

Daiheng Ni, Ph.D.

Associate Professor

Department of Civil and Environmental Engineering
University of Massachusetts Amherst
E-Mail: ni@ecs.umass.edu
Phone: (413) 545-5408
Fax: (413) 545-9569

I. Earned Degrees

Ph.D. (2004) Georgia Institute of Technology
Major: Civil Engineering / Transportation
Minor: Operations Research

MSIE. (2003) Georgia Institute of Technology
M.Sc. in Industrial and Systems Engineering

M.Sc. (2001) Georgia Institute of Technology
M.Sc. of Civil Engineering

M.Sc. (1994) Beijing Agricultural Engineering University (Now China Agricultural University)
M.Sc. in Mechanical Engineering

B.Sc. (1991) Jilin University of Technology (Now Jilin University)
B.Sc. in Mechanical Engineering

II. Employment

Associate Professor: 2011 – Present
Department of Civil and Environmental Engineering
University of Massachusetts Amherst

Assistant Professor: 2005 – 2011
Department of Civil and Environmental Engineering
University of Massachusetts Amherst

III. Teaching

A. Courses Taught

1. CEE310 Introduction to Transportation Engineering
Undergraduate required course
Fall 2005, Spring 2007, Fall 2008, Fall 2009, Spring 2011, Spring 2012,
Spring 2013, Spring 2015, Fall 2015
2. CEE 411/511 Traffic Engineering
Undergraduate elective, graduate required course
Spring 2006, Fall 2007, Fall 2008, Fall 2010, Fall 2011, Fall 2013, Fall 2014, Fall
2015
3. CEE 520 Traffic Flow Theory and Simulation I (previously offered as CEE590T)
Graduate and undergraduate elective
Fall 2006, Spring 2008, Fall 2009, Spring 2011, Spring 2016
4. CEE521 Traffic Flow Theory and Simulation II (previously offered as CEE590S)
Graduate and undergraduate elective
Fall 2007, Spring 2009, Spring 2010, Spring 2012, Spring 2014
5. CEE590I Signalized Intersections and Systems
Graduate and undergraduate elective
Spring 2014

B. Students Advised

B1. Ph.D. Students (Funded and Committee Chair)

These students are supported with my research funds and I am the chair of their thesis/dissertation committees (co-chair if labeled)

| | |
|-----------|------------------|
| Tao Jiang | (2015 – Present) |
|-----------|------------------|

B2. Masters Students (Funded and Committee Chair)

| | |
|--|------------------|
| | (2014 – Present) |
|--|------------------|

B3. Graduated Students

Chaoqun (Enzo) Jia (Ph.D. 2015), Andrew L. Berthaume (Ph.D. 2014),
Haizhong Wang (Ph.D. 2010)

George Copoulos (M.S. 2015), Chaoqun Jia (M.S. 2011), David Champoux
(M.S. 2013), John Guzze (M.S. 2013), Qiao Li (M.S. 2012), Samuel Oppong
(M.S. 2012), Gilbert Telin Kim (M.S. 2012), Gabriel Leiner (M.S. 2012); Cheng
Zhang (M.S. 2011), Mariya A. Maslova (M.S. 2010), Steven Andrews (M.S.
2009), W. L. Leow (M.S. ECE 2007), Dwayne Henclewood (M.S. 2007)

IV. Scholarly Accomplishments

A. Publications in Refereed Journals

Note: Authors with underlines are my graduate students (see III.B.) or advisees.
* Denotes corresponding author

A1. Books and Book Chapters

B01 Daiheng Ni. Traffic Flow Theory, 1st Edition, Elsevier, ISBN: 9780128041345. 2015.

B02 Daiheng Ni. Mathematical Modeling of Connected Vehicles. Book Chapter in Advances in Intelligent Vehicles (Editors Yaobin Chen and Lingxi Li). Elsevier. ISBN: 978-0-12-397199-9. December 2013.

A2. Publications in Refereed Journals

J32 Daiheng Ni*, John D. Leonard, Chaoqun Jia, and Jianqiang Wang. Vehicle Longitudinal Control and Traffic Stream Modeling. Transportation Science. Permalink: <http://dx.doi.org/10.1287/trsc.2015.0614>. 2015

J31 Enzo C. Jia, Jianqiang Wang, and Daiheng Ni*. An Efficient Methodology for Calibrating Traffic Flow Models Based on Bisection Analysis. Journal of Applied Mathematics Volume 2014 (2014), Article ID 949723.

J30 Jianqiang Wang, Daiheng Ni*, and Keqiang Li. RFID-Based Vehicle Positioning and Its Applications in Connected Vehicles. Sensors 2014, 14(3), 4225-4238.

J29 Daiheng Ni*. A Unified Perspective on Traffic Flow Theory, Part I: The Field Theory. Applied Mathematical Sciences, Vol. 7, 2013, no. 39, 1929 - 1946 HIKARI Ltd.

J28 Daiheng Ni*. A Unified Perspective on Traffic Flow Theory, Part II: The Unified Diagram. Applied Mathematical Sciences, Vol. 7, 2013, no. 40, 1947 - 1963 HIKARI Ltd.

J27 Daiheng Ni* and Haizhong Wang. A Unified Perspective on Traffic Flow Theory, Part III: Validation and Benchmarking. Applied Mathematical Sciences, Vol. 7, 2013, no. 40, 1965 - 1982 HIKARI Ltd.

J26. David Hurwitz*, Haizhong Wang, Michael A. Knodler, Daiheng **Ni**, and Derek Moore. Fuzzy Sets to Describe Driver Behavior in the Dilemma Zone of High-Speed Signalized Intersections. Transportation Research

Part F: Traffic Psychology and Behaviour. Volume 15, Issue 2, Pages 132–143. Elsevier. 2012.

- J25. Daiheng **Ni***, Jia Li, Steven Andrews, and Haizhong Wang. A Methodology to Estimate Capacity Impact due to Connected Vehicle Technology. Accepted for publication by *International Journal of Vehicular Technology* (IJVT), Hindawi Publishing Corporation. 2011
- J24. Haizhong Wang, Jia Li, Qian-Yong Chen, and Daiheng **Ni***. Logistic Modeling of the Equilibrium Speed-Density Relationship. *Transportation Research Part A*. Volume 45, Issue 6, Pages 554-566. Elsevier. 2011.
- J23. Daiheng **Ni***. Multiscale Modeling of Traffic Flow. *Mathematica Aeterna*, Hilaris Ltd. Vol.1, No. 01, pp. 27 - 54, 2011.
- J22. Haizhong Wang, Daiheng **Ni***, Qian-Yong Chen, and Jia Li. Stochastic Modeling of Equilibrium Speed-Density Relationship. To appear in *Journal of Advanced Transportation* (DOI: 10.1002/atr.172). John Wiley & Sons, Inc. 2011.
- J21. Mohammad Nekoui*, Hossein Pishro-Nik, Daiheng **Ni**. The Effect of IntelliDrive on the Efficiency of Highway Transportation Systems. *International Journal of Vehicular Technology* (IJVT), Hindawi Publishing Corporation. Volume 2011, Article ID: 653542 (doi:10.1155/2011/653542). 2011
- J20. Jia Li, Haizhong Wang, Qian-Yong Chen, Daiheng **Ni***. Analysis of LWR model with fundamental diagram subject to uncertainties. Published by *Transportmetrica* (DOI: 10.1080/18128602.2010.521532). Taylor and Francis. 2010.
- J19. Steven Andrews, Haizhong Wang, Daiheng **Ni***, Song Gao, John Collura. Development and Implementation of an Adapted Planning Methodology in the Event of Two Hurricane Evacuation Scenarios in Western Massachusetts: A Case Study Using TransCAD. To appear in *Journal of Transportation Safety and Security*, Taylor and Francis. 2010.
- J18. Jia Li, Haizhong Wang, Qian-Yong Chen, Daiheng **Ni***. Traffic Viscosity due to Speed Variation: Modeling and Implications. *Mathematical and Computer Modelling*, Elsevier Science. Vol. 52, No. 9-10, pp. 1626-1633. 2010.
- J17. Haizhong Wang, Kimberly Rudy, Jia Li, Daiheng **Ni***. Traffic Flow Breakdown Probability and Link Throughput Optimization. *Applied Mathematical Modeling*, Elsevier Science. Vol. 34, pp.3376–3389. 2010.

- J16. Mohammad Nekoui, Daiheng Ni*, Hossein Pishro-Nik, Richa Prasad, Mohammed Raza Kanjee, Hui Zhu and Thai Nguyen. Development of a VII-Enabled Prototype Intersection Collision Warning System. *International Journal of Internet Protocol Technology (IJIPT)*, Inderscience. Vol. 4, No. 3, pp. 173-181. 2009.
- J15. Dwayne Henclewood and Daiheng Ni*. A Dynamic-Interactive-Vehicle Model for Modeling Traffic beyond the Microscopic Level. *International Journal of Vehicle Information and Communication Systems (IJVICS)*. Inderscience. Vol. 2, No. 1-2, pp. 40-58. 2009.
- J14. Daiheng Ni* and Dwayne Henclewood. Simple Engine Models for VII-Enabled In-Vehicle Applications. *IEEE Transactions on Vehicular Technology*. Vol. 57, No. 5, pp. 2695-2702. 2008.
- J13. Daiheng Ni* and Haizhong Wang. Trajectory Reconstruction for Travel Time Estimation. *Journal of Intelligent Transportation Systems*. Taylor & Francis. Vol. 12, No. 3, pp. 113-125. 2008.
- J12. W. L. Leow, Daiheng Ni*, and Hossein Pishro-Nik. A Sampling Theorem Approach to Traffic Sensor Optimization. *IEEE Transactions on Intelligent Transportation Systems*. Vol. 9, No. 2, pp. 369-374. 2008.
- J11. Matthew D. Kindzerske and Daiheng Ni*. A Composite Nearest Neighbor Nonparametric Regression to Improve Traffic Prediction. *Transportation Research Record* 1993, pp. 30-35. 2007.
- J10. Daiheng Ni*. Determining Traffic Flow Characteristics by Definition for Application in ITS. *IEEE Transactions on Intelligent Transportation Systems*. Vol 8, No 2, pp. 181-187, 2007.
- J09. Daiheng Ni*. Challenges and Strategies of Transportation Modeling and Simulation under Extreme Conditions. *International Journal of Emergency Management (IJEM)*. Inderscience. Vol 3, No 4, pp. 298-312, 2006.
- J08. Daiheng Ni*, John D. Leonard, and Billy M. Williams. The Network Kinematic Waves Model: A Simplified Approach to Network Traffic. *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations*. Taylor & Francis. Volume 10, Issue 1, pp. 1-14, 2006
- J07. Daiheng Ni* and John D. Leonard. A Simplified Kinematic Wave Model at a Merge Bottleneck. *Applied Mathematical Modelling*, Elsevier Science, Volume 29, Issue 11, pp. 1054-1072, 2005.

- J06. Daiheng Ni*, John D. Leonard. Markov Chain Monte Carlo Multiple Imputation for Incomplete ITS Data Using Bayesian Networks. *Transportation Research Record 1935*, pp. 57-67, 2005.
- J05. Daiheng Ni*, John D. Leonard, Angshuman Guin, and Chunxia Feng. A Multiple Imputation Scheme for Overcoming the Missing Values and Variability Issues in ITS Data. *ASCE Journal of Transportation Engineering*. Vol. 131, No. 12, pp. 931-938, 2005.
- J04. Daiheng Ni* and John D. Leonard. Development of TrafficXML: the Common Vocabulary for Traffic Simulation. *Transportation Research Record 1879*, pp. 30-40, 2004.
- J03. Daiheng Ni*, John D. Leonard, Angshuman Guin, and Billy M. Williams. A Systematic Approach for Validating Traffic Simulation Models. *Transportation Research Record 1876*, pp. 20-31, 2004.
- J02. Daiheng Ni* and Yu Qun. A Neural Network for Handling Stability of Driver-Vehicle-Environment Closed-Loop System (In Chinese). *Journal of China Agricultural University*. Volume 1, Issue 2, 1996
- J01. Daiheng Ni*. An Application for Neural Network in Highway Communication – Simulation of Vehicle Steering (In Chinese). *Journal of Northern Jiaotong University*. Volume 19, pp. 114-117, 1995.

B. Publications in Conference Proceedings

- C45 Jared Geller, Tao Jiang, Daiheng Ni*, and John Collura. Traffic Management for Small Unmanned Aerial Systems (sUAS): Towards the Development of a Concept of Operations and System Architecture. The 95th Transportation Research Board (TRB) Annual Meeting, Washington, D.C. 2016.
- C44 Daiheng Ni. A field theory based operational control for sUAS. Research Meeting on Sense and Avoid (SAA) for small Unmanned Aircraft Systems (sUAS), NASA Ames Research Center, Moffett Field, CA 94035. 2015.
- C43 Daiheng Ni*, Linbo Li, Haizhong Wang, Chaoqun Jia. Human Factors In Fundamental Diagram. Symposium Celebrating 50 Years of Traffic Flow Theory. Portland, Oregon. 2014.
- C42 Andrew Leo Berthaume*, Matthew R. E. Romoser, John Collura, Daiheng Ni. Towards a social psychology-based microscopic model of driver behavior and decision-making: modifying Lewin's Field Theory. 5th

International Conference on Ambient Systems, Networks and Technologies (ANT-2014). Hasselt, Belgium. June, 2014

- C41 Tian Zhou, Lixin Gao*, and Daiheng Ni, Road Traffic Prediction by Incorporating Online Information. Workshop on Connecting Online & Offline Life (COOL), Seoul, Korea. April, 2014.
- C40 Daiheng Ni. Field Theory in Agent-Based Driver Modeling. Conference on Agent-Based Modeling in Transportation Planning and Operations. The Inn at Virginia Tech, September 2013.
- C39 Enzo Chaoqun Jia* and Daiheng Ni. Efficient Methodology for Calibrating Traffic Flow Models Based on Bisection Analysis. The 92nd Transportation Research Board (TRB) Annual Meeting, Washington, D.C. 2013.
- C38. Chaoqun Jia*, Qiao Li, Samuel Oppong, Daiheng **Ni**, John Collura, and Paul W. Shuldiner. Evaluation of Alternative Technologies to Estimate Travel Time on Rural Interstates. Online compendium (Paper # 13-3892). The 92nd Transportation Research Board (TRB) Annual Meeting, Washington, D.C. 2013.
- C37. Chaoqun Jia*, and Daiheng **Ni**. Efficient Methodology for Calibrating Traffic Flow Models Based on Bisection Analysis. Online compendium (Paper # 13-3932). The 92nd Transportation Research Board (TRB) Annual Meeting, Washington, D.C. 2013.
- C36. D. **Ni***, H. Liu, Y. Xie, W. Ding, H. Wang, H. Pishro-Nik, Q. Yu, M. Ferreira. Virtual Lab of Connected Vehicle Technology. 2012 Spring Simulation Multiconference, 2012
- C35. Daiheng **Ni***, John D. Leonard, Gabriel Leiner, and Chaoqun Jia. Vehicle Longitudinal Control and Traffic Stream Modeling. Online compendium (Paper # 12-0156). The 91st Transportation Research Board (TRB) Annual Meeting, Washington, D.C. 2012.
- C34. Gabriel Leiner*, Chaoqun Jia, Daiheng **Ni**, and John D. Leonard. Driver Dynamics and the Longitudinal Control Model. Online compendium (Paper # 12-0235). The 91st Transportation Research Board (TRB) Annual Meeting, Washington, D.C. 2012.
- C33. Haizhong Wang*, Zhixia Li, David S. Hurwitz, and Daiheng **Ni**. Driver Traffic Speed Variance Modeling with Application in Travel Time Variability Estimation. Online compendium (Paper # 12-2618). The 91st Transportation Research Board (TRB) Annual Meeting, Washington, D.C. 2012.

- C32. Daiheng Ni*, Hong Liu, Wei Ding, Yuanchang Xie, Honggang Wang, Hossein Pishro-Nik, and Qian Yu. Cyber-Physical Integration to Connect Vehicles for Transformed Transportation Safety and Efficiency. 25th International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems 2012 (IEA/AIE 2012), Jun2, 2012. Dalian, China.
- C31. Gabriel Leiner, Hossein Pishro-Nik, Daiheng Ni*, Sean Morrell, Daniel Marcq, Jarrod LaBarge, Anthony Swochak. Project Crossroads: Vehicular Ad-Hoc Network for Collision Warning. *2011 IEEE International Conference on Vehicular Electronics and Safety*. July 10-12, 2011 Beijing.
- C30. Daiheng Ni*. A Unified Perspective on Traffic Flow Theory, Part I: The Field Theory. The proceedings of *ASCE-ICCTP 2011* (Paper# 30). August 14-17, 2011. Nanjing, China.
- C29. Daiheng Ni*. A Unified Perspective on Traffic Flow Theory, Part II: The Unified Diagram. The proceedings of *ASCE-ICCTP 2011* (Paper# 31). August 14-17, 2011. Nanjing, China.
- C28. Daiheng Ni*, Cheng Zhang, and Haizhong Wang. A Unified Perspective on Traffic Flow Theory, Part III: Validation and Benchmarking. The proceedings of *ASCE-ICCTP 2011* (Paper# 32). August 14-17, 2011. Nanjing, China.
- C27. Hong Liu*, Qian Yu, Wei Ding, Daiheng Ni, Honggang Wang, and Stephen Shannon. Feasibility Study For Automatic Calibration Of Transportation Simulation Models. *2011 Spring Simulation Multiconference* (SpringSim'11). Boston, MA. April 4-7, 2011.
- C26. Daiheng Ni*, Jia Li, Steven Andrews, and Haizhong Wang. Preliminary Estimate of Highway Capacity Benefit Attainable with IntelliDrive Technologies. *13th International IEEE Conference on Intelligent Transportation Systems*. Madeira Island, Portugal, September 19-22, 2010.
- C25. Daiheng Ni*. A Spectrum of Traffic Flow Modeling at Multiple Scales. *Winter Simulation Conference 2010*. Baltimore, Maryland. December 3-6, 2010. (15 pages).
- C24. Haizhong Wang, Jia Li, Qian-Yong Chen, Daiheng Ni*. Representing the Fundamental Diagram: the Pursuit of Mathematical Elegance and Empirical Accuracy. Pre-print CD-ROM, the 89th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C. 2010. (Paper # 10-1354, 22 pages).

- C23. Haizhong Wang*, Steven Andrews, John Collura, Daiheng Ni. Scenario-based Analysis of Transportation Impacts in Case of Dam Failure Flood Evacuation in Franklin County, Massachusetts. Pre-print CD-ROM, the 89th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C. 2010. (Paper # 10-1352, 20 pages).
- C22. Jia Li, Qian-Yong Chen, Haizhong Wang, and Daiheng Ni*. Analysis of LWR Model with Fundamental Diagram Subject to Uncertainties. Pre-print CD-ROM, the 88th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C. 2009. (Paper # 09-1189, 14 pages).
- C21. Haizhong Wang, Jia Li, Qian-Yong Chen, Daiheng Ni*. Speed-Density Relationship: from Deterministic to Stochastic. Pre-print CD-ROM, the 88th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C. 2009. (Paper # 09-1527, 20 pages).
- C20. Kimberly Rudy, Haizhong Wang, and Daiheng Ni*. Modeling and Optimization of Link Traffic Flow. Pre-print CD-ROM, the 87th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C. 2008. (Paper #08-2129, 16 pages)
- C19. Dwayne Henclewood and Daiheng Ni*. The Development of a Dynamic-Interactive-Vehicle Model for Modeling Traffic beyond A Microscopic Level. Pre-print CD-ROM, the 87th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C. 2008. (Paper #08-3059, 15 pages)
- C18. Kevin D. Moriarty*, John Collura, Michael Knodler, Daiheng Ni, and Kevin Heaslip. Using Simulation Models to Assess the Impacts of Highway Work Zone Strategies: Case Studies along Interstate Highways in Massachusetts and Rhode Island. Pre-print CD-ROM, the 87th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C. 2008. (Paper #08-2218, 16 pages)
- C17. H. Pishro-Nik*, A. Ganz, D. Ni. The Capacity of Vehicular Ad Hoc Networks. *Forty-Fifth Annual Allerton Conference on Communication, Control, and Computing*. Allerton House, Monticello, IL. September 26-28, 2007. (Paper #FrA1.6, 8 pages)
- C16. W. L. Leow*, H. Pishro-Nik and D. Ni. Delay and Energy Tradeoff in Multi-state Wireless Sensor Networks. *IEEE Global Telecommunications Conference*. Washington, D.C. November 26-30, 2007. pp. 1028-1032
- C15. Daiheng Ni*, Hossein Pishro-Nik, Richa Prasad, Mohammed Raza Kanjee, Hui Zhu, and Thai Nguyen. Development of a Prototype Intersection Collision Avoidance System under VII. Proceedings of the

14th *World Congress on Intelligent Transport Systems*. Beijing Exhibition Center. Beijing, China. October 9-13, 2007. (Paper #4001, 14 pages)

- C14. Kevin D. Moriarty*, Daiheng **Ni**, and John Collura. Modeling Traffic Flow under Emergency Evacuation Situations: Current Practice and Future Directions. Pre-print CD-ROM, the 86th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C., January 21–25, 2007. (Paper #07-0745, 15 pages)
- C13. Daiheng **Ni***. A Framework for new Generation Transportation Simulation. *Winter Simulation Conference (WSC) 2006*. Monterey, California, USA. December 3-6, 2006. pp. 1508-1514
- C12. Daiheng **Ni*** and John D. Leonard. Direct Methods of Determining Traffic Stream Characteristics by Definition. Pre-print CD-ROM, the 85th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C., January 22–26, 2006. (Paper #06-0241, 15 pages)
- C11. Daiheng **Ni***, John D. Leonard. Markov Chain Monte Carlo Multiple Imputation for Incomplete ITS Data Using Bayesian Networks. Pre-print CD-ROM, the 84th *Transportation Research Board (TRB) Annual Meeting*, Washington, D.C., January 9–13, 2005.
- C10. Daiheng **Ni*** and Keith Strickland. I-85 Traffic Study: A State-of-the-Practice Modeling of Freeway Traffic Operation. *Proceedings of the 2004 Summer Computer Simulation Conference (SCSC 2004*, ed. Bruzzone, A. G. and Williams, E.), The Society for Modeling and Simulation International. pp. 399-404. 2004.
- C09. Daiheng **Ni*** and John D. Leonard. Simplified Kinematic Waves at a Diverge. *The 8th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2004)*, International Institute of Informatics and Systemics, 2004.
- C08. Daiheng **Ni*** and John D. Leonard. A Kinematic Wave Model for Merge Queuing. *The International Conference on Computing, Communications and Control Technologies (CCCT'04)*, International Institute of Informatics and Systemics, 2004.
- C07. Angshuman Guin*, Billy M. Williams, and Daiheng **Ni**. Assessment of the Current Status of Incident Detection Algorithms: Results of a Nationwide Survey. *Proceedings of the 2004 Summer Computer Simulation Conference (SCSC 2004*, ed. Bruzzone, A. G. and Williams, E.), The Society for Modeling and Simulation International. pp. 412-417. 2004.

- C06. Daiheng Ni*. 2DSIM: A Prototype of Nanoscopic Traffic Simulation, *Proceedings of The 2003 Intelligent Vehicles Symposium*, pp. 47-52, Institute of Electrical and Electronics Engineers, Piscataway, NJ.
- C05. Daiheng Ni* and John D. Leonard. Simulation of Freeway Merging and Diverging Behavior. *Proceedings of the 2003 Winter Simulation Conference* (S. Chick, P. J. Sánchez, D. Ferrin, and D. J. Morrice, eds), Institute of Electrical and Electronics Engineers, Piscataway, NJ. pp. 1693-1700. 2003.
- C04. Daiheng Ni*. A Unified Perspective on Traffic Flow Theory: The Field Theory. *TRB Traffic Flow Theory and Characteristics Committee (AHB45) 2010 Summer Meeting and Conference*, July 7-9, 2010 Annecy, France.
- C03. Jia Li, Qian-Yong Chen, Haizhong Wang, and Daiheng Ni*. Investigation of LWR Model with Flux Function Driven by Random Free Flow Speed. *Symposium on the Fundamental Diagram: 75 years*. Woods Hole, Massachusetts. July 8 - 10, 2008. (Paper #A-4, 10 pages).
- C02. Daiheng Ni* and Chunxia Feng. China's Logistics Industry and WTO: A Trend of Globalization. *The 38th Annual International Conference and Exhibition (SOLE 2003)*, Huntsville, Alabama. USA. August 10 - 14, 2003.
- C01. Daiheng Ni*. A Two Dimensional Traffic Simulation Model. *Driving Simulation Conference*, Paris, France. September 11 - 13, 2002.

C. Seminars, Invited Talks, and Keynote Addresses

- S07. A Unified Perspective on Traffic Flow Theory. Applied Mathematics and Computation Seminar Series. University of Massachusetts Amherst. 2008.
- S06. Development of a Prototype Intersection Collision Avoidance System under VII. TRB Mid-Year Workshop on Vehicle Infrastructure Integration (VII) and Collaborative Intersection Collision Avoidance System (CICAS). July 23, 2007 in Palo Alto, CA.
- S05. Traffic flow and transportation simulation. Engineering seminar series, Smith College. 2007.
- S04. Transportation Modeling and Simulation: an Effort of 50+ Years. UMASS Amherst Operations Research / Management Science Seminar Series. 2007.

- S03. Applications of Digital Communications in Transportation Engineering. Electrical and Computer Engineering Graduate Seminar Series, University of Massachusetts Amherst. 2006.
- S02. Keynote Speaker. Transportation Simulation: Past, Present, and Future 7th Annual NEITE/UMass Technical Day. 2006.
- S01. Comparing HCM and Other Capacity/Speed Measures Using NGSIM Data. Workshop on Simulation, the 85th Transportation Research Board (TRB) Annual Meeting, Washington, D.C., January 22-26, 2006.

D. Dissertation

Extension and Generalization of Newell's Simplified Theory of Kinematic Waves. School of Civil & Environmental Engineering, Georgia Institute of Technology, Atlanta, GA, USA. 2004.
Dissertation Advisor: Dr. John D. Leonard.

V. Sponsored Research

As Principal Investigator (PI) unless noted otherwise

A. External Funding and Proposals

A1. Active Grants

- 1. Daiheng Ni (PI). Supplementary Vehicle Positioning to Connected Vehicles. U.S. DOT University Transportation Center (UTC) Region One. \$125,116.

A2. Completed Projects

- 4. Daiheng **Ni** (PI). Modeling Drivers' Lateral Motion Control. U.S. DOT University Transportation Center (UTC) Region One. \$66,116.
- 3. Daiheng **Ni** (PI) and Lixin Gao (Co-PI). Making More Value out of Transportation Data. U.S. DOT University Transportation Center (UTC) Region One. \$64,431.
- 2. Daiheng **Ni** (PI). Consistent Modeling of Traffic Flow. U.S. DOT University Transportation Center (UTC) Initiative. 2010 to 2011. \$79,955.
- 1. Daiheng Ni (PI). Calibration and Validation of Longitudinal Control Model. U.S. DOT University Transportation Center (UTC) Initiative. 2011 to 2012. \$49,903

VI. Services

A. Professional Registration

E.I.T. (Georgia, EIT021643)

B. University/Department Services

Member, CEE Department Personnel Committee (2012)

C. Professional Services

1. Associate Editor, Technical Program Committee of the 13th International IEEE Conference on Intelligent Transportation Systems (ITSC 2010).
2. Associate Editor, Technical Program Committee of the 12th International IEEE Conference on Intelligent Transportation Systems (ITSC 2009).
3. Member, Committee on Traffic Flow Theory and Characteristics (AHB45), Transportation Research Board, National Research Council.
4. Co-Chair of Research Needs and Resources Task Group. Joint Simulation Subcommittee (SimSub, AHB45(1)), Transportation Research Board, National Research Council.
5. Member, Archived Data User Service (ADUS) Subcommittee (AFD30(1)), Transportation Research Board, National Research Council.
6. Friend, Committee on Vehicle-Highway Automation (AHB30), Transportation Research Board, National Research Council.
7. Panelist, National Science Foundation (NSF).

D. Reviewers

D1. Journals

- ASCE Journal of Transportation Engineering (6 papers reviewed)
- Transportation Research Part C: Emerging Technologies. Elsevier Science. (3 papers reviewed)
- IEEE Transactions on Intelligent Transportation Systems. (3 papers reviewed)
- Journal of Intelligent Transportation Systems, Taylor & Francis. (3 papers reviewed)
- IEEE Transactions on Control Systems Technology (3 papers reviewed)

- Transportation Research Part B: Methodological. Elsevier Science (2 papers reviewed)
- IET Intelligent Transport Systems (2 papers reviewed)
- IEEE Transactions on Vehicular Technologies. (1 paper reviewed)
- IEEE Signal Processing Letters (1 paper reviewed)
- Transportmetrica, Taylor & Francis. (1 paper reviewed)
- International Journal of Vehicle Information and Communication Systems (IJVICS), Inderscience. (1 paper reviewed)
- Computers and Mathematics with Applications, Elsevier Science. (1 paper reviewed)
- International Journal of Simulation and Process Modelling (IJSPM), Inderscience. (1 paper reviewed)
- Journal of Urban Technology, Taylor & Francis. (1 paper reviewed)
- Computer-Aided Civil and Infrastructure Engineering. Blackwell Publishing. (8 papers reviewed)

D2. Conferences

- Transportation Research Board Annual Meeting 2000-2015 (48 papers reviewed)
- International Conference of Chinese Transportation Professionals, 2010 (ICCTP) (3 papers reviewed)
- American Control Conference, 2010 (1 paper reviewed)
- Winter Simulation Conference, 2006 (2 papers reviewed)
- 10th International IEEE Conference on Intelligent Transportation Systems 2007 (1 paper reviewed)
- 9th International IEEE Conference on Intelligent Transportation Systems 2006 (3 papers reviewed)
- World Congress on Intelligent Transport Systems, 2007 (2 papers reviewed)
- 2007 World Conference on Transport Research (2 paper reviewed)