

# Xuesong Zhou

## Associate Professor, Ph.D.

School of Sustainable Engineering and the Built Environment  
Arizona State University  
College Avenue Commons, Room 474  
660 S. College Avenue  
Tempe, AZ 85287-530  
Email: [xzhou74@asu.edu](mailto:xzhou74@asu.edu)  
Phone: 480-965-5827

### Education

Ph.D. Dept. of Civil & Environmental Engineering, University of Maryland, College Park, 2004  
B.S. Railroad Management Engineering, Beijing Jiaotong University, Beijing, China, 1995

### Academic Experience

**Associate Professor** (August 2013 – Present)  
Arizona State University, AZ

**Assistant Professor** (January 2007 – June 2013) **Associate Professor** (Tenured, July 2013)  
University of Utah, UT

**Research Scientist** (August 2005 – April 2006)  
North Carolina State University, NC

**Research Assistant Professor** (August 2004 – August 2005)  
University of Maryland, College Park, MD

### Industrial Experience

**Chief Scientist** (May 2009 – Present)  
Safe Driving Systems LLC. South Jordan, UT (Start-up Company from University of Utah based on Key2SafeDriving patents)

**Traffic Data Architect / Traffic Research Engineer** (May 2006 – December 2006)  
Dash Navigation, Inc. Mountain View, CA (Acquired by Research In Motion, 2009)

### Industrial Experience

**Chief Scientist** (May 2009 – Present)  
Safe Driving Systems LLC. South Jordan, UT (Start-up Company from University of Utah based on Key2SafeDriving patents)

**Traffic Data Architect / Traffic Research Engineer** (May 2006 – December 2006)  
Dash Navigation, Inc. Mountain View, CA (Acquired by Research In Motion, 2009)

### Area of Expertise

#### Research

**Transportation planning:** Dynamic traffic assignment, traffic demand analysis

**Transportation system operations and control:** Traffic flow estimation and prediction, traffic flow theory, real-time traveler information system

**Logistics and intermodal transportation systems:** Train timetabling and real-time dispatching, scheduling for transit, rail and seaport systems

**Computer applications for Intelligent Transportation Systems:** Visualization analytics, distributed computing and communications

**Operations research:** Nonlinear programming, integer programming, network optimization

### Teaching

**Transportation planning, Traffic engineering, Public transportation systems**

**Transportation system operations and control, Traffic flow theory**

**Computer applications for Intelligent Transportation Systems**

### **Award**

1. Second place in the Student Research Paper Contest organized by the Rail Applications Section of INFORMS (Institute for Operations Research and Management Science), for the paper "Bicriteria Train Scheduling for Intercity Passenger Railroad Planning Applications", 2003 (For detailed information, see [www.informs.org/Prizes/RailroadApps.html](http://www.informs.org/Prizes/RailroadApps.html))
2. Top 15% instructors in the College of Engineering, University of Utah, 2008
3. Best Paper Award in the 15th IEEE International Intelligent Transportation Systems Conference, Paper title: Simplified, Data-Driven, Errorable Car-Following Model to Predict the Safety Effects of Distracted Driving. Authors: Jay Przybyla, Jeff Taylor, Jupe, Jason, Xuesong Zhou 2012.
4. Nominated for Ben Jacobsen Kingfisher Bend Ranch Award for Exceptional Effectiveness in Teaching, University of Utah, 2013.

### **Refereed Journal Papers** \* corresponding author; student/post-doc/visiting scholar authors are **bolded**.

1. **Lei H.**, Zhou\*, X. List, G., **Taylor, J.** (2014). Characterizing Corridor-level Travel Time Distributions Based on Stochastic Flows and Segment Capacities. *Cogent Engineering*, In Press.
2. **Zlatkovic M.**, Zhou, X. (2014). Integration of signal timing estimation model and dynamic traffic assignment in feedback loops: system design and case study. *Journal of Advanced Transportation Systems*, In Press.
3. Zhou\*, X., & **Taylor, J.** (2014). DTALite: A queue-based mesoscopic traffic simulator for fast model evaluation and calibration. *Cogent Engineering*, 1(1).
4. **Przybyla, J.**, **Taylor, J.**, Jupe, J., & Zhou, X.\* (2014). Estimating risk effects of driving distraction: A dynamic errorable car-following model. *Transportation Research Part C: Emerging Technologies*, In Press. <http://dx.doi.org/10.1016/j.trc.2014.07.013>
5. **Tasic, I.**, Zhou, X., & Zlatkovic, M. (2014). Using Spatio-temporal Constraints to Quantify Transit Accessibility: Case Study of a Potential Transit Oriented Development Location in West Valley, Utah. In *Transportation Research Record: Journal of the Transportation Research Board* (No. 14-5398).
6. Meng, L., & Zhou\*, X. (2014). Simultaneous train rerouting and rescheduling on an N-track network: A model reformulation with network-based cumulative flow variables. *Transportation Research Part B: Methodological*, 67, 208-234.
7. **Lei, H.**, & Zhou\*, X. (2014). Linear Programming Model for Estimating High-Resolution Freeway Traffic States from Vehicle Identification and Location Data. *Transportation Research Record: Journal of the Transportation Research Board*, 2421(1), 151-160.
8. **Yang, L.**, Zhou, X., Guo, Z. (2014) Credibility-Based Rescheduling Model in a Double-Track Railway Network: a Fuzzy Reliable Optimization Approach, *Omega*. 48, 75-93.
9. **Yang, L.**, Zhou\*, X. (2014). Constraint Reformulation and a Lagrangian Relaxation-based Solution Algorithm for a Least Expected Time Path Problem. *Transportation Research Part B*, 59, 22-44
10. Lu C-C, Zhou, X. (2014) Short-term Highway Traffic State Prediction Using Structural State Space Models. *Journal of Intelligent Transportation Systems*. 18 (3) 309-322.

11. Niu, H., Zhou, X. (2013) Optimizing Urban Rail Timetable under Time-dependent Demand and Oversaturated Conditions. *Transportation Research Part C*. 36, 212-230.
12. **Den, W. Lei H.** ,Zhou, X\*. (2013) Freeway Traffic State Estimation and Uncertainty Quantification based on Heterogeneous Data Sources: Stochastic Three Detector *Transportation Research Part B*. 57, 132-157
13. Lu C-C, Zhou, X\*. Zhang, K. (2013) Dynamic Origin-Destination Demand Flow Estimation under Congested Traffic Conditions. *Transportation Research Part C*. 34, 16-37.
14. **Xing, T.** Zhou, X\*. **Taylor J.** (2013) Designing Heterogeneous Sensor Networks for Estimating and Predicting Path Travel Time Dynamics: An Information-Theoretic Modeling Approach. *Transportation Research Part B*. 57, 66-90
15. **Yang, L.** Zhou,X, Gao, Z. (2013) Rescheduling trains with scenario-based fuzzy recovery time representation on two-way double-track railways. *Soft Computing*. 17(4), 605-616.
16. **Xing, T.** Zhou\*, X. (2013) Reformulation and Solution Algorithms for Absolute and Percentile Robust Shortest Path Problems. *IEEE Transactions on Intelligent Transportation Systems*. 99,1-12.
17. Du P., Tian. Z., Zhou, X. (2013) Path-Flow-Based Cross-Resolution Conversions for Simulation Model. *Journal of Transportation Systems Engineering and Information Technology*, 13(2) 27-33.
18. **Lei, H. Xing, T., Taylor, J.** Zhou\*, X. (2012) Monitoring Travel Time Reliability from the Cloud: Cloud Computing–Based Architecture for Advanced Dissemination of Traffic Information. *Journal of Transportation Research Board*. 12-2992, 35–43
19. Kittelson, W., Roupail, N., Williams, B. Zhou, X. (2011) Analyzing Operational Improvements as an Alternative to Traditional Highway Construction. *Journal of Transportation Research Board*. 11-2223, 18-25.
20. **Xing, T.** Zhou\*, X. (2011) Finding the Most Reliable Path With and Without Link Travel Time Correlation: A Lagrangian Substitution Based Approach, *Transportation Research Part B*. 45 (10) , 1660-1679.
21. **Meng, L.** Zhou\*, X. (2011) Robust train dispatching model under a dynamic and stochastic environment: a scenario-based rolling horizon solution approach, *Transportation Research Part B*. 45(7), 1080-1102.
22. **Chen, X.**, Zhou\*, X. List, G. Using Time-Varying Tolls to Optimize Truck Arrivals at Ports, (2011) *Transportation Research Part E*. 47(6), 965-982.
23. Jia A. Zhou\*, X. ,**Li. M.** Roupail, N., Williams, B. (2011) Incorporating Stochastic Road Capacity into a Day-to-Day Traffic Simulation and Traveler Learning Framework: Model Development and Case Study. *Journal of Transportation Research Board*. 11-2820, pp 112-121.
24. Reynolds, W., Roupail, N.M., Zhou, X. Turn Pocket Macroscopic Simulator: Applications to Signal Timing and Capacity Analysis. (2011) *Journal of Transportation Research Board*. 11-0851,112-122.
25. Wang, F., Li, C., Zhou, X., Nayak, M, **Chen, X.** (2010) Simulation Study of Operational Strategies for Mobility Improvement and Congestion Mitigation during Emergency Evacuation. *Journal of Transportation Safety & Security*. 2(2), 152 – 170
26. **Przybyla J., Taylor J.**, Zhou\* X. (2010) Locating Sensors for Detecting Source-to-Target Patterns of Special Nuclear Material Smuggling: A Spatial Information Theoretic Approach. *Sensors*. 10(9), 8070-8091.
27. Reynolds, W., Zhou, X., Roupail, N.M., **Li., M.** (2010) Estimating Sustained Service Rates at Signalized Intersections with Short Left Turn Pockets: A Mesoscopic Approach. *Journal of Transportation Research Board*. 10-2611, pp 64-71
28. Zhou\*, X. and List, G. (2010) An Information-Theoretic Sensor Location Model for Traffic Origin-Destination Demand Estimation Applications. *Transportation Science*. 44, 254-273.

29. **Khan, M.B.**, and Zhou\*, X (2010) Slack Time Allocation in Robust Double-Track Train Timetabling Applications, *IEEE Transactions on Intelligent Transportation Systems*, 11(1) 1. 81 – 89
30. Hu, H, Williams, B.M., Roupail, R.M., Khattak, A.J., Zhou, X. (2009) Modeling the Role of Transportation Information in Mitigating Major Capacity Reductions in a Regional Network. *Journal of Transportation Research Board*. 2138. 75-84
31. Lu, C-C., Mahmassani, H.S. and Zhou, X. (2009) Equivalent Gap Function-Based Reformulation and Solution Algorithm for the Dynamic User Equilibrium Problem. *Transportation Research Part B*. 43(3), 345-364.
32. Lu, C-C., Mahmassani, H.S. and Zhou, X. (2008) A Bi-criterion Dynamic User Equilibrium Traffic Assignment Model and Solution Algorithm for Evaluating Dynamic Road Pricing Strategies. *Transportation Research Part C*, 16(4), 371-389.
33. Zhou, X, Mahmassani, H.S. and Zhang, K. (2008) Dynamic Micro-assignment Modeling Approach for Integrated Multimodal Urban Corridor Management. *Transportation Research Part C*, 16, No. 2 , 167-186. **The most downloaded article, January - June 2008, in Transportation Research Part C.**
34. Zhou, X. and Mahmassani. H. S. (2007) A Structural State Space Model for Real-Time Origin-Destination Demand Estimation and Prediction in a Day-to-Day Updating Framework. *Transportation Research Part B*, 41(8), 823-840. **The most downloaded article, July - September 2007, in Transportation Research Part B.**
35. Zhou\*, X. and Zhong, M. (2007) Single-Track Train Timetabling with Guaranteed Optimality: Branch and Bound Algorithms with Enhanced Lower Bounds. *Transportation Research Part B*, 41(3), 320-341 **Top 10 most cited articles in the period of 2007-2012, in Transportation Research Part B.**
36. Chiu, Y.-C., Zhou, X., and Hernandez, J. (2007) Evaluating Central Business District Flow Configuration Using a Dynamic Traffic Modeling Approach. *Journal of Urban Planning and Development, ASCE*. 133(4), 222-232
37. Zhou, X. and Mahmassani. H. S. (2006) Dynamic OD Demand Estimation Using Automatic Vehicle Identification Data. *IEEE Transactions on Intelligent Transportation Systems*. 7(1), 105-114
38. Zhou, X., Erdogan, S. and Mahmassani, H.S. (2006) Dynamic OD Trip Demand Estimation for Subarea Analysis of ITS Deployment Alternatives. *Journal of Transportation Research Board*, No. 1964, 176-184.
39. Lu, C.-C., Zhou, X. and Mahmassani, H.S. (2006) Heterogeneous Users and Toll Pricing: Model and Solution Algorithm for the Bi-criterion Dynamic Traffic Assignment Problem. *Journal of Transportation Research Board*, No. 1964, 19-26.
40. Eisenman, S., Fei, X., Zhou, X. and Mahmassani, H.S. (2006) Number and Location of Sensors for Real-Time Network Traffic Estimation and Prediction: A Sensitivity Analysis. *Journal of Transportation Research Board*, No. 1964, 260-269.
41. Zhou\*, X. and Zhong, M. (2005) Bicriteria Train Scheduling for High-Speed Passenger Railroad Planning Applications, *European Journal of Operational Research* Vol, 167(3) 752-771.

42. Zhou, X. and Mahmassani, H.S. (2005) Recursive Approaches for Online Consistency Checking and OD Demand Updating for Real-time Dynamic Traffic Assignment Operation. *Journal of Transportation Research Board* No. 1923, 218-226.
43. Mahmassani, H.S. Zhou, X, and Lu, C.-C. (2005) Toll Pricing and Heterogeneous Users: Approximation Algorithms for Finding Bi-Criterion Time-Dependent Efficient Paths in Large-Scale Traffic Networks. *Journal of Transportation Research Board* No. 1923, 28-36.
44. Zhou, X., Qin, X. and Mahmassani, H. S. (2003) Dynamic Origin-Destination Demand Estimation Using Multi-Day Link Traffic Counts for Planning Applications, *Journal of Transportation Research Board* No. 1831, 30-38.
45. Zhou, X. and Mahmassani, H. S. (2002) Dynamic Programming Approach for On-line Freeway Flow Propagation Adjustment, *Journal of Transportation Research Board* No. 1802, 263-270.

#### Book Chapter

1. Mahmassani, H. S. and Zhou, X. (2005) Transportation System Intelligence: Performance Measurement and Real-Time Traffic Estimation and Prediction in a Day-to-Day Learning Framework. Festschrift in honor of Professor Pravin Varaiya, Abed, Eyad (ed.). Springer-Birkhauser. 305-328.

#### Submitted Papers

- Li, M., Zhou\*, X. Roupail, R.M. Planning-level Methodology for Evaluating Traveler Information Provision Strategies under Stochastic Capacity Conditions. Submitted to Transportation Research Part A.
- Zhou, X. Mahmassani. Efficient reoptimization algorithms for finding all-pairs time-dependent K-shortest paths in transportation networks. Submitted to IEEE Transactions on ITS.
- Li, M., Zhou\*, X. Roupail, R.M. Quantifying Travel Time Variability at a Single Bottleneck based on Stochastic Capacity and Demand Distributions. Journal of Intelligent Transportation Systems:

#### Invited Talks National or International Meetings

- Designing Demand-responsive Train Services on An N-Track Rail Network with Integrated Rolling Stock Planning, The Second International Symposium on Railway Operations Research, Beijing, China, Oct 11-Oct 12, 2014
- Review on Train Timetabling, models, algorithms and applications, the 1st International Workshop on Railway Operations Research, Beijing, China, Dec 14-Dec 15, 2013
- Computationally Efficient Dynamic Traffic Assignment Model for Estimating Path Flow Pattern and Finding System-Optimal Eco-routing Solution, University of Wisconsin-Madison. Wisconsin Institute for Discovery- Optimization Theme. Sep 16, 2013

#### Referred Conference Publication

1. M. Khan, X. Zhou. Slack Time Allocation in Robust Double-Track Train Timetabling Applications", Transportation Research Board, 87th Annual Meeting, Transportation Research Board (TRB), January 2008.

2. W. Reynolds, X. Zhou, N.M. Rouphail, M. Li. Estimating Sustained Service Rates at Signalized Intersections with Short Left Turn Pockets: A Mesoscopic Approach. Transportation Research Board, Annual Conference 2010.
3. Chen, X., Zhou X, Li, M. (2010) A Multiple User Class Static Traffic Assignment Model under Stochastic Capacity, Third International Conference on Innovations in Travel Modeling (ITM 2010), Tempe, Arizona.
4. Jia, A., Zhou, X., Li, M., Rouphail, N.M., Williams, B.M. (2011) Incorporating Stochastic Road Capacity into a Day-to-Day Traffic Simulation and Traveler Learning Framework: Model Development and Case Study. Accepted for Presentation and Publication in the Transportation Research Record: Journal of the Transportation Research Board and 90th Annual Meeting.
5. Li, M., Zhou X., Chen, X. (2010) Vehicle Trajectory-Based Bottlenecks Identification and System-wide Impact Analysis, Third International Conference on Innovations in Travel Modeling (ITM 2010), Tempe, Arizona.
6. Li, M., Zhou, X., Rouphail, N.M. (2011) Quantifying Benefits of Traffic Information Provision under Stochastic Demand and Capacity Conditions: A Multi-day Traffic Equilibrium Approach. IEEE Intelligent Transportation Systems Conference (ITSC), Washington D.C., 2011.
7. Li, M., Zhou, X., Rouphail, N.M. (2011) Planning-Level Methodology for Evaluating Traveler Information Provision Strategies under Stochastic Capacity Conditions. Accepted for Presentation at the Transportation Research Board's 90th Annual Meeting, Washington D.C.
8. J. Przybyla, J. Taylor, J. Jupe, and X. Zhou. (2012) Simplified, Data-Driven, Errorable Car-Following Model to Predict the Safety Effects of Distracted Driving," IEEE on ITS Annual Conference, 2012 (**Best Paper Award**).
9. M. Mahmoudi, X. Zhou. (2014) Active Demand Management Network Design for Optimizing VMS Location and Diversion routing Plans. INFORMS 2014.
10. J. Liu, X. Zhou, S. Peeta (2014) System-optimal Traffic Routing Plans for Agents with Goals: Travel Time, Energy Cost and Emission Impacts.. INFORMS 2014
11. M. Mahmoudi, X. Zhou. (2014) Minimum Number of Cars a City Needs in a Fully Coordinated Vehicle Sharing System. INFORMS 2014
12. J. Taylor, X. Zhou. (2014) Parallel Implementation of Agent-based and Kinematic Wave Model-based Dynamic Traffic Simulation. INFORMS 2014
13. L Tong, X. Zhou, H. Miller (2014) Transportation Network Design Model for Maximizing Activity-Travel Accessibility.. INFORMS 2014
14. H. Niu, X. Zhou. (2014) Quadratic Programming Model for Optimizing Demand-responsive Transit Timetables. INFORMS 2014.
15. X. Zhou, L. Meng. (2014) A Column Generation Approach for Designing Dynamic Train Service Network INFORMS 2014
16. X. Zhou, T. Shi. (2014) Mixed Integer Programming Model for Optimizing Multi-level Operations Process in Rail Yards. INFORMS 2014
17. K. Zhang, X. Zhou. (2014) Enhancing Observability of Dynamic Traffic Systems: A Stochastic Linear Programming Approach. INFORMS 2014

#### Recent Refereed Reports

- SHRP II C05: Understanding the Contribution of Operations, Technology, and Design to Meeting Highway Capacity Needs. Report S2-C05-RW-1. Accessed at <http://www.trb.org/Main/Blurbs/166939.aspx>
- Nevers, B., Zhou, X., Taylor, J., Quayle, S. FHWA Research Report: FHWA-HRT-13-036, The Effective Integration of Analysis, Modeling, and Simulation Tools, Accessed at

<http://www.fhwa.dot.gov/publications/research/operations/13036/004.cfm>

## Software

- Principle Developer of DTALite, light-weight open-source traffic simulation engine  
<https://code.google.com/p/nexta/>
- Principle Developer of NEXTA, free visualization platform for DYNASMART and TRANSIMS (used by more than 200 traffic planners and researchers)  
<https://code.google.com/p/nexta/>

## Patents

- US 8,204,649 Integrated Systems and Method for Preventing Mobile Computing Device Use While Driving, Assigned to University of Utah Research Foundation, 06/21/2012, Co-inventor: Wallace M. Curry, Jr
- 61/110,340 Integrated Vehicle Key and Mobile Phone System for Preventing Mobile Phone Use While Driving, with Wallace M. Curry, Jr
- 61/168,530 System and Method for Preventing Cell Phone Use While Driving, with Wallace M. Curry, Jr
- 61/258,850 Method for Gathering, Processing, and Analyzing Data to Determine the Risk Associated with Driving Behavior, with Jeffrey Taylor, Fahnert, Michael, W. Bowden, Eric, J.

## Professional Service

**Associate Editor**, (December 2014-) Transportation Research Part C

**Co-Chair**, (2011-) IEEE Intelligent Transportation Systems Society, Technical Committee on Traffic and Travel Management

**Subcommittee Chair**, (2013-) Network Equilibrium, TRB Committee on Transportation Network Modeling (ADB30)

**Co-Vice Chair (2015-2016), Public Relations Officer (2013-2014)**, Institute for Operations Research and the Management Sciences, Railway Applications Section (RAS)

### Committee Member:

TRB Committee on Transportation Network Modeling (ADB30), April 2009- April 2015

TRB Committee on Travel Forecasting Resource (ADB40), April 2009- April 2015

Transportation Advisory Board, Salt Lake City, Utah, September 2009- August 2014

2012,2013,2014 INFORMS Railway Application Section Problem Solving Competition Organizing Committee,

2013 INFORMS Railway Application Section Student Paper Competition Organizing Committee

Associate Editor, 2011 14th International IEEE Conference on Intelligent Transportation Systems (ITSC)

Co-organizer, IEEE Workshop on Advanced Technologies and Innovative Concepts for Promoting Traffic Safety and Mobility (TC3), ITSC 2012

University internal review committee for Department of Operations and Information Systems and the David Eccles School of Business (DESB), University of Utah, 2013, Engineering College Math Education Committee, University of Utah, 2012-2013

**Reviewer:**

1. Transportation Science
2. Transportation Research Part B,
3. Transportation Research Part C
4. European Journal of Operational Research
5. IEEE Transactions on Intelligent Transportation Systems
6. Computer-aided Civil and Infrastructure Engineering
7. IEEE Computer Graphics and Applications
8. International Journal of Integrated Supply Management
9. Discrete Event Dynamic Systems: Theory and Applications
10. Simulation Modelling Practice and Theory
11. Networks and Spatial Economics
12. Journal of Intelligent Transportation Systems: Technology, Planning, and Operations
13. Transportation Research Board

**Teaching Experience**

CEE 372, Transportation Engineering, ASU, Fall 2013,2014  
 CEE 598, Traffic Flow Theory, ASU, Spring 2014  
 NUCL 6240 Nuclear Material Illicit Trafficking, Spring 2012  
 CVEEN 5560 Transportation II, Spring, 2007, 2008, 2009, 2010, 2011, 2012  
 CVEEN 2130 Statistics and Engineering Economics, Fall 2009, 2010, 2011, 2012  
 CVEEN 7590: Public Transportation Systems, Fall 2007, 2010, 2012  
 CVEEN 7920: Traffic Flow Theory, Fall 2008, 2011  
 CVEEN 7445 Transportation Modeling, Fall 2009  
 ENCE 677 Quantitative Methods in Transportation Engineering, Fall 2004

**Student Advising**

**Graduated Ph.D. students**

	<b>Graduation Date</b>	<b>Dissertation Topic</b>
Jay Przybyla	Summer 2013	Enhancing transportation safety and security
Hao Lei	Summer 2013	Estimate travel time reliability and emissions for active traffic and demand management
Tao Xing	Spring 2012	Information-theoretic sensor network design and reliable route guidance
Mingxin Li	Fall 2010	Modeling Network-wide Impacts of Traffic Bottleneck Mitigation



### **Awards of Advised Students**

Jeffrey Taylor, the Council of University Transportation Centers **Pikarsky Award**-Science & Technology-MS, 2014.

Tie Shi, **First Prize** in Management Science in Railroad Applications Paper Contest, Institute for Operations Research and Management Science (INFORMS), 2014

Jeffrey Taylor, Jay Przybyla. **Finalist** for the Fifth Annual National Security Competition. Hosted by National Homeland Defense Foundation, 2011

Lingyun Meng, **Second Prize** in Management Science in Railroad Applications Paper Contest, Institute for Operations Research and Management Science (INFORMS), 2010

Muhammad Babar Khan, **Honorable Mention** in Management Science in Railroad Applications Paper Contest, Institute for Operations Research and Management Science (INFORMS), 2008

Tao Xing, Kenneth Williams, Rohan Madtha, Daniel Van Tassell, **Windows Mobile Award**, Microsoft's Imagine Cup Student Technology Competition, 2009, out of 125 participating student teams in the US.