Professional Portfolio

John N. Ivan, Ph.D., P.E.

Professor
Civil & Environmental Engineering
University of Connecticut

261 Glenbrook Road, Unit 2037
Storrs, CT 06269-2037

Voice: +1 (860) 486-0352
Fax: +1 (860) 486-2298

Email: john.ivan@uconn.edu
Webpage: www.engr.uconn.edu/~johnivan
Skype: john.n.ivan

Dr. Ivan is a Professor in the Department of Civil and Environmental Engineering at the University of Connecticut. He was Associate Head of the Department from 2006 to 2008 and from 2009 to 2015. He spent the spring semester 2016 as a Research Civil Engineer at the Turner Fairbank Highway Research Center of Federal Highway Administration in the Office of Safety Research and Development. He spent the spring semester 2009 as a visiting researcher at Lund University, Sweden, and the academic year 2002-2003 as a Fulbright Senior Scholar at the Institute for Transport Studies at the University of Karlsruhe in Germany, and as a Research Engineer at the Texas Transportation Institute at Texas A&M University. He has earned B.S, M.S. and Ph.D. degrees in Civil Engineering at Carnegie Mellon University, Massachusetts Institute of Technology and Northwestern University, respectively. He teaches courses in traffic engineering, transportation planning and decision analysis and conducts research in the application of statistical forecasting techniques for measuring the sustainability of transportation systems and engineering, especially highway safety and operations. He has been an investigator on 41 funded research projects at a total of over $5 million in funding, and published as author or co-author 46 peer-refereed journal articles and 45 peer-reviewed conference papers. He coordinated preparation for the academic accreditation of the Civil Engineering Program at the University of Connecticut for three visits over fifteen years and is an associate editor of *Accident Analysis and Prevention*. In 2011 he was elected to the Connecticut Academy of Science and Engineering and serves as technical chair for transportation. He has been a Program Evaluator for ABET, Inc., since 2012.

Last updated: February 27, 2017

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Biographical Sketch

Education

Ph.D. Jun. 1994 - Northwestern University
Field of Study: Civil Engineering (Transportation); **Advisor:** Joseph L. Schofer
Dissertation: *Real-Time Data Fusion for Arterial Street Incident Detection Using Neural Networks*

M.S. Feb. 1987 - Massachusetts Institute of Technology
Field of Study: Civil Engineering (Construction Engineering and Management) **Advisor:** Robert D. Logcher
Thesis: *CAPES: A Cafeteria Architectural Planning Expert System*

B.S. May 1985 - Carnegie Mellon University
Field of Study: Civil Engineering / Engineering and Public Policy (dual major)

Academic and Professional Experience

University of Connecticut	Professor, Civil & Environmental Engineering, 2007-present Associate Professor, Civil & Environmental Engineering, 2000-2007 Assistant Professor, Civil & Environmental Engineering, 1994-2000 Lecturer, Civil and Environmental Engineering, 1994
Federal Highway Administration (USDOT)	Research Civil Engineer, Turner Fairbank Highway Research Center, Office of Safety Research and Development, 2016
Lund University, Sweden	Visiting Researcher, Department of Technology and Society, 2009
University of Karlsruhe, Germany	Visiting Lecturer, Institute for Transport Studies, 2002-2003, 2004
Texas Transportation Institute	Research Engineer, 2003
Northwestern University	Research Assistant, Transportation Center, 1991-1993
Garmen Associates (now AECOM)	Transportation Engineer, 1987-1990 (Montville, New Jersey)

Academic Administration

University of Connecticut	Associate Head of Department, Civil & Environmental Engineering, 2006-2008, 2009-2015 Associate Director, Connecticut Transportation Institute, 1996-2005

Honors or Distinctions

- Advisor to Kai Wang, winner of Best Paper by Young Researcher Award, Transportation Research Board, Committee on Safety Data, Analysis and Evaluation, 2015 Annual Meeting
- Best Paper Award, Transportation Research Board, Committee on Safety Data, Analysis and Evaluation, 2011 Annual Meeting (with A. Borsos, C. Koren and N. Ravishanker)
- Connecticut Academy of Science and Engineering, elected 2011
- Top 10 Cited Papers, 2005-2009, *Accident Analysis and Prevention*
- Best Paper Award, Transportation Research Board, Committee on Operational Effects of Geometrics, 2007 Annual Meeting (with S. Ranade and A. Sadek)
- J. William Fulbright Senior Scholar – Germany, 2002-2003

Other Qualifications

- Registered Professional Engineer (State of New York, No. 067877)

Research Focus

- Highway crash prediction
- Pedestrian safety
- Representing exposure to highway crashes
- Statistical modeling of transportation systems

Courses Taught

- Traffic Engineering Characteristics
- Traffic Engineering Operations
- Transportation Planning
- Travel Demand Forecasting
- Transportation Safety
- Case Studies in Transportation Engineering
- Transportation Engineering and Planning
- Decision Analysis in Civil & Environmental Engineering
- Operations Research in Civil & Environmental Engineering
- Statistical and Econometric Methods in Transportation
- Civil Engineering Projects I and II

Summary of Notable Career Accomplishments

Research and Scholarship

Research Grants

- 41 Total Research Grants, $5,065,069
- Sole PI for 6 grants, $266,514
- Co-PI for 35 grants, share = $2,243,530

Publications (details in CV)

- Refereed Journal Articles: 46
- Conference Proceedings Papers (peer reviewed): 17
- Conference Papers (peer reviewed): 45
- Conference Presentations without Papers: 21
- Invited Academic Seminars: 6
- Technical Reports: 40

Teaching and Curriculum

Graduate Students Supervised (with thesis)

- Current: 0 Ph.D., 1 M.S.
- Completed: 8 Ph.D., 19 M.S.

Curriculum Accomplishments

- Coordinated preparation for ABET accreditation of the Civil Engineering program, 2000-2015
- Developed new courses in Statistical and Econometric Methods in Transportation, Transportation Safety, Travel Demand Forecasting, Case Studies in Transportation Engineering (with N. Garrick), and Decision Analysis in Civil & Environmental Engineering
- Developed new yearlong senior design sequence
- Chair, Civil Engineering Curriculum Review and Revision Committee, 1997-1998, 2006-2008

Professional Activities and Service

Invited Review Panels

- Independent Review Group for Chapter 8 of AASHTO Highway Safety Manual, final report Jul. 2006, Transportation Research Board, National Academy of Sciences
- Safety Data Project, steering committee, 2001–2002, Bureau of Transportation Statistics, United States Department of Transportation

Professional Organizations

Transportation Research Board

- Committee on Highway Safety Performance, member since 2007, Chair, Subcommittee on Predictive Methods.
- Committee on Safety Data Analysis and Evaluation, member since 2008, Co-chair, Subcommittee on Future Directions in Road Safety Analysis.

ABET, Inc.

- Program Evaluator, Engineering Accreditation Commission, 2012-present.

Connecticut Academy of Science and Engineering

- Chair, Transportation Systems Technical Board, May 2014 to June 2018.

Administrative Appointments

- Associate Head of Department, Civil & Environmental Engineering, 2006-2008, 2009-2015
- Accreditation Coordinator, Civil Engineering Program, 2000-2015
- Associate Director, Connecticut Transportation Institute, 1996-2005

Associate Editorships

- Associate Editor, *Accident Analysis & Prevention*, 2013-present
- Associate Editor, *Journal of Transportation Safety and Security*, 2009-2013

Research and Scholarship

Personal Statement

Since beginning my academic career at the University of Connecticut, I have developed a research program focused on the statistical and mathematical modeling of transportation systems, with an emphasis on road crash prediction. My research has been funded by a diversity of national and regional sources, including the National Academy of Sciences (National Cooperative Highway Research Program), the United States Department of Transportation (through the New England University Transportation Center, the Center for Livable Transportation Systems and the Bureau of Transportation Statistics), the New England Transportation Consortium (a joint program of the six New England States) and the Connecticut Department of Transportation (through the Connecticut Cooperative Transportation Research Program). In 2011, in recognition of my scholarly achievements, I was elected to the Connecticut Academy of Science and Engineering.

This focus for my research program is a natural outgrowth of my dissertation research, which focused on using neural networks to combine input from multiple data sources for detecting traffic incidents on signalized street networks. The findings from this research were well received in the traffic engineering research community; I was invited to give a plenary talk at a symposium organized by Oak Ridge National Laboratory in 1996 on surface street incident detection. Fewer than a dozen researchers anywhere have published findings in this area and every published paper on this topic I have run across has cited at least one source authored by my former colleagues at Northwestern University and/or me.

My research in motor vehicle crash prediction stands apart from that of other researchers in two ways: (1) my consideration of how to most appropriately account for the effect of traffic volume on crash incidence on rural two-lane road segments and (2) my estimation of crash prediction models by collision type rather than in total. The idea that the relationship between the crash count and the traffic volume on a road segment is not linear was established in the late 1990's by several researchers, including myself. My research has investigated how this relationship varies from one collision type to another as a function of the opportunities for crashes of each type to occur, that is, meetings of vehicles in the same, opposite, or intersecting directions, or for crashes of single vehicles. This research has been sponsored by the New England University Transportation Center and the Bureau of Transportation Statistics. Findings from this research were applied to my work on the team that developed a chapter of the *AASHTO Highway Safety Manual (HSM)*, addressing crash prediction models for multilane rural highway segments and intersections. In this research we further refined the separation of crashes by collision type to account not only for differences in the exposure phenomenon but also contributing factors to each cluster of collision types. This research was sponsored by the National Cooperative Highway Research Program (NCHRP). I am currently leading a team on another NCHRP project to estimate new models for the existing chapters in the HSM for crash type and severity. The research we are conducting on this project is expected to replace most of the material in Part B of the HSM.

This research into learning how to use traffic volumes to uniquely represent opportunities for various types of crashes to occur has led to a unique research focus. Certain types of collision types, *i.e.*, those involving vehicles crossing paths or turning from the roadway, can only occur at intersections or driveways. In order to effectively account for exposure to such collisions on road segments, it is necessary to know how many vehicles turn on and off or cross the road segment at minor road intersections or driveways – information that is not available in most state databases. With funding from the New England Transportation Consortium, I investigated the use of land use inventories archived in geographic information systems (GIS) databases to both characterize the land use surrounding a road and estimate the volume of traffic entering and exiting the road via driveways and minor intersections. This goes beyond evaluating whether or not land use is related to crash incidence; we determined that we could in fact use the land use inventories to actually estimate the exposure to intersection-related collisions along the road segment, and thus, better predict the occurrence of such collisions. With funding from the Connecticut Cooperative Transportation Research Program (CCTRP) I have extended that research to estimate crash prediction models using this same kind of data for local jurisdiction roads that have no traffic count information available to use as exposure.

Another unique focus of my research is learning about the role of the roadside environment and land use type and density in influencing vehicle speeds and safety. This research, conducted with Dr. Norman Garrick, investigated how drivers take cues from the roadside environment to decide how fast to drive. In this research we have confirmed long-held beliefs about what influences driver speed, but also uncovered some surprising findings that suggest new approaches to land development and street design. This research was sponsored by the Connecticut Cooperative Transportation Research Program. I have continued this research on projects funded by the Center for Transportation and Livable Systems (CTLS), a USDOT Tier II University Transportation Center (UTC) and the

New England University Transportation Center, the Region 1 UTC. These projects are investigating roadway and roadside characteristics associated with pedestrian / motor vehicle crashes and conflicts.

I am currently investigating the applicability of crash surrogates, such as vehicle interactions at different severity levels, for characterizing the safety of an intersection or road segment. Using vehicle conflicts and interactions to study safety was first investigated in the United States in the 60's and 70's, and this approach is used widely in northern Europe, but it is not commonly used in North America due to concerns about whether or not conflicts or interactions are actually correlated with crash incidence. I recently carried out a trial investigation of this for studying the safety of left turn lanes. The pedestrian safety projects funded by CTLS and NEUTC described above have investigated the use of interactions and conflicts between pedestrians and motor vehicles for predicting crashes. One goal of this research has been to learn how to better account for exposure to crashes and thus isolate the effect of traffic and pedestrian volumes from the risk introduced by roadway and roadside elements. We have also identified ways in which pedestrian safety is associated with driver and pedestrian behavior, and how both respond to elements of the road environment, in particular traffic signal phasing options (such as exclusive pedestrian phasing). I am expanding upon this research with an interdisciplinary team involving Dr. Nalini Ravishanker in Statistics at Connecticut and Dr. Rebecca Townsend in Communication at Manchester Community College. In this research we are investigating pedestrian attitudes and stated behavior choices regarding crossing streets at pedestrian signals to learn more about how to both educate pedestrians about safe crossing choices and to help traffic safety professionals to design pedestrian crossing facilities to improve safety.

My research has focused on identifying limitations in existing motor vehicle crash modeling and road design and operational practice, and investigating potential improvements aimed at overcoming those limitations. Some of the improvements I have investigated—such as using hourly traffic volume instead of annual average daily traffic for traffic exposure—while shown to be more effective, are not being implemented due to unavailability of the data required. On the other hand, I was one of very few safety prediction modelers estimating crash prediction models by collision type ten years ago, but today it has become expected practice as it is recognized that various collision types occur under much different road conditions and have different severity outcomes. My goal is for my current research to result in findings that will make their way into road engineering practice and influence the next generation of motor vehicle crash prediction models and traffic operation guides.

Research Grants

Current Funded Projects

1. Social Network Effects on Attitudes about Pedestrian Street Crossing Behavior (w. N. Ravishanker and R. Townsend), New England University Transportation Center (USDOT), Aug. 23, 2014 – Dec. 31, 2017, $264,025.
2. Improved Prediction Models for Crash Types and Crash Severities (w. N. Ravishanker, B. Persaud, R. Srinivasan, M. Abdel-Aty), National Cooperative Highway Research Program, National Academy of Sciences, Aug. 1, 2013 – Dec. 31, 2017, $800,000.

Past Funded Projects

1. Improvements to Road Safety Improvement Selection Procedures for Connecticut, Connecticut Cooperative Transportation Research Program (ConnDOT), Jan. 2014 – Jun. 2016, $50,000.
2. Effectiveness of Interventions at Midblock Crossings for Improving Senior and Other Pedestrian Safety (w. N. Ravishanker), New England University Transportation Center (USDOT), Aug. 23, 2013 – May 31, 2015, $112,400.
3. Development of the ConnDOT Safety Analysis Strategic Plan (w. E. Jackson), Connecticut Department of Transportation, May 2014 – Jan. 2015, $207,064.
4. Statistical Modeling of Highway Crash Severity: a Multi-stage Hierarchical Bayesian Multiple-Response Framework (w. N. Ravishanker), University of Connecticut Research Foundation, Jul. 1, 2013 – Jun. 30, 2014, $27,182.
5. Investigation of Road and Roadside Design Elements Associated with Elderly Pedestrian Safety (w. N. Ravishanker), New England University Transportation Center (USDOT), Aug. 23, 2012 – May 31, 2014, $63,038.
6. State Motor Vehicle Crash Data Repository, Phase 3 (w. E. Jackson, S. Demurjian, D. Shin), State of Connecticut, Office of Highway Safety, Oct. 2012 – Sep. 2013, $199,387.
7. Risk, Resilience and Response Models with Applications to High-Speed Rail Transportation Corridors (w. N. Lownes, R. Ammar and S. Rajasekaran), Center for Resilient Transportation Infrastructure (Department of Homeland Security Center of Excellence), Sep. 2010 – Dec. 2012, $92,164.

8. State Motor Vehicle Crash Data Repository, Phase 2 (w. E. Jackson, S. Demurjian, D. Shin), State of Connecticut, Office of Highway Safety, Oct. 2011 – Sep. 2012, $168,251.
9. Evaluation of Surrogate Measures for Pedestrian Safety in Various Road and Roadside Environments (w. N. Ravishanker), Center for Transportation and Livable Systems, University of Connecticut University Transportation Center (USDOT), Aug. 23, 2011 – Aug. 22, 2012, $99,450.
10. Temporal Modeling of Highway Crash Severity by Involved Person Age (w. N. Ravishanker), New England University Transportation Center (USDOT), Sep. 2010 – Aug. 2012, $70,000.
11. State Motor Vehicle Crash Data Repository (w. E. Jackson, S. Demurjian, D. Shin), State of Connecticut, Office of Highway Safety, Oct. 2010 – Sep. 2011, $222,714.
12. Incorporating Wet Pavement Friction into Traffic Safety Analysis (w. N. Ravishanker), Connecticut Cooperative Transportation Research Program (ConnDOT), May 2007 – Nov. 2010, $88,500.
13. Designing Roads that Guide Drivers to Choose Safer Speeds (w. N. Garrick), Connecticut Cooperative Transportation Research Program (ConnDOT), May 2004 – Dec. 2009, $100,000.
14. Differences in Gap Acceptance of Elderly Drivers and the Impact on Traffic Simulation Modeling (w. A. Sadek and P. Gårder), New England University Transportation Center (USDOT), Sep. 2006 – Aug. 2009, $94,922.
15. Warrants for Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways (w. A. Sadek), New England Transportation Consortium, May 2006 – July 2008, $100,000.
16. Identification of Crash-Prone Traffic Flow States on Freeways Using Real-Time Surveillance Data (w. A. Sadek), New England University Transportation Center (USDOT), Sep. 2005 – Aug. 2008, $64,244.
17. Feasibility Study: Connecticut Transportation Planning Data (w. L. Aultman-Hall), Connecticut Cooperative Transportation Research Program (ConnDOT), May 2005 – May. 2008, $67,500.
18. Network-Based Highway Crash Prediction Using Geographic Information Systems (w. Per Gårder), New England Transportation Consortium, Sep. 2004 - Mar. 2007, $130,000.
19. Methodology to Predict the Safety Performance of Rural Multilane Highways (w. D. Lord, S. Miaou, B. Persaud, S. Washington), National Cooperative Highway Research Program (National Research Council), July 2004 - June 2007, $750,000.
20. Investigation of a New Approach for Representing Traffic Volumes in Highway Crash Analysis and Forecasting, New England University Transportation Center (USDOT), Sep. 2004 - Jan. 2006, $54,772.
21. The Effect of Segment Characteristics on the Severity of Head-on Crashes on Two-Lane Rural Highways (w. P. Gårder), New England University Transportation Center (USDOT), Sep. 2002 - August 2004, $76,250.
22. A Real-Time Risk-Based Highway Accident Prevention System (RiskHAPS): A Proactive Safety Approach (w. W. ElDessouki, E. Anagnostou, A. Sadek), New England University Transportation Center (USDOT), Sep. 2001 - Aug. 2003, $63,390.
23. Using Multiple Response Hierarchical Bayesian Modeling to Select Exposure Measures for More Accurate Highway Crash Prediction (w. N. Ravishanker, D. Tepas), Bureau of Transportation Statistics (USDOT), Aug. 2000 - Jan. 2002, $99,900.
24. Traffic Calming of State Highways (w. P. Gårder, U. Maine), New England University Transportation Center (USDOT), Sep. 2000 - Jan. 2002, $69,000.
25. Deriving Land-Use Limits as a Function of Infrastructure Capacity (w. A. Sadek, U. Vermont), New England University Transportation Center (USDOT), Sep. 2000 - Jan. 2002, $65,000.
26. Estimating Link Traffic Volumes by Month, Day of Week and Time of Day, Connecticut Cooperative Transportation Research Program (ConnDOT), Jun. 1999 - Aug. 2001, $75,000.
27. Optimizing Campus Shuttle Bus Routes to Better Serve the Student Community, Office of the Chancellor, University of Connecticut, Dec. 1999 - Jun. 2001, $40,000.
28. Incorporating Intelligent Transportation Systems Deployment in Strategic Planning, (w. A. Sadek, U. Vermont), U.S. Department of Transportation (New England University Transportation Center), Sep. 1999 - Feb. 2001, $50,000.
29. Finding Strategies to Improve Pedestrian Safety in Rural Areas (w. P. Gårder, U. Maine), U.S. Department of Transportation (New England University Transportation Center), Sep. 1999 - Aug. 2000, $60,000.
30. Estimating Benefits from Specific Highway Improvements - Phase 3 (w. N. Garrick), Connecticut Cooperative Transportation Research Program (ConnDOT), Jun. 1999 - May 2002, $120,000.
31. Estimating Benefits from Specific Highway Improvements - Phases 1 and 2 (w. C. Davis and N. Garrick), Connecticut Cooperative Transportation Research Program (ConnDOT), Jun. 1997 - May 1999, $72,764.
32. Rural Pedestrian Crash Rates: Alternative Measures of Exposure (w. P. Ossenbruggen, U. New Hampshire), U.S. Department of Transportation (New England University Transportation Center), Sep. 1998 - Aug. 1999, $67,500.

33. Estimating Benefits from Specific Highway Improvements, (w. P. Ossenbruggen, U. New Hampshire), U.S. Department of Transportation (New England University Transportation Center), Sep. 1997 - Aug. 1999, $65,000.
34. Estimating the Temporal Distribution of Traffic within the Peak Period, Connecticut Cooperative Transportation Research Program (ConnDOT), Jun. 1997 - May 1999, $47,059.
35. Risk-Based Management Methods for Evaluating Roadway Safety (w. P. Ossenbruggen, U. New Hampshire), U.S. Department of Transportation (New England University Transportation Center), Sep. 1996 - May 1998, $60,000.
36. Peak Period Trip Estimation Considering Level of Service and Socio-Economic Characteristics, Connecticut Cooperative Transportation Research Program (ConnDOT), Jun. 1996 - May 1997, $38,284.
37. Real-Time Corridor Traffic Control during Freeway Incidents, University of Connecticut Research Foundation, Sep. 1995 - Aug. 1996, $11,399.
38. A Unifying Collection of Models and Techniques for ISTEA Management Systems, (w. G. Campbell, C. Davis, and P. Ossenbruggen), U.S. Department of Transportation (New England University Transportation Center), Sep. 1995 - May. 1997, $94,500.
39. Decision and Risk Analysis Applications for Congestion Management, (w. C. Davis and G. Campbell), Connecticut Cooperative Transportation Research Program (ConnDOT), Jun. 1995 - Aug. 1996, $64,410.

Edited Monographs

1. J. Bonneson, J. Ivan, *Theory, Explanation, and Prediction in Road Safety: Promising Directions*, Transportation Research E-Circular E-C179, Transportation Research Board, Washington DC, Nov. 2013.

Refereed Journals

1. K. Wang, J. Ivan, A. Burnicki, S. Mamun, "Predicting Local Road Crashes Using Socio-economic and Land Cover Data", *Journal of Transportation Safety and Security*, in press, DOI: http://dx.doi.org/10.1080/19439962.2016.1206048.
2. H. Zhou, J. Ivan, P. Gårder, N. Ravishanker, "Gap acceptance for left turns from the major road at unsignalized intersections", *Transport*, in press, DOI: http://dx.doi.org/10.3846/16484142.2014.933445.
3. K. Wang, J. Ivan, N. Ravishanker, E. Jackson, "Multivariate Poisson Lognormal Modeling of Crashes by Type and Severity on Rural Two Lane Highways", *Accident Analysis & Prevention*, 99:6-19, Feb. 2017, DOI: http://dx.doi.org/10.1016/j.aap.2016.11.006.
4. J. Ivan, K. McKernan, Y. Zhang, N. Ravishanker, S. Mamum, "A Study of Pedestrian Compliance with Traffic Signals for Exclusive and Concurrent Phasing", *Accident Analysis & Prevention*, 98:157-166, Jan. 2017, DOI: http://dx.doi.org/10.1016/j.aap.2016.10.003.
5. V. Serhiyenko, S. Mamun, J. Ivan, N. Ravishanker, "Fast Bayesian Inference for Modeling Multivariate Crash Counts", *Analytic Methods in Accident Research*, 9:44–53; March 2016, DOI: http://dx.doi.org/10.1016/j.amar.2016.02.002.
6. Y. Zhang, S. Mamun, J. Ivan, N. Ravishanker, K. Haque, "Safety Effects of Exclusive and Concurrent Signal Phasing for Pedestrian Crossing", *Accident Analysis & Prevention*, 83:26-36; Oct. 2015.
7. K. Wang, S. Yasmin, K. Konduri, N. Eluru, Naveen, J. Ivan, "A Copula Based Joint Model of Injury Severity and Vehicle Damage in Two-Vehicle Crashes" *Transportation Research Record*, 2514:158-166; 2015 (**Best Paper by Young Researcher Award, Committee on Safety Data, Analysis and Evaluation**).
8. H. Zhou, N. Lownes, J. Ivan, P. Gårder, N. Ravishanker, "Left-Turn Gap Acceptance Behavior of Elderly Drivers at Unsignalized Intersections", *Journal of Transportation Safety and Security*, 7(4):324-344; Oct. 2015.
9. M. Islam, J. Ivan, N. Lownes, R. Ammar, S. Rajasekaran, "Safety Performance Function for Freeways Considering Interactions between Speed Limit and Geometric Variables", *Transportation Research Record*, 2014:72-81; 2014.
10. M. Islam, V. Serhiyenko, J. Ivan, N. Ravishanker, P. Garder, "Explaining Pedestrian Safety Experience at Urban and Suburban Street Crossings Considering Observed Conflicts and Pedestrian Counts", *Journal of Transportation Safety & Security*, 6(4):335-355; Oct. 2014.
11. V. Serhiyenko, J. Ivan, N. Ravishanker, M. Islam, "Dynamic Compositional Modeling of Pedestrian Crash Counts on Urban Roads in Connecticut", *Accident Analysis & Prevention*, 64:78-85; Mar. 2014.
12. J. Mooradian, J. Ivan, N. Ravishanker, S. Hu, "Analysis of Driver and Passenger Crash Injury Severity Using Partial Proportional Odds Models", *Accident Analysis & Prevention*, 58:53-58; Sep. 2013.
13. S. Hu, J. Ivan, N. Ravishanker, J. Mooradian, "Temporal Modeling of Highway Crash Counts for Senior and Non-Senior Drivers", *Accident Analysis & Prevention*, 50:1003-1013; Jan. 2013.

14. J. Ivan, T. Jonsson and A. Borsos, "Motor Vehicle Speeds: Recommendations for Urban Sustainability", *Transportation Research Record*, 2301:1-8; 2012.
15. A. Borsos, C. Koren, J. Ivan and N. Ravishanker, "Long-term Safety Trends as a Function of Vehicle Ownership in 26 Countries", *Transportation Research Record*, 2280:154-161; 2012 (**Best Paper Award, Committee on Safety Data, Analysis and Evaluation**).
16. J. Ivan, N. Ravishanker, E. Jackson, B. Aronov and S. Guo, "A Statistical Analysis of the Effect of Wet Pavement Friction on Highway Traffic Safety", *Journal of Transportation Safety and Security*, 4(2):116-136, Jun. 2012.
17. H. Zhou, J. Ivan, A. Sadek, N. Ravishanker, "Safety Effects of Exclusive Left-Turn Lanes at Unsignalized Intersections and Driveways", *Journal of Transportation Safety and Security*, 2(3):221-238; 2010.
18. S. Bindra, J. Ivan and T. Jonsson, "Predicting Segment-Intersection Crashes with Land Development Data", *Transportation Research Record*, 2102:9-17; 2009.
19. T. Jonsson, C. Lyon, J. Ivan, S. Washington, I. van Schalkwyk, D. Lord, "Differences in the Performance of Safety Performance Functions Estimated for Total Crash Count and for Crash Count by Crash Type", *Transportation Research Record*, 2102:115-123; 2009.
20. C. Zhang, J. Ivan and N. Ravishanker, "Vehicle Time Spent in Following: New Exposure Measure for Predicting Same-Direction Collisions on Two-Lane Rural Roads," *Transportation Research Record*, 2083:162-169; 2008.
21. S. Ranade, A. Sadek and J. Ivan, "A Decision Support System for Predicting the likely Benefits of Left-turn Lane Installations," *Transportation Research Record*, 2023:28-36; 2007 (**Best Paper Award, Committee on Operational Effects of Geometrics**).
22. T. Jonsson, J. Ivan and C. Zhang, "Crash Prediction Models for Intersections on Rural Multilane Highways: Differences by Collision Type," *Transportation Research Record*, 2019:91-98; 2007.
23. D. Lord, S. Washington, J. Ivan, "Further Notes on the Application of Zero-Inflated Models in Highway Safety," *Accident Analysis & Prevention*, 39(1):53-57; Jan. 2007.
24. X. Qin, J. Ivan, N. Ravishanker, J. Liu, D. Tepas, "Bayesian Estimation of Hourly Exposure Functions by Crash Type and Time of Day," *Accident Analysis & Prevention*, 38(6)1071-1080; Nov. 2006.
25. Z. Deng, J. Ivan and P. Gårder, "Analysis of Factors Affecting the Severity of Head-on Crashes on Two-lane Rural Highways in Connecticut," *Transportation Research Record*, 1953:137-146; 2006.
26. E. Smith and J. Ivan, "Evaluation of Safety Benefits and Potential Crash Migration Due to Shoulder Rumble Strip Installation on Connecticut Freeways," *Transportation Research Record*, 1908:104-113; 2005.
27. C. Zhang and J. Ivan, "Effects of Geometric Characteristics on Head-on Crash Incidence on Two-lane Roads in Connecticut," *Transportation Research Record*, 1908:159-164; 2005.
28. X. Qin, J. Ivan, N. Ravishanker, and J. Liu, "Hierarchical Bayesian Estimation of Safety Performance Functions for Two-Lane Highways Using MCMC Modeling," *ASCE Journal of Transportation Engineering*, 131(5):345-351; May 2005.
29. D. Lord, S. Washington, and J. Ivan, "Poisson, Poisson-gamma and Zero-inflated Regression Models of Motor Vehicle Crashes: Balancing Statistical Fit and Theory," *Accident Analysis & Prevention*, 37(1):35-46; Jan. 2005 (**Top 10 cited papers in journal, 2005-2009)**.
30. J. Ivan, "New Approach for Including Traffic Volumes in Crash Rate Analysis and Forecasting," *Transportation Research Record*, 1897:134-141; 2004.
31. X. Qin, J. Ivan, and N. Ravishanker, "Selecting Exposure Measures in Crash Rate Prediction for Two-lane Highway Segments," *Accident Analysis & Prevention*, 36(2):183-191; Mar. 2004.
32. A. Sadek, S. Morse, J. Ivan and W. ElDessouki, Case-based Reasoning for Assessing Intelligent Transportation Systems Benefits," *Computer-Aided Civil and Infrastructure Engineering*, 18(3):173-183; May 2003.
33. S. Zajac and J. Ivan, "Factors Influencing Injury Severity of Motor Vehicle - Crossing Pedestrian Crashes in Rural Connecticut," *Accident Analysis & Prevention*, 35(3):369-379; May 2003.
34. X. Qin and J. Ivan, "Estimating Pedestrian Exposure Prediction Model in Rural Areas," *Transportation Research Record*, 1773:89-96; 2001.
35. F. Yuan, J. Ivan, X. Qin, N. Garrick and C. Davis, "Safety Benefits of Intersection Approach Realignment on Rural Two-Lane Highways," *Transportation Research Record*, 1758:21-29; 2001.
36. P. Ossenbruggen, J. Pendarkar and J. Ivan, "Roadway Safety in Rural and Small Urbanized Areas," *Accident Analysis & Prevention*, 33:485-498; 2001.
37. J. Ivan and S. Allaire, "Regional and Area-Type Models for Estimating Peak Spreading on Connecticut Freeways," *ASCE Journal of Transportation Engineering*, 127(3):223-229; May/Jun. 2001.

38. J. Ivan, C. Wang and N. Bernardo, "Explaining Two-lane Highway Crash Rates Using Land Use and Hourly Exposure," *Accident Analysis & Prevention,* 32(6):787-795; Nov. 2000.
39. J. Ivan, R. Pasupathy and P. Ossenbruggen, "Differences in Causality Factors for Single and Multi-Vehicle Crashes on Two-Lane Highways," *Accident Analysis & Prevention,* 31:695-704; 1999.
40. J. Zhao, J. Ivan and J. DeWolf, "Structural Monitoring Using Artificial Neural Networks," *ASCE Journal of Infrastructure Systems,* 4(3):93-101; Sep. 1998.
41. J. Ivan and V. Sethi, "Data Fusion of Fixed Detector and Probe Vehicle Data for Incident Detection," *Computer-Aided Civil and Infrastructure Engineering,* 13:329-337; 1998.
42. J. Ivan, "Neural Network Representations for Arterial Street Incident Detection," *Transportation Research Part C,* 5(3/4):245-254; 1997.
43. J. Ivan and S. Chen, "Incident Detection Using Vehicle and Fixed Location Surveillance," *ASCE Journal of Transportation Engineering,* 123(3):209-215; May/Jun. 1997.
44. S. Braun and J. Ivan, "Estimating Intersection Approach Delay Using 1985 and 1994 Highway Capacity Manual Procedures," *Transportation Research Record,* 1555:23-32; 1996.
45. N. Bhandari, F. Koppelman, J. Schofer, V. Sethi and J. Ivan, "Arterial Incident Detection Integrating Data from Multiple Sources," *Transportation Research Record,* 1510:60-69; 1995.
46. J. Ivan, J. Schofer, F. Koppelman and L. Massone, "Real-Time Data Fusion for Arterial Street Incident Detection Using Neural Networks," *Transportation Research Record,* 1497:27-35; 1995.

Conferences

Conference Proceedings (peer-reviewed)

1. J. Ivan, N. Ravishanker, R. Townsend, S. Mamun, F. Caraballo, Y. Zhang, "Social network effects on attitudes about pedestrian street crossing behaviour: preliminary findings", in Proc. of Road Safety on 5 Continents, Rio de Janeiro, Brazil, May 2016.
2. A. Borsos, J. Ivan, G. Orosz, "Development of safety performance functions for two-lane rural first class main roads in Hungary", in Transport Research Arena (TRA) 5th Conference: Transport Solutions from Research to Deployment, Paris France, Apr. 2014.
3. L. Fiondella, S. Tolba, R. Ammar, N. Lownes, S. Rajasekaran, J. Ivan, "VDPA: A WSN Deployment and Analysis Tool for Road Network Security", In Proc. of 2012 IEEE International Conference on Technologies for Homeland Security (HST 2012), Waltham, MA, pp. 495-500, Nov. 2012.
4. L. Fiondella, A. Rahman, N. Lownes, J. Ivan, S. Rajasekaran, R. Ammar, "A Game Theory Approach to Identify Alternative Regulatory Frameworks for Hazardous Materials Routing", In Proc. of 2012 IEEE International Conference on Technologies for Homeland Security (HST 2012), Waltham, MA, pp. 489-494, Nov. 2012.
5. L. Fiondella, J. Liu, X. Han, R. Ammar, S. Rajasekaran, N. Lownes, J. Ivan, "Smart Phone Assisted City-scale Wireless Sensor Network Deployment for Transportation System Monitoring", In Proc. of 2012 IEEE International Conference on Technologies for Homeland Security (HST 2012), Waltham, MA, pp. 411-416, Nov. 2012.
6. J. Ivan, J. Ocana, N. Ravishanker, V. Serhiyenko, M. Islam, "Street Design and Land Development Factors Associated with Pedestrian-Vehicle Conflicts" In Proc. Of the 4th Urban Street Symposium, Transportation Research Board, Chicago IL, June 2012.
7. Q. Wang, L. Fiondella, N. Lownes, J. Ivan, R. Ammar, S. Rajasekaran, and S. Tolba, "Integrating Equilibrium Assignment in Game-theoretic Approach to Measure Many-to-Many Transportation Network Vulnerability" In Proc. of 11th IEEE International Conference on Technologies for Homeland Security (HST 2011), Waltham, MA, pp. 351-357, Nov. 2011.
8. S. Tolba, L. Fiondella, R. Ammar, N. Lownes, S. Rajasekaran, J. Ivan, and Q. Wang. "Modeling Attacker-Technology System Interaction in Transportation Networks: P2I3-Model" In Proc. of 11th IEEE International Conference on Technologies for Homeland Security (HST 2011), Waltham, MA, pp. 306-312, Nov. 2011.
9. J. Du, J. Ivan, P. Gårder and L. Aultman-Hall, "Public Perceptions of Traffic Calming Devices," 2003 Institute of Transportation Engineers Annual Meeting and Exhibit, Aug. 2003.
10. M. Zhao, J. Ivan and N. Ravishanker, "Freeway Link Traffic Volumes by Time of Day Estimation Procedures," in *Traffic and Transportation Studies,* Proceedings of ICTTS 2000, published by ASCE, Aug. 2000, p. 519-526.
11. J. Ivan and M. Kusuma, "Interactions among Land Use, Area Type, Congestion Mitigation Strategies, and Air Quality," in *Transportation, Land Use and Air Quality: Making the Connection,* Proceedings of the Conference sponsored by ASCE, May 1998, p. 729-736.

12. S. Chen and J. Ivan, "Integrated Traffic Control for Incidents in Freeway-Arterial Corridors," in *Traffic Congestion and Traffic Safety in the 21st Century*, Proceedings of the Conference sponsored by ASCE, Jun. 1997, p. 291-297.
13. J. Ivan, "Factors Affecting the Performance of Surface Street Incident Detection Systems," in *Surface Street Incident Detection*, Proceedings of the Workshop sponsored by FHWA and Oak Ridge National Laboratory, Scottsdale AZ, Aug. 1996, p. 93-134.
14. J. Ivan and S. Chen, "A Proposed Methodology for Real-Time Corridor Traffic Control During Freeway Incidents," in *Intelligent Transportation: Realizing the Benefits*, Proceedings of the 1996 Annual Meeting of ITS America, Houston TX, Apr. 1996, Vol. 1, p. 378-385.
15. J. Ivan and V. Sethi, "Data Fusion of Fixed Detector and Probe Vehicle Data for Incident Detection," in *Neural Network Applications in Highway and Vehicle Engineering*, Conference Proceedings, The George Washington University, Ashburn VA, Apr. 1996, p. 117-130.
16. J. Ivan, C. Davis and S. Chen, "Vehicle-Based Versus Fixed Location Measurements for Traffic Surveillance in IVHS," in *Intelligent Vehicle Highway Systems*, R. J. Becherer, Editor, Proceedings SPIE 2344, 1995, p. 187-198.
17. J. Ivan, J. Schofer, C. Bhat, P. Liu, F. Koppelman and A. Rodriguez, "Arterial Street Incident Detection Using Multiple Data Sources: Plans for the ADVANCE Project," in *Pacific Rim TransTech Conference Proceedings - Volume 1: Advanced Technologies*, C. Hendrickson and K. Sinha, Editors, 1993, p. 429-435.

Conference Papers (full paper peer-reviewed)

1. Y. Zhang, N. Ravishanker, J. Ivan, S. Mamun, "A Semiparametric Statistical Approach to Evaluate Conflict Severity As a Surrogate For Crashes in the Context of Pedestrian Safety", Transportation Research Board Annual Meeting, Paper No. 17-02090, Washington, DC, Jan. 2017.
2. J. Ivan, K. McKernan, Y. Zhang, N. Ravishanker, S. Mamun, "A Study of Pedestrian Compliance with Traffic Signals for Exclusive and Concurrent Phasing", Transportation Research Board Annual Meeting, Paper No. 16-4072, Washington, DC, Jan. 2016.
3. K. Wang, J. Ivan, A. Burnicki, S. Mamun, "Predicting Local Road Crashes Using Socio-economic and Land Cover Data", Transportation Research Board Annual Meeting, Paper No. 16-1114, Washington, DC, Jan. 2016.
4. K. Wang, S. Yasmin, K. Konduri, N. Eluru, Naveen, J. Ivan, "A Copula Based Joint Model of Injury Severity and Vehicle Damage in Two-Vehicle Crashes", Transportation Research Board Annual Meeting, Paper No. 15-4253, Washington, DC, Jan. 2015 (**Best Paper by Young Researcher Award, Committee on Safety Data, Analysis and Evaluation**).
5. M. Islam, J. Ivan, N. Lownes, R. Ammar, S. Rajasekaran, "Safety Performance Function for Freeways Considering Interactions between Speed Limit and Geometric Variables", Transportation Research Board Annual Meeting, Paper No. 14-2933, Washington, DC, Jan. 2014.
6. A. Borsos, C. Koren, J. Ivan and N. Ravishanker, "Analysis of Aggregate Crash Data in the USA for 1967-2010", Transportation Research Board Annual Meeting, Paper No. 13-3947, Washington, DC, Jan. 2013.
7. J. Mooradian, J. Ivan, N. Ravishanker and S. Hu, "Temporal Modeling of Highway Crash Severity for Seniors and Other Involved Persons", Transportation Research Board Annual Meeting, Paper No. 12-3582, Washington, DC, Jan. 2012.
8. A. Borsos, C. Koren, J. Ivan and N. Ravishanker, "Long-term Safety Trends Related to Vehicle Ownership in 26 Countries", Transportation Research Board Annual Meeting, Paper No. 12-3475, Washington, DC, Jan. 2012 (**Best Paper Award, Committee on Safety Data, Analysis and Evaluation**).
9. J. Ivan, T. Jonsson and A. Borsos, "Motor Vehicle Speeds: Recommendations for Urban Sustainability", Transportation Research Board Annual Meeting, Paper No. 12-0026, Washington, DC, Jan. 2012.
10. H. Zhou, N. Lownes, J. Ivan, P. Gårder and N. Ravishanker, "Gap Acceptance of Elderly Drivers making Left Turns at Unsignalized Intersections", Transportation Research Board Annual Meeting, Paper No. 10-1668, Washington, DC, Jan. 2010.
11. H. Zhou, J. Ivan and A. Sadek, "Safety Effects of Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways", Transportation Research Board Annual Meeting, Paper No. 09-2000, Washington, DC, Jan. 2009.
12. T. Jonsson, C. Lyon, J. Ivan, S. Washington, D. Lord, I. van Schalkwyk, "Investigating Differences In The Performance Of Safety Performance Functions Estimated For Total Crash Count And For Crash Count By Crash Type", Transportation Research Board Annual Meeting, Paper No. 09-3123, Washington, DC, Jan. 2009.
13. S. Bindra, J. Ivan and T. Jonsson, "Predicting Segment-Intersection Crashes Using Land Development Data", Transportation Research Board Annual Meeting, Paper No. 09-1877, Washington, DC, Jan. 2009.

14. C. Zhang, J. Ivan and N. Ravishanker, "Using Vehicle-Time-Spent-Following as Exposure for Predicting Same-direction Collisions on Two-Lane Rural Roads," Transportation Research Board Annual Meeting, Paper No. 08-0938, Washington, DC, Jan. 2008.
15. G. Hanson, N. Garrick, J. Ivan and T. Jonsson, "Variation in Free Flow Speed due to Roadway Type and Roadside Environment," Transportation Research Board Annual Meeting, Paper No. 07-3136, Washington, DC, Jan. 2007.
16. T. Jonsson, J. Ivan and C. Zhang, "Crash Prediction Models For Intersections on Rural Multilane Highways: Differences by Collision Type," Transportation Research Board Annual Meeting, Paper No. 07-0368, Washington, DC, Jan. 2007.
17. S. Ranade, A. Sadek and J. Ivan, "A Decision Support System for Predicting the likely Benefits of Left-turn Lane Installations," Transportation Research Board Annual Meeting, Paper No. 07-0992, Washington, DC, Jan. 2007 (**Best Paper Award, Committee on Operational Effects of Geometrics**).
18. C. Zhang, J. Ivan and T. Jonsson, "Collision Type Categorization Based on Crash Causality and Severity Analysis," Transportation Research Board Annual meeting, Paper No. 07-2454, Washington, DC, Jan. 2007.
19. Z. Deng, J. Ivan and P. Gårder, "Analysis of Factors Affecting the Severity of Head-on Crashes on Two-lane Rural Highways in Connecticut," Transportation Research Board Annual Meeting, Paper No. 06-1722, Washington, DC, Jan. 2006.
20. T. Jonsson, Z. Deng, and J. Ivan, "A Procedure for Allocating Zonal Attributes to a Link Network in a GIS Environment," Transportation Research Board Annual Meeting, Paper No. 06-2561, Washington, DC, Jan. 2006.
21. C. Zhang, J. Ivan and T. Jonsson, "Predicting Two-lane Highway Crashes Using Crash Opportunities: A Newly Defined Measure of Exposure," Transportation Research Board Annual Meeting, Paper No. 06-2317, Washington, DC, Jan. 2006.
22. E. Smith and J. Ivan, "Evaluation of Safety Benefits and Potential Crash Migration Due to Shoulder Rumble Strip Installation on Freeways in Connecticut," Transportation Research Board Annual Meeting, Washington, DC, Jan. 2005.
23. C. Zhang and J. Ivan, "Effects of Geometric Characteristics on Head-on Crash Incidence on Two-lane Roads in Connecticut," Transportation Research Board Annual Meeting, Washington, DC, Jan. 2005.
24. C. Zhang, J. Ivan, W. ElDessouki and E. Anagnostou, "Relative Risk Analysis for Studying the Impact of Adverse Weather Conditions and Congestion on Traffic Accidents," Transportation Research Board Annual Meeting, Washington, DC, Jan. 2005.
25. J. Ivan, "A New Approach for Including Traffic Volumes in Crash Rate Analysis and Forecasting," Transportation Research Board Annual Meeting, Washington DC, Jan. 2004.
26. D. Lord, S. Washington, and J. Ivan, "Statistical Challenges with Modeling Motor Vehicle Crashes: Understanding the Implications of Alternative Approaches," Transportation Research Board Annual Meeting, Washington DC, Jan. 2004.
27. X. Qin, J. Ivan, and N. Ravishanker, "Hierarchical Bayesian Estimation of Hourly Exposure Functions for Two-lane Roads by Crash Type and Time of Day," Transportation Research Board Annual Meeting, Washington DC, Jan. 2004.
28. X. Qin, J. Ivan, and N. Ravishanker, "A Hierarchical Bayesian Estimation of Non-linear Safety Performance Functions for Two-lane Highways Using MCMC Modeling," Transportation Research Board Annual Meeting, Washington DC, Jan. 2003.
29. W. ElDessouki, J. Ivan and F. Guo, "Trafficshed Approach for Estimating Hourly Traffic Volumes on Freeways," Transportation Research Board Annual Meeting, Washington DC, Jan. 2003.
30. J. Rimiller, J. Ivan and N. Garrick, "Estimating Benefits from Specific Highway Safety Improvements: Phase III – Benefits of Lane Widening and Adding Left Turn Lanes," Transportation Research Board Annual Meeting, Washington DC, Jan. 2002.
31. X. Qin and J. Ivan, "Selecting Exposure Measures for Predicting Crash Rates on Two-lane Rural Highways," Transportation Research Board Annual Meeting, Washington DC, Jan. 2002.
32. F. Yuan, J. Ivan, X. Qin, N. Garrick and C. Davis, "Safety Benefits of Intersection Approach Realignment on Rural Two-Lane Highways," Transportation Research Board Annual Meeting, Washington DC, Jan. 2001.
33. X. Qin and J. Ivan, "Estimating Pedestrian Exposure Prediction Model in Rural Areas," Transportation Research Board Annual Meeting, Washington DC, Jan. 2001.
34. S. Zajac and J. Ivan, "Factors Influencing Injury Severity of Motor Vehicle-Crossing Pedestrian Crashes in Rural Connecticut," Transportation Research Board Annual Meeting, Washington DC, Jan. 2001.

35. C. Wang and J. Ivan, "Representing Traffic Exposure in Multi-Vehicle Crash Prediction for Two-Lane Highway Segments," Transportation Research Board Annual Meeting, Washington DC, Jan. 2000.
36. S. Allaire and J. Ivan, "Factors Influencing Peak Spreading on Connecticut Freeways: A Preliminary Investigation," Transportation Research Board Annual Meeting, Washington DC, Jan. 1999.
37. F. Yuan, J. Ivan, C. Davis and N. Garrick, "Estimating Benefits from Specific Highway Improvements: Phase 1 - Feasibility Study," Transportation Research Board Annual Meeting, Washington DC, Jan. 1999.
38. N. Bernardo and J. Ivan, "Predicting Number of Crashes Versus Crash Rate Using Poisson Regression," Transportation Research Board Annual Meeting, Washington DC, Jan. 1998.
39. J. Ivan and P. O'Mara, "Prediction of Non-Freeway Traffic Accident Rates in Connecticut Using Poisson Regression," Transportation Research Board Annual Meeting, Washington DC, Jan. 1997.
40. U. Jha and J. Ivan, "Solving for Stochastic User Equilibrium Using Optimal Step-Sizes and Modified Step Directions," Transportation Research Board Annual Meeting, Washington DC, Jan. 1997.
41. C. Davis, J. Ivan and G. Campbell, "Application of Multi-Criteria Decision Making and Risk Analysis to Congestion Management," Transportation Research Board Annual Meeting, Washington DC, Jan. 1997.
42. J. Ivan, "Neural Network Representations for Arterial Street Incident Detection," Transportation Research Board Annual Meeting, Washington DC, Jan. 1996.
43. S. Braun and J. Ivan, "Estimating Intersection Approach Delay Using 1985 and 1994 Highway Capacity Manual Procedures," Transportation Research Board Annual Meeting, Washington DC, Jan. 1996.
44. J. Ivan, J. Schofer, F. Koppelman and L. Massone, "Real-Time Data Fusion for Arterial Street Incident Detection Using Neural Networks," Transportation Research Board Annual Meeting, Washington DC, Jan. 1995.
45. N. Bhandari, F. Koppelman, J. Schofer, V. Sethi and J. Ivan, "Arterial Incident Detection Integrating Data from Multiple Sources," Transportation Research Board Annual Meeting, Washington DC, Jan. 1995.

Presentations

Conference Presentations

1. K. Wang, J. Ivan, A. Burnicki, S. Mamun, "Predicting Local Road Crashes Using Socio-economic and Land Cover Data", presented at Road Safety on 5 Continents, Rio de Janeiro, Brazil, May 2016.
2. Y. Zhang, S. Mamun, J. Ivan, N. Ravishanker, K. Haque, "Safety Effects of Exclusive and Concurrent Signal Phasing for Pedestrian Crossing", presented at Road Safety on 5 Continents, Rio de Janeiro, Brazil, May 2016.
3. J. Ivan "How Are Roadway and Roadside Characteristics Related to Vehicle Speeds and Pedestrian Safety?" Oregon Transportation Summit, Portland Oregon, Sep. 16, 2013.
4. J. Ivan, "Information Sharing Challenges for Road Safety Research", Better Safety Results through Information Sharing: A TRB Workshop, Transportation Research Board, Irvine, CA, July 2012.
5. J. Ivan, "Effect of Roadway and Roadside Design Features on Observed Vehicle Speeds", Transportation for Livable Communities, The Keck Center of the National Academies, Washington, D.C., Oct. 2010.
6. J. Ivan, "First Things First: The Do's and Don'ts of Study Design and Hypothesis Testing", Transportation Research Board Annual Meeting, Washington, DC, Jan. 2009.
7. T. Jonsson, J. Ivan and C. Zhang, "Using Land Use Data to Estimate Exposure for Improving Road Accident Prediction," 32nd International Traffic Records Forum, Palm Desert, CA, Aug. 2006.
8. C. Zhang, J. Ivan and T. Jonsson,"Exposure to Highway Crashes: Definition of a New Measure and Data Needed," 32nd International Traffic Records Forum, Palm Desert, CA, Aug. 2006.
9. J. Ivan, "FHWA Validation of the Segment Model," invited presentation to the Highway Safety Manual Task Force midyear meeting, Chicago, Illinois, June 2005.
10. C. Zhang, W. ElDessouki, J. Ivan and E. Anagnostou, "Relative Risk Analysis for Studying the Impact of Adverse Weather Condition on Traffic Accidents," ITE District One Annual Meeting, Burlington, VT, May 2004.
11. Z. Deng, J. Ivan, C. Zhang, "The Effect of Segment Characteristics on the Severity of Head-on Crashes on Two-lane Rural Highways", ITE District One Annual Meeting, Burlington, VT, May 2004
12. J. Ivan, "A New Paradigm for Including Traffic Volumes in Crash Rate Analysis and Forecasting," 29th International Traffic Records Forum, Denver, CO, Jul. 2003.
13. J. Ivan, "USDOT Region 1 (New England) University Transportation Center," 2002 Transportation Research Showcase, Connecticut Department of Transportation / Connecticut Transportation Institute, Mar. 2002.
14. J. Ivan, "An Empirical Bayesian Analysis of the Safety Benefits of Adding Left Turn Lanes," 27th International Traffic Records Forum, Jul.-Aug. 2001.

15. X. Qin and J. Ivan, "Crash Prediction Accuracy, Traffic Volumes, and Crash Type Definitions,"27th International Traffic Records Forum, Jul.-Aug. 2001.
16. J. Ivan and P. Ossenbruggen, "Rural Pedestrian Crash Rates: Alternative Measures of Exposure," 25th International Forum on Traffic Records & Highway Information Systems, Jul. 1999.
17. J. Ivan and C. Wang, "Representing Traffic Exposure for Multi-Vehicle Crash Prediction on Two-Lane Highways," 25th International Forum on Traffic Records & Highway Information Systems, Jul. 1999.
18. J. Ivan and P. Ossenbruggen, "Safety and the Highway Design Process," Risk Assessment and Policy Association, 2nd Biennial meeting, Alexandria, VA, Mar.25-26, 1999.
19. J. Ivan, "Predicting Two-Lane Highway Crash Rates Using Land Use and Hourly Exposure," 24th International Forum on Traffic Records & Highway Information Systems, Jul. 1998.
20. J. Ivan, R. Pasupathy and P. Ossenbruggen, "Evaluating Two-Lane Highway Safety Using Risk Management," 23rd International Forum on Traffic Records & Highway Information Systems, Jul. 1997.
21. J. Ivan and M. Daskin, "Routing Hazardous Material Shipments to Equalize Population Exposure and Minimize Transportation Costs," Transportation Research Board Annual Meeting, Washington DC, Jan. 1992.

Invited Academic Seminars

1. "The Highway Safety Manual: Vision and Implementation", invited webinar at University of Vermont, Feb. 2014.
2. "Statistical Associations among Roadway and Roadside Characteristics, Vehicle Speeds and Pedestrian Safety with Implications for Road Design", invited presentation at Florida Atlantic University, Feb. 2013.
3. "Speed and Safety: International Research Findings", invited presentation at University of Rhode Island, Mar. 2010.
4. "Defining Exposure to Highway Crashes: An International Investigation", invited presentation at Texas Transportation Institute, May 2003.
5. "Representing Traffic Exposure for Multi-Vehicle Crash Prediction on Two-Lane Highways", invited presentation at University of Massachusetts Transportation Center, Jul. 1999.
6. "Need and Purpose of the Route 6 Expressway", panel speaker; Institute of Water Resources 1996-1997 Seminar Series, University of Connecticut, Oct. 9, 1996.

Other Publications

Technical Reports

1. J. Ivan, A. Burnicki, K. Wang, S. Mamun, "Improvements to Road Safety Improvement Selection Procedures For Connecticut", Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report JHR 16-328, Project 14-1, June. 2016.
2. J. Ivan, N. Ravishanker, "Effectiveness of Interventions at Midblock Crossings for Improving Senior and Other Pedestrian Safety", Region 1 University Transportation Center, Final Report, Project UCNR24-30A, Dec. 2015.
3. J. Ivan, N. Ravishanker, "Investigation of Road and Roadside Design Elements Associated with Elderly Pedestrian Safety", Region 1 University Transportation Center, Final Report, Project UCNR24-30, July 2015.
4. N. Ravishanker, J. Ivan, "Project Report: Statistical Modeling of Highway Crash Severity: a Multi-stage Hierarchical Bayesian Multiple-Response Framework", Final Report, Large Grant, University of Connecticut Research Foundation, April 2015.
5. J. Ivan, N. Ravishanker, M. Islam, V. Serhiyenko, "Evaluation of Surrogate Measures for Pedestrian Safety in Various Road and Roadside Environments", Center for Transportation and Livable Systems, Final Report, Project CTLS 11-04, University of Connecticut, Oct. 2012.
6. J. Ivan, N. Ravishanker, "Temporal Modeling of Highway Crash Severity by Involved Person Age", USDOT Region 1 University Transportation Center, Final Report, Project UCNR23-2, July 2012.
7. J. Ivan, N. Ravishanker, E. Jackson, B. Aronov, S. Guo, "Incorporating Wet Pavement Friction into Traffic Safety Analysis", Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report JHR 10-324, Project 07-5, Nov. 2010.
8. J. Ivan, N. Garrick, G. Hanson, "Designing Roads that Guide Drivers to Choose Safer Speeds", Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report JHR 09-321, Project 04-6, Nov. 2009.
9. J. Ivan, P. Gårder, "Differences in Gap Acceptance of Elderly Drivers and the Impact on Traffic Simulation Modeling", USDOT Region 1 University Transportation Center, Final Report, Project UCNR19-10, Nov. 2009.
10. J. Ivan, A. Sadek, "Identification of Crash-Prone Traffic Flow States on Freeways Using Real-Time Surveillance Data", USDOT Region 1 University Transportation Center, Project UCNR18-6, Nov. 2009.

11. J. Ivan, A. Sadek, H. Zhou, S. Ranade, "Warrants for Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways", The New England Transportation Consortium, Final Report, NETCR72 Project No. 05-7, Feb. 2009.
12. L. Aultman-Hall, S. Mather, E. Jackson, H. Shin, J. Ivan, "Design and Feasibility Study: Connecticut Transportation Planning Data", Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report JHR 08-315, Project 05-7, Oct. 2008.
13. J. Ivan, C. Zhang, "Investigation of A New Approach for Representing Traffic Volumes In Highway Crash Analysis And Forecasting", USDOT Region 1 UTC, Project UCNR17-7, Final Report, Jul. 2008.
14. D. Lord, B. Persaud, S. Washington, J. Ivan, I. van Schalkwyk, C. Lyon, T. Jonsson, S. Geedipally, "Methodology to Predict the Safety Performance of Rural Multilane Highways: Final Report", National Cooperative Highway Research Program, Transportation Research Board, National Research Council, Project NCHRP 17-29, Final Report, Feb. 2008.
15. J. Ivan, P. Gårder, S. Bindra, T. Jonsson, H. Shin, Z. Deng, "Network-Based Highway Crash Prediction Using Geographic Information Systems", The New England Transportation Consortium, Final Report, NETCR67 Project No. 04-5, June 2007.
16. J. Ivan, P. Gårder, C. Zhang, Z. Deng, "The Effect of Segment Characteristics on The Severity of Head-On Crashes on Two-Lane Rural Highways," USDOT Region 1 UTC, Project UCNR15-5, Final Report, Jan. 2006.
17. W. ElDessouki, J. Ivan, E. Anagnostou, A. Sadek, C. Zhang, "Using Relative Risk Analysis to Improve Connecticut Freeway Traffic Safety Under Adverse Weather Conditions," USDOT Region 1 UTC, Project UCNR14-5, Final Report, Oct. 2004.
18. J. Rimiller, J. Ivan and N. Garrick, "Estimating Benefits from Specific Highway Safety Improvements: Phase III, Safety Benefits from Left Turn Treatment," Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report, JHR 03-290, Project 97-1(3), Feb. 2003.
19. J. Ivan, W. ElDessouki, M. Zhao, and F. Guo, "Estimating Link Traffic Volumes by Month, Day of Week and Time of Day," Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report JHR 02-285, Project 99-3, Sep. 2002.
20. J. Ivan, N. Ravishanker, D. Tepas, X. Qin, J. Liu. "Selecting Exposure Measures for Predicting Crash Rates on Two-lane Rural Highways," Bureau of Transportation Statistics, Transportation Statistics Research Grant Program, USDOT, Grant No. DTTS-00-G-B002-CT, Final Report, Jul. 2002.
21. A. Sadek, W. ElDessouki, J. Ivan, "Incorporating Intelligent Transportation Systems Deployment in Strategic Planning," USDOT Region 1 UTC, Project UCNR12-8, Final Report, Jul. 2002.
22. A. Sadek, W. ElDessouki, J. Ivan, "Deriving Land-use Limits as a Function of Infrastructure Capacity," USDOT Region 1 UTC, Project UVMR13-7, Final Report, Jul. 2002.
23. P. Gårder, J. Ivan and J. Du, "Traffic Calming of State Highways: Application New England," USDOT Region 1 UTC, Project UCNR13-5, Final Report, Jun. 2002.
24. J. Ivan, P. Gårder, S. Zajac, "Finding Strategies to Improve Pedestrian Safety in Rural Areas," USDOT Region I UTC, Project UCNR12-7, Final Report, Oct. 2001.
25. F. Yuan, J. Ivan, N. Garrick, C. Davis, "Estimating Benefits from Specific Highway Safety Improvements: Phase II Safety Benefits of Intersection Approach Realignment," Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report, JHR 00-281, Project 97-1(2), Dec. 2000.
26. J. Ivan, P. Ossenbruggen, X. Qin and J. Pendarkar, "Rural Pedestrian Crash Rates: Alternative Measures of Exposure," USDOT Region I UTC, Project UCNR11-10, Final Report, Jun. 2000.
27. J. Ivan, P. Ossenbruggen, C. Wang and N. Bernardo, "Estimating Benefits from Specific Highway Safety Improvements," USDOT Region I UTC, Project UCNR10-7, Final Report, Apr. 2000.
28. R. Pasupathy, J. Ivan and P. Ossenbruggen, "Single and Multi-Vehicle Crash Prediction Models for Two-Lane Roadways," USDOT Region I UTC, Project UCNR9-8, Final Report, Feb. 2000.
29. J. Ivan and S. Allaire, "Estimating the Temporal Distribution of Traffic Within the Peak Period," Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report, JHR 99-273, Project 97-2, Jan. 2000.
30. F. Yuan, J. Ivan, C. Davis and N. Garrick, "Estimating Benefits from Specific Highway Safety Improvements: Phase I – Feasibility Study," Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and University of Connecticut, Final Report, JHR 99-268, Project 97-1, May 1999.
31. U. Jha and J. Ivan, "Predicting Peak Period Trips Within the Four-Step Transportation Planning Process," Connecticut Cooperative Highway Research Program, Connecticut Department of Transportation and

University of Connecticut, Final Report, JHR 97-258, Project 96-3, Sep 1997.

32. C. Davis, J. Ivan and G. Campbell, "Application of Multi-Criteria Decision-Making and Risk Analysis to Congestion Management," Connecticut Cooperative Highway Research Program, Final Report, JHR 96-252, Project 95-1, Sep. 1996.
33. F. Koppelman, V. Sethi and J. Ivan, "Calibration of Data Fusion Algorithm Parameters with Simulated Data," ADVANCE Project Technical Report TRF-ID-152, The Transportation Center, Northwestern University, Evanston, Illinois, Mar. 1994.
34. F. Koppelman, J. Schofer, N. Bhandari, V. Sethi and J. Ivan, "Calibration of Probe and Fixed Detector Algorithm Parameters with Simulated Data," ADVANCE Project Technical Report TRF-ID-151, The Transportation Center, Northwestern University, Evanston, Illinois, Feb. 1994.
35. J. Ivan and C. Bhat, "The ADVANCE Demonstration Incident Detection System: Data Fusion Process Structure and Plans for Calibration," ADVANCE Project Technical Report, Task TRF-ID-10, Northwestern University Transportation Center, May 1993.
36. P. Liu, J. Schofer and J. Ivan, "Anecdotal Incident Detection Algorithm Northwest Central Dispatch Preprocessor," Northwestern University Transportation Center, May 1993.
37. J. Schofer, J. Ivan and C. Bhat, "Plans for Collecting Incident Detection Development Data," ADVANCE Program Technical Report, Northwestern University Transportation Center, Jan. 1993.
38. J. Ivan, J. Schofer, C. Bhat, N. Rouphail and N. Thomas, "Data Needs for Incident Detection," ADVANCE Program Technical Report, Northwestern University Transportation Center, Jun. 1992.
39. J. Ivan, C. Bhat and J. Schofer, "Automatic Incident Detection on Urban Arterials: A System Conceptualization," ADVANCE Program Technical Report, Northwestern University Transportation Center, May 1992.
40. J. Ivan, "Automatic Incident Detection on Urban Arterials: a Literature Review," ADVANCE Program Technical Report, Northwestern University Transportation Center, Dec. 1991.

Ph.D. Dissertation and M.S. Thesis

1. J. Ivan, *Real-Time Data Fusion for Arterial Street Incident Detection Using Neural Networks,* Ph.D. Dissertation, Northwestern University, Jun. 1994.
2. J. Ivan, *CAPES: A Cafeteria Architectural Planning Expert System,* M.S.C.E. Thesis, Massachusetts Institute of Technology, Feb. 1987.

Teaching and Curriculum

Personal Statement

Since joining the University of Connecticut faculty I have constantly sought to be an outstanding teacher. I continue to seek opportunities to learn how to do even better, through workshops given by the University's Institute for Teaching and Learning and regional or national conferences, such as the Felder Effective Teaching Workshop. One of my primary objectives is to engage students in the classroom setting by relating abstract theory to real-world examples that students can easily appreciate. By doing so, I hope to inspire and challenge students to learn and achieve beyond their expectations.

Shortly after beginning my teaching career at the University, I began to incorporate active-learning into the courses I teach. I stress critical thinking in all of my courses using group discussions, in which students attack a problem and discuss how to use various analytical tools, or read a collection of articles and individually identify important engineering and planning issues raised in them. Improving students' oral and written communication skills has also been a high priority for my teaching. A new course I created with Dr. N. Garrick, "Case Studies in Transportation Engineering," focuses almost entirely on active learning, with traditional lecturing comprising at most a few classes during the semester. In this course the students are assigned project topics in which they search library and internet sources to learn about some aspect of the contexts in which transportation engineers must operate, and then present their findings to the entire class. Many students shared in course evaluations that it was their favorite class ever, but that they also worked harder than in any other class they had taken. We consider it high praise that students value the time spent in the course and what they learned from it.

I have worked with input from the other transportation engineering faculty to solidify, strengthen and enhance our graduate program and course offerings. I introduced a new course, "Travel Demand Forecasting," established a set of core and background preparation courses, and defined a regular format for the Ph.D. General Examination, none of which existed before I came to the University. Solidifying the structure of the program has borne fruit both in a dramatic improvement in the quality of applicants to the graduate program and in the placement of graduates with highly respected transportation engineering and logistics firms and in university research positions.

Another teaching challenge I tackled was creating a new course, "Decision Analysis in Civil & Environmental Engineering", from two existing courses, "Engineering Economics" and "Analysis of Civil Engineering Systems". This new course was for awhile required of all Civil Engineering and Environmental Engineering majors, and covers engineering economics, probability and statistics, and some operations research. I considered it a challenge to present the material so that the students would learn about probability and statistics without realizing it, as this was a topic they generally did not enjoy. The approach I took is to present the material in terms of real problems that they will need to solve as engineers, and then introduce the various tools they can use to solve these problems. This approach was successful in motivating the students to spend time learning the material and caring about it. The course has now been discontinued, and the CE and ENVE majors both require two new courses in engineering economics and probability and statistics.

I also worked with H. Epstein to transform the Civil Engineering senior design course from a one semester to a yearlong program. We integrated the professional issues seminar into this new course sequence. Our approach was to run the course as if the students were working in an engineering design firm. The students are required to write job applications and interview for positions on design projects. The first year resulted in much stronger and viable products and a richer experience for the students, preparing them much more effectively for careers in professional practice.

I have advised seven Ph.D. and eighteen M.S. thesis students to graduation, and am currently advising one PhD student and three MS thesis students. These students collectively have published more than twenty refereed journal articles and more than thirty refereed conference papers under my direction. Two of my PhD graduates (Qin and Zhou) are in tenure track positions at research universities (University of Wisconsin at Milwaukee and Dalian Institute of Technology), and another works in research at Federal Highway Administration (Chen).

Student Research Supervision

Ph.D. students graduated

1. Kai Wang, 2016, "Exploration of Advances in Statistical Methodologies for Crash Count and Severity Prediction Models"
2. Md. Saidul Islam, 2015, "Explaining Pedestrian and Vehicular Crashes in Conjunction with Exposure Measures"
3. Hongmei (Jennifer) Zhou, 2009, "Study on Left Turn Safety and Gap Acceptance at Unsignalized Intersections"

4. Chen Zhang, 2007, "Defining New Exposure Measurements for Crash Prediction Models by Collision Type"
5. Xiao Qin, 2002, "Selecting Exposure Measures for Predicting Crash Rates on Two-Lane Rural Highways"
6. Ming Zhao, 2001, "Investigating Hourly Volume Proportions on Freeways Considering Temporal Factors"
7. Markus Kusuma, 1999, "The Effects of Transportation System Characteristics on the Success of Congestion Mitigation Strategies for Reducing Traffic Congestion and Air Pollution"
8. Shyuan-Ren (Clayton) Chen, 1997, "An Integrated Traffic Control Policy for Incidents in Freeway-Arterial Corridors"

MS students (with thesis) graduated

1. Franklin J. Caraballo, 2016, "Identifying Association Between Pedestrian Safety Interventions and Street Crossing Behavior Considering Demographics and Traffic Context"
2. Kevin McKernan, 2015, "Pedestrian Compliance with Concurrent and Exclusive Phasing at Traffic Signals"
3. Khademul Haque, 2015, "Safety Effects of Exclusive and Concurrent Signal Phasing for Pedestrian Crossing"
4. James Mooradian, 2012, "Investigation in Trends and Effectiveness of Crash Severity Models"
5. Sizhen Guo, 2010, "Incorporating Wet Pavement Friction into Traffic Safety Analysis"
6. Sumit Bindra, 2007, "Modeling Segment-Intersection Crashes using Land Development Data"
7. Zuxuan Deng, 2005, "Analysis of Factors Affecting the Severity of Head-on Crashes on Two-lane Rural Highways"
8. Erika Lindeberg, 2004, "Evaluation of Safety Benefits and Potential Crash Migration Due to Shoulder Rumble Strip Installation on Connecticut Freeways"
9. Joseph H. Rimiller, 2003, "Safety Benefits of Adding Left Turn Lanes on Suburban and Rural Highways in Connecticut"
10. Phanikiran Allu, 2001, "Incorporating Intelligent Transportation Systems Deployment In Strategic Planning"
11. Stephan F. Kellner, 2000, "Evacuation Analysis: Comparison Of Different Street Network Layouts"
12. Sylvia S. Zajac, 2000, "Factors Influencing Injury Severity of Motor Vehicle – Crossing Pedestrian Crashes In Rural Connecticut"
13. Fei Yuan, 2000, "Safety Benefits Of Intersection Approach Realignment"
14. Nelson R. Bernardo, 1999, "Modeling Single Vehicle Crashes on Two-Lane Rural Highways in Connecticut"
15. Chunyan Wang, 1999, "Representing Traffic Exposure in Multi-Vehicle Crash Prediction"
16. Scott A. Allaire, 1999, "Factors Influencing Peak Spreading on Connecticut Freeways"
17. Raghubhushan K. Pasupathy, 1998, "Single and Multi-Vehicle Crash Prediction Models for Two-Lane Roadways"
18. Udesh Jha, 1997, "Predicting Peak Period Trips within the Four-Step Transportation Planning Process"
19. Patrick J. O'Mara, 1996, "Prediction of Traffic Accident Rates Using Poisson Regression"

Course Development (old numbers in parentheses)

CE 4710/5710 (255/302) Case Studies in Transportation Engineering

- New course developed with N. Garrick
- Co-listed as senior elective for Civil Engineering majors and entry-level graduate required core course for transportation engineering graduate students
- Nearly 100% active learning, with emphasis on critical thinking and communications

CE 6730 (380) Travel Demand Forecasting

- New course developed to expand offerings in transportation planning
- Graduate elective covering trip generation and discrete choice modeling and solving for user equilibrium

CE 2710 (254) Transportation Engineering

- Existing course renamed and revamped to include traffic engineering and transportation planning content
- Required for all Civil Engineering majors

CE 2210 (201) Decision Analysis in Civil & Environmental Engineering

- New course developed to replace courses in engineering economics and probability and statistics
- Required for all Civil Engineering and Environmental Engineering majors
- Emphasis is on learning analysis methods to support decision making in civil and environmental engineering

CE 5090 Transportation Safety

- New course developed solo

- Built around the AASHTO *Highway Safety Manual*
- Graduate elective designed to prepare students for quantitative road safety analysis

CE 5090 Statistical and Econometric Methods in Transportation

- New course developed solo
- Focus on application of modeling techniques in transportation data contexts and interpretation of results

CE 4900W-4920W Civil Engineering Projects I and II

- Led team to develop new course to replace existing one semester capstone design course
- Includes coverage of professional issues preparing students for careers

Professional Activities and Service

Personal Statement

Service to the community and profession is an important responsibility of any University faculty member. My intention is to serve the community and profession in ways that exercise my personal and scholarly strengths and develop valuable partnerships for enhancing educational and research opportunities for me and my students. I thus focus on three types of external service: (1) service to the profession supporting peer review and dissemination of scholarly research, (2) forensic engineering work in matters offering experience to enhance my teaching and research, and (3) service to governmental commissions offering guidance and feedback for improving the value of public expenditures.

For example, related to the first category I serve as an Associate Editor of the journal *Accident Analysis and Prevention* and on the National Research Council's Committees on Highway Safety Performance (formerly the Task Force for the Creation of a Highway Safety Manual) and Safety Data Analysis and Evaluation. My primary role on the Highway Safety Performance Committee and Task Force has been to provide detailed technical review of the information to be presented in the first edition of the Manual, which was published in 2010. I continue to serve now as the Chair of the Subcommittee on Predictive Methods, which is charged with charting the course for the framework of the 2nd edition of the Manual. Related to the second category, I have offered gratis and reduced fee consulting services on behalf of community groups where road improvement and land development plans failed to account for legitimate community concerns. Related to the third category, I serve on two state-level advisory committees that coordinate and organize the collection and archiving of data for analysis and reporting of road safety, helping to enhance the availability of appropriate data for learning how to most effectively improve road safety in Connecticut. As well, I was elected to the Connecticut Academy of Science and Engineering in February 2011, for which I have served on several project review panels.

I engage in all of this service with an intention to achieve the best possible outcome for the individuals and organizations involved. This section itemizes my external service to the community and the profession.

Associate Editorships

- *Accident Analysis & Prevention*, associate editor, Oct. 2013 – present.
- *Journal of Transportation Safety and Security*, associate editor, Mar. 2008 – Oct. 2013.

Advisory Boards and Committees

International

- *Accident Analysis & Prevention*, editorial advisory board, Jan. 2006 – present.
- *Journal of Transportation Safety and Security*, editorial advisory board, Mar. 2008 – present.

National

- Southeastern Transportation Center, research advisory committee, Mar. 2008 – 2012.

Regional

- New England University Transportation Center, policy committee, 1996 – 2008, 2010 – 2012.
- New England Transportation Consortium, advisory committee, Jan. 2006 – Dec. 2007.

State

- Connecticut Cooperative Transportation Research Program, Joint Highway Research Advisory Committee, July 1999 - June 2002, July 2007 - June 2008, July 1, 2009 – present.
- Traffic Records Coordinating Committee, Jan. 2004 – present.
- Advisory Board, Crash Outcome Data Evaluation System, Aug. 2006 – present.
- Connecticut Transportation Safety Research Center, Nov. 2012 – present.

Review Panels

ABET, Inc.

- Program Evaluator, Engineering Accreditation Commission, 2012 – present.

Connecticut Academy of Science and Engineering

- Project Deliverability, Jul. 2015 – present.
- Winter Highway Maintenance, final report Sep. 2015.

- Economic Impact of Transportation Projects, final report Sep. 2013.
- Benchmarking Connecticut's Transportation Infrastructure Capital Program with Other States, project advisory panel, final report, June 2012.
- Alternative Methods for Safety Analysis and Intervention for Contracting Commercial Vehicles and Drivers in Connecticut, final report, June 2012.
- Information Technology Systems for Use in Incident Management and Work Zone Safety, project advisory panel, final report, Dec. 2005.

Bureau of Transportation Statistics (USDOT)
- Safety Data Project, steering committee, Aug. 2001 – May 2002.

Transportation Research Board (National Academy of Engineering)
- Independent Review Group, Highway Safety Manual, Chapter 8, Jun. 2006.
- NCHRP Synthesis 33-06, Roadway Safety Tools for Local Agencies, Nov. 2001 – May 2003.
- NCHRP Synthesis 33-07, Safety Management Systems in Practice, Nov. 2001 - May 2003.

Roadway Safety Institute (USDOT/University of Minnesota)
- Project monitor, Apr. 2014-present.

ATLAS (USDOT/Texas A&M University)
- Project monitor, Aug. 2014 – Dec. 2015.

Centers for Disease Control and Prevention
- Proposal review panel, May 2014.

Professional Societies

Connecticut Academy of Science and Engineering
- Member, elected 2011.
- Chair, Transportation Systems Technical Board, May 2014 to June 2018.

Transportation Research Board
- Committee on Highway Safety Performance (member, Jan. 2007 – present)
  - Chair, Sub-committee on Predictive Methods, Jan. 2011 – present.
  - Chair, Sub-committee on Paper Reviewing, Aug. 2010 – Feb. 2013.
  - Chair, Chapter 14 review group, Jan. 2007 – Dec. 2009.
- Committee on Safety Data, Analysis and Evaluation (member, Jan. 2008 – present)
  - Chair, Sub-committee on Future Research Directions, Jan. 2013 – present.
- Committee on Statistical Methodology (member, Aug. 2001 – Jan. 2011)
  - Chair, sub-committee on Outreach, Jan. 2008 – Jan. 2011.
  - Chair, sub-committee on Research, Jan. 2004 – Jan. 2008.
  - Committee representative, section committee on Research, Dec. 2004 – Jan. 2008.
- Committee on Bicycle Transportation (member, Jul. 1997 – Jun. 2006)
  - Chair, sub-committee on Safety Data and Measurement, Jan. 2002 – Jun. 2006.
  - Chair, sub-committee on Research Needs, Jul. 1997 – Jun. 2000.
- Committee on Artificial Intelligence (member, Jul. 1995 – Dec. 1999)

American Society of Civil Engineers
- Urban Transportation Division, Committee on Advanced Technologies, paper reviewing, Jun. 1995 – Sep. 2013.

American Society for Engineering Education
- Member, 1994 – present.

Institute of Transportation Engineers
- Council on Intelligent Transportation Systems, Jun. 1994 – Dec. 1997.

Intelligent Transportation Society of Connecticut
- Member, Board of Directors, May 1999 - Oct. 2000, Sep. 2004 – Sep. 2007.

Technical Workshop Presentations

Connecticut Transportation Institute

- Fundamentals of Analyzing & Solving Local Traffic Problems, Connecticut Transportation Institute, Technology Transfer Center, Nov. 4, 6 and 18, 1998.
- Traffic Signal Progression and Synchronization for Arterial Street Networks: Passer IV-94 Software Training, Connecticut Transportation Institute, Technology Transfer Center, Feb. 27 and Mar. 5, 1996.
- Traffic Signal Systems Software Training, Connecticut Transportation Institute, Technology Transfer Center, Oct. 11 and 18, 1994.

Expert Services

Paid Consulting

- Nevas, Capasse & Gerard, LLC, Attorneys at Law, forensic engineering services for litigation matter, April – May 2013.
- Smith and Bishop, LLC, Attorneys at Law, forensic engineering services for litigation matter, Dec. 2009 – 2011.
- CES Engineering (Andover, Conn.), forensic engineering services for developer, Jul. – Aug. 2006.
- Save our Neighborhoods (Orange, Conn.), forensic engineering services for citizen group, Feb. – Mar. 2005.
- Lambert Road (Orange, Conn.) intersection widening, forensic engineering services for citizen group, Nov. 2000.
- *Blitzer v. University of Hartford, et al.,* forensic engineering services for University of Hartford, Apr. 1998.

Media and Community

- Interviewed for news segment on driver distraction by interactive dashboard displays, NBC Connecticut Channel 30, May 2013.
- "What's the Real Danger on Route 44?" *The Hartford Courant*, Sunday Sep. 23, 2007, p. C1, C6 (op-ed).
- Live Radio Interview, WTIC-AM 1080 (Hartford) Morning show, Feb. 2, 2006.
- Interviewed for "Main Street," originally broadcast on Connecticut Public Television (CPTV), Nov. 21, 2003.
- "Why I Can't Have a Stop Sign on My Street," invited presentation, Police Commissioners Association of Connecticut, Feb. 24, 1999.
- Concerned Citizens of Tolland, Pro-bono consulting services, Sep. 1995.
- Interviewed for "Drivers & Highways = Backups" by A. Katz, *New Haven Register*, Feb. 9, 1995, p. C1, C3.

Academic Service and Administration

Personal Statement

Since I joined the University of Connecticut, I have been given opportunities to serve the University in roles with increasing responsibility and influence. I have found that I have the personal traits and abilities to serve well in administration. I started on this road almost immediately as I initiated an overhaul of the doctoral general exam procedures in the transportation systems group that were later adopted by the Civil Engineering field of study as well. Following is a chronology of significant academic service and administrative roles that I have accepted, indicating the progressive increase in responsibility and influence:

1995	led the Transportation Systems Group in forming a technical core and formalized doctoral general exam procedure
1996	appointed Associate Director of the Connecticut Transportation Institute, with responsibility for promoting research programs and graduate education activities
1997	appointed chair of committee of young faculty charged with reviewing the Civil Engineering curriculum and recommending revisions for efficiency and improvement
1998	appointed group coordinator of Transportation Systems
2000	appointed coordinator for preparing for accreditation of the Civil Engineering program under ABET 2000 criteria, with responsibilities for writing the self-studies for all subsequent accreditation visits
2000	appointed chair of search committee for hiring a faculty member in transportation systems
2002-03	while on sabbatical leave in Germany, asked by Dean of Engineering to promote international exchange of graduate students with European institutions
2006	appointed Associate Head of the Department of Civil & Environmental Engineering, with responsibilities for administering the undergraduate and graduate programs in Civil Engineering, including coordination with the Environmental Engineering program
2006	appointed chair of committee charged with again reviewing the Civil Engineering curriculum and recommending revisions to the faculty
2006	appointed chair of search committee for hiring a faculty member in sustainable transportation systems
2009	reappointed Associate Head of the Department of Civil & Environmental Engineering following return from sabbatical leave

The rest of this section gives details about my academic service and administration experience.

Administrative Appointments

Department of Civil & Environmental Engineering, University of Connecticut

- **Associate Head of Department, May 2006 – Aug. 2008, Aug. 2009 – Aug. 2015.** Responsibilities included administering the undergraduate and graduate programs in Civil Engineering, coordinating the academic advising of undergraduate majors, scheduling classes, assigning teaching assistants and coordinating student recruitment activities.
- **Graduate Program Director, Civil Engineering, May 2006 – Aug. 2008, Aug. 2009 – Aug. 2015.** Responsibilities included oversight of the student admission process and administration of the graduate program.
- **Accreditation Coordinator, Civil Engineering Program, 2000 – 2015.** Responsibilities included writing the self-study and developing curriculum and assessment procedures to meet accreditation requirements.
- **Group Coordinator, Transportation and Urban Planning (formerly Transportation Systems), Sep. 1998 – May 2002, Sep. 2003 – Aug. 2008, Sep. 2009 – Aug. 2015.** Responsibilities included planning graduate courses to be offered, assignment of faculty to courses and managing the review of graduate student applications.

Connecticut Transportation Institute

- Associate Director, Research and Graduate Education, Sep. 1996 – June 2005.

Committee Service

University of Connecticut

- Provost's Library Advisory Committee, School of Engineering representative, Sep. 2010 – May 2012.

- Parking Advisory Committee, University Senate representative, Sep. 1997 – Jun. 1999.

School of Engineering

- Curriculum and Courses Committee, Aug. 2009 – Aug. 2015.
- Dean's Council on Promotion, Tenure and Reappointment (elected), Aug. 2007 – May 2008.
- Library Committee, representing the Department on library issues, Sep. 1994 – Aug. 1995.
- Secretary of the Faculty, recording minutes of faculty meetings, Sep. 1994 – Dec. 1995.
- Computer, Information and Communications Advisory Committee, representing Department on related issues, Sep. 1995 – May 1997.

Connecticut Transportation Institute

- Internal Faculty Advisory Committee, Sep. 2003 – present.

Department of Civil and Environmental Engineering

- Member, Faculty Search Committee, Transportation Systems, 2012.
- Curriculum and Courses Committee, Sep. 1998 – May 2002 (chair), Sep. 2003 – Aug. 2008, Sep. 2009 – Aug. 2015 (chair).
- Promotion, Tenure and Reappointment Committee (elected), Aug. 2001 – May 2002, Aug. 2003 – May 2006, Aug. 2009 – May 2012.
- Undergraduate Education Committee, Sep. 2009 – May 2011.
- Chair, Civil Engineering Curriculum Review and Revision Committee, Sep. 1997 – May 1998, Sep. 2006 – May 2008.
- Chair, Faculty Search Committee, Sustainable Transportation Systems, 2006-2007.
- Member, Faculty Search Committee, Advanced Transportation Materials, 2006-2007.
- Student Chapter Advisor, Institute of Transportation Engineers, Sep. 1994 – Aug. 1996, Sep. 2004 – 2007.
- Graduate Affairs Committee, Sep. 1995 - May 1997, Jan. – May 1999, Jan. 2004 – May 2005.
- Chair, Faculty Search Committee, Transportation Systems, 2000 – 2001.
- Undergraduate Affairs Committee, Sep. 1997 – May 1998.
- External Affairs Committee, Sep. 1996 - May 1997.

Student Recruitment

New England Region University Transportation Center (USDOT)

- Presentation of Univ. of Conn. transportation program at Graduate Education Opportunities in Transportation Open House, Nov. 1994, Dec. 1995, Nov. 1996, Sep. 1997.

University of Connecticut

- Connecticut Invention Convention, assisted at departmental booth, May 2004.
- Engineering Visitation Day (University Open House):
  - Faculty guide, Apr. 1994, Apr. 1995, Apr. 2000, Apr. 2001, Apr. 2002, Sep. 2004, Apr. 2015.
  - Departmental coordinator, Apr. 1996, Sep. 2006, Apr. 2007, Sep. 2007, Apr. 2008, Sep 2009, Apr. 2010, Sep. 2010, Apr. 2011, Sep. 2011, Apr. 2012, Sep. 2012, April 2013, Oct. 2013, Apr. 2014, Sep. 2014, Oct. 2014.
  - Laboratory demonstration, Apr. 1997, Apr. 1998, Apr. 1999, Apr. 2006.
- Pre-Engineering Program, presentation on Urban Planning to seventh grade students, Feb. 1994.