2009-Current.



- Peng Zhang. Research Assistant in the Department of Civil, Structural and Environmental Engineering. Fall 2009-Summer 2010.
- Lei Lin. Research Assistant in the Department of Civil, Structural and Environmental Engineering. Fall 2010-Current (Co-advising with Dr. Adel W. Sadek).

### **Master Students Funded**

- Zhiyong Wang, Research Assistant in the Department of Civil, Structural and Environmental Engineering. Fall 2009-Summer 2011 (Co-advising with Dr. Adel W. Sadek)
- Andrew Tracy, Research Assistant in the Department of Civil, Structural and Environmental Engineering. Fall 2009-Fall 2010 (Co-advising with Dr. Adel W. Sadek).
- Haohui Lin, Research Assistant in the Department of Urban and Regional Planning. January 2009- June 2009.

### **Other Master Students Advised**

- Antonio Miceli, master student in the Department of Civil, Structural and Environmental Engineering. Fall 2009-Spring 2010.

### **PhD Dissertation Committee Member for**

- Liya Guo. PhD student in the Department of Civil, Structural and Environmental Engineering. 2010-Current
- Shan Huang. PhD student in the Department of Civil, Structural and Environmental Engineering. 2009-2011
- Yan Yang. PhD student in the Department of Geography, University at Buffalo. 2009-Current

### **M.S. Thesis Committee Member for**

- Jinge Hu. The Department of Civil, Structural and Environmental Engineering. 2011.
- Peng Su. The Department of Civil, Structural and Environmental Engineering. 2011.
- Jay Ring. Master student in the Department of Civil, Structural and Environmental Engineering. 2010
- Andrew Tracy. Master student in the Department of Civil, Structural and Environmental Engineering. 2010





### **Freshmen Mentor for:**

- Sean Gaffney. Undergraduate in the Department of Civil, Structural and Environmental Engineering. Since Spring 2011.
- Leonard Graf. Undergraduate in the Department of Civil, Structural and Environmental Engineering. Since Spring 2011.
- Chrystalleni Stivaros. Undergraduate in the Department of Civil, Structural and Environmental Engineering. Since Spring 2011.
- Eric Yahn. Undergraduate in the Department of Civil, Structural and Environmental Engineering. Since Spring 2011.

### **TEACHING EXPERIENCE**

#### **Instructor for**

- CIE 631, Transportation Network Analysis, Graduate level, University at Buffalo, Spring 2010, and Spring 2011
- CIE 539, Travel Demand Forecasting, Graduate level, University at Buffalo, Fall 2009.
- CIE 500T, Discrete Choice Modeling, Graduate level, University at Buffalo, Spring 2009, and Fall 2010.
- CIE 500T, Travel Demand Forecasting, Graduate level, University at Buffalo, Fall 2008.

#### **Teaching Assistant for**

- ENGR 1100, Introduction to Engineering Analysis, Undergraduate level, Fall 2005, Spring 2006, Fall 2007, Spring 2008.

### **PROFESSIONAL SERVICES AND ACTIVITIES**

#### **Journal and Conference Reviewer**

- Transportation Research Board Annual Meeting (2004-)
- Pan-American Conference of Traffic and Transportation Engineering (2005-)
- Networks and Spatial Economics (2008-)
- IEEE Conference on Intelligent Transportation Systems (2009-)
- International Conference of Chinese Transportation Professionals (2009-)
- Annals of Operations Research (2010-)

#### **Research Proposal Reviewer**



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- Panel member for the National Cooperative Freight Research Program (NCFRP) Project 31 (March 2010-)
- Reviewed proposals for Transportation Northwest, the University Transportation Research Center in Washington State (2009-)

### **Editors**

- Area editor for the 11th International Chinese Conference of Transportation Professionals (ICCTP 2011) in Nanjing, China. Summer 2011.
- Associate editor for the 10th International Chinese Conference of Transportation Professionals (ICCTP 2010) in Beijing, China. Summer 2010.
- Editing five papers for the ASCE Conference Proceedings from the 2009 International Conference of Chinese Transportation Professionals (ICCTP 2009). 2009

### **Service at University at Buffalo**

- Graduate Study Committee in the Department of Civil, Structural and Environmental Engineering (since October 2008)
- UB Grievance Committee (since October 2008)

### **Committees and Memberships**

- Transportation Research Board (TRB): Member of Freight Modeling Subcommittee (since 2008); Friend of Congestion Pricing Committee (since 2004), Travel Behavior and Value Committee (since 2007), Transportation Demand Forecasting Committee (since 2007)
- Member of NYSDOT GreenLITES Academic Advisory Council (since 2008)
- Advisory Board Member for the research project “CFIRE 03-19: Environmental and Energy Benefits of Freight Delivery Consolidation in Urban Areas” sponsored by the National Center for Freight & Infrastructure Research & Education (CFIRE) (since 2011)
- ASCE Member (since 2010)
- UBCCCC Parent Involvement Committee (since 2010)