

LILI DU

Associate Professor

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RESEARCH INTERESTS

- Transportation system analysis and network modeling
- CV/AV/CAV related network modeling and platooning control
- Electrical vehicle related network modeling
- Big data analytics for traffic flow analysis
- AI applications in transportation systems
- Resilient civil infrastructure networks
- Mobility as a service

EMPLOYMENT

- Tenured Associate Professor, Aug. 2017 - Present, University of Florida, USA
- Tenured Associate Professor, May - Aug. 2017, Illinois Institute of Technology, USA (Early Promotion)
- Assistant Professor, Aug. 2012 - Aug. 2017, Illinois Institute of Technology, USA
- Post-Doctoral Research Associate, Aug. 2008 - Jul. 2012, NEXTRANS Center, Purdue University, USA
- Associate Engineer, Aug. 1998 - Jul. 1999, Zhengzhou Mechanical&Electrical Institute, China

EDUCATION

- Ph.D., Decision Sciences and Engineering Systems, Rensselaer Polytechnic Institute, 2008.
- M.S., Operations Research and Statistics, Rensselaer Polytechnic Institute, 2007.
- M.S., Industrial Engineering, Tsinghua University, Beijing, China, 2003.
- B.S., Mechanical Engineering, Xi'an Jiaotong University, Xi'an, Shanxi, China, 1998.

DOCTORAL DISSERTATION

- Fundamental Problems in Vehicular Ad Hoc Networks: Connectivity, Reachability, Interference, Broadcast Capacity, and Online Routing. *Rensselaer Polytechnic Institute*, Troy, NY USA 12180, 2008.

AWARDS

- National Science Foundation CAREER Award, CMMI 1554559 (2016) for the research on *Integrated Online Coordinated Routing and Decentralized Control for Connected Vehicle Systems*
- Finalist of Illinois Institute of Technology inaugural Nayar Prize (2015) for the research on *Driverless City Project*
- Siyuan Gong, Lili Du. 3rd Place – 2018 COTA dissertation award: Coordinated Driving in Connected and Autonomous Vehicle System– Optimal Advance Lane Change Zone and Coordinated Platoon Car Following Control.
- Stephen Spana, Lili Du. 3rd Place – 2018 Florida Automated Vehicle Summit Poster Competition: A Mixed-Strategy Coordinated Route-Guidance System for Connected Vehicles Using Information Perturbation.

CURRENT RESEARCH PROJECT

- A New Stochastic Gradient Algorithmic Paradigm for Training Massive AI Models in Network-Wide Traffic Anomaly Warning. Sponsor: UF Research, Artificial Intelligence Research Catalyst Fund, \$50,000 (12/02/2020–12/01/2021). Lili Du (Co-PI)
- Collaborative Research: Smart Vehicle Platooning Built upon Real-Time Learning and Distributed Optimization. Sponsor: National Science Foundation, award CMMI 1901994, \$199,000 (06/01/2019–05/31/2022). Lili Du (PI).

- CAREER: Integrated Online Coordinated Routing and Decentralized Control for Connected Vehicle Systems. Sponsor: National Science Foundation, award CMMI 1554559, \$500,000 (08/01/2016–07/31/2021). Lili Du (PI).
- Driverless City Project. Sponsor: First IIT Nayar Prize. \$100,000. 10/01/2015–09/30/2016. Marshall Brown (PI), Lili Du (Co-PI), Laura Forlano (Co-PI), Jack Guthman (Co-PI), and Ron Henderson (Co-PI).
- Collaborative Research: Coordinated Real-Time Traffic Management Based on Dynamic Information Propagation and Aggregation under Connected Vehicle Systems. Sponsor: National Science Foundation, award CMMI 1436786, \$240,000. (08/01/2014–07/31/2017). Lili Du (PI) and Xiang-Yang Li (Co-PI).
- Toyota Miscellaneous Donors. Sponsor: Toyota InfoTechnology Center-Intelligent Computing Division, \$30,000. Lili Du (PI).
- Sustainable Urban Freight Mobility through Optimization of Logistics Facility Location. Sponsor: FMRI (Tier 1 UTC), \$50,000 (09/01/2018–08/31/2019).Lili Du (Co-PI).
- STRIDE project: Discovering Potential Market for the Integration of Public Transportation and Emerging Shared-mobility Services. Sponsor: STRIDE (Reginal UTC) \$78,849 (01/15/2019–01/14/2020). Lili Du (PI).
- STRIDE project: Smartphone-Based Incentive Framework for Dynamic Network-Level Traffic Congestion Management. Sponsor: STRIDE (Reginal UTC) \$70,000 (01/15/2020–01/14/2021). Lili Du (PI at UF).
- Refinement of Load Factors for Illinois-Specific Load and Resistance Factored Rating (LRFR) Bridge Load Rating Using Weigh-In-Motion (WIM) Data. Sponsor: Illinois Department of Transportation. \$300,000 (08/16/2015 – 02/16/2018). Gongkang Fu (PI) and Lili Du (Co-PI).
- Signal Timing Optimization for Large-Scale Urban Networks under Dynamic Traffic. Sponsor: USDOT Region 5 University Transportation Center- The NEXTRANS Center, \$100,000 (12/01/2012–1/31/2016). Zongzhi Li (PI) and Lili Du (Co-PI).

JOURNAL PUBLICATIONS

- [1]. Hanyu Zhang* , **Lili Du**, Jinglai Shen. (2021) Machine Learning Aided Platoon-Based Cooperative Lane-change Control Using MPC Approach. *Transportation Research Part B: Methodological* (under review)
- [2]. Shen, Jinglai; Hathibelagal Kammarra, Eswar; **Du, Lili**. (2021) Fully Distributed Optimization based CAV Platooning Control under Linear Vehicle Dynamics, *Transportation Science* (under review)
- [3]. Wang Peng*, **Lili Du**. (2021) A clustering aided online semi-centralized riders-drivers matching approach for optimal carpool schemes. *Transportation Research Part C: Emerging Technologies* (under review)
- [4]. Jiahua Qiu*, Wang Peng*, **Lili Du**. (2021) Analyzing Transit and Ridesharing Trip Data to Support Hybrid Urban Public Transport. *Transportation Research Part C: Emerging Technologies* (under revision)
- [5]. Chen Mu, **Lili Du**, Xiangmo Zhao. (2021) Event Triggered Rolling Horizon Based Systematical Trajectory Planning for Merging Platoons at Mainline-Ramp Intersection. *Transportation Research Part C: Emerging Technologies* (under revision)
- [6]. Stephen Spana*, **Lili Du**, Yafeng Yin. (2021) Strategic Information Perturbation for an Online In-Vehicle Coordinated Routing Mechanism for Connected Vehicles Under Mixed-Strategy Congestion Game. *IEEE Transactions on ITS*. (Forthcoming)
- [7]. Hanyi Yang*, **Lili Du**, and Jamshid Mohammadi. (2021) A Shock Wave Diagram based Deep Learning Model for online Public Event Prediction. *Transportation Research Part C: Emerging Technologies*. (Forthcoming)
- [8]. Charisis, A.*, Spana, S.*, Kaiser, E, **Du, L.**(2021) Locating and Scheduling Inner-City Hubs for Last-Mile Deliveries, *International Journal for Traffic and Transportation Engineering*, Vol. 10(2), 169-186.
- [9]. Yinyin Ge, **Lili Du**, Hongxing Ye (2019) Co-optimization approach to post-storm recovery for interdependent power and transportation systems. *J. Mod. Power Syst. Clean Energy* <https://doi.org/10.1007/s40565-019-0524-7>.
- [10]. Siyuan Gong*, and **Lili Du** (2018). Cooperative platoon control for a mixed traffic flow including human drive vehicles and connected and autonomous vehicles. *Transportation Research Part B: Methodological*, 116, 25-61.
- [11]. Jane Lin, Wei Zhou*, and **Lili Du** (2018). Is on-demand same day package delivery service green? *Transportation Research Part D: Transport and Environment*, 61, 118-139.

*Student co-author under my close supervision.

- [12]. Shuwei Chen*, and **Lili Du** (2017). Simulation Study of the Impact of Local Real-Time Traffic Information Provision Strategy in Connected Vehicle Systems. *International Journal of Transportation Science and Technology*, 6(4), 229-239.
- [13]. **Lili Du**, Siyuan Gong*, Lu Wang* and Xiang-Yang Li (2016). Information-Traffic Cell Transmission Model for Information Coverage Dynamics over V2V Communication Network on Road Segments. *Transportation Research Part C: Emerging Technologies*, 73, 30-48.
- [14]. Siyuan Gong*, Jinglai Shen, **Lili Du**. (2016) Distributed computation based car-following control integrating optimal system performance for a platoon of autonomous vehicles. *Transportation Research Part B: Methodological*, 94, 314-334.
- [15]. **Lili Du** and Siyuan Gong* (2016). Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism. *Transportation Research Part B: Methodological*, 87, 44-63.
- [16]. Siyuan Gong* and **Lili Du** (2016). Optimal Location of Advance Warning for Mandatory Lane Change near a Two-Lane Highway Off-ramp. *Transportation Research Part B: Methodological*, 84, 1-30.
- [17]. **Lili Du**, Srinivas Peeta, Peng Wei, and Dengfeng Sun (2015). A quantitative and systematic methodology to investigate energy consumption issues in multimodal intercity transportation systems. *International Journal of Transportation Science and Technology* 4(3), 229-256.
- [18]. **Lili Du**, Lanshan Han, and Shuwei Chen* (2015). Coordinated Online In-Vehicle Routing Balancing User Optimality and System Optimality through Information Perturbation. *Transportation Research Part B: Methodological* 79, 121-133.
- [19]. **Lili Du**, Shuwei Chen*, and Lanshan Han (2015). Coordinated Online In-Vehicle Navigation Guidance Based on Routing Game Theory. *Transportation Research Record: Journal of the Transportation Research Board* 2497, 106-116.
- [20]. **Lili Du** and Hoang Dao* (2015). Information Propagation Delay in a Connected Vehicle Network on a Road Segment. *IEEE Transactions on Intelligent Transportation Systems* 16(1), 66-80.
- [21]. **Lili Du**, Lanshan Han, and Xiangyang Li (2014). Distributed Coordinated In-Vehicle Online Routing under Mixed Strategy Congestion Game. *Transportation Research Part B: Methodological* 67, 1-15.
- [22]. **Lili Du** and Srinivas Peeta (2014). A Stochastic Optimization Model to Reduce Expected Post-Disaster Response Time through Pre-Disaster Investment Decisions. *Networks and Spatial Economics* 14(2), 271-295.
- [23]. **Lili Du**, Srinivas Peeta and Yong Hoon Kim (2013). Online Stochastic Routing Incorporating Real-Time Traffic Information. *Transportation Research Record: Journal of the Transportation Research Board* 2334, 95-104.
- [24]. Yin Hang, **Lili Du**, Qu Min, and Srinivas Peeta (2013). Designing Solar Cooling Systems Using Optimization and Central Composite Design Techniques. *Renewable Energy* 52(4), 67-78.
- [25]. **Lili Du**, Srinivas Peeta, and Yong Hoon Kim (2012). Adaptive Information Fusion Models to Estimate the Short-Term Travel Time Distribution. *Transportation Research Part B: Methodological* 46(1), 235-252.
- [26]. Lanshan Han and **Lili Du** (2012). On a Link-Based Day-to-Day Traffic Assignment Model. *Transportation Research Part B: Methodological* 46(1), 72-84.
- [27]. **Lili Du**, Anuj Sharma, and Srinivas Peeta (2012). Optimal Advance Detector Location for Green Termination Systems on High Speed Isolated Intersections. *Transportation Research Part B: Methodological* 46(10), 1404-1418.
- [28]. **Lili Du** and Satish Ukkusuri (2010). The Relative Mobility of Vehicles Improves the Performance of Information Flow in Vehicle Ad Hoc Networks. *Networks and Spatial Economics* 10, 209-240.
- [29]. **Lili Du**, Satish Ukkusuri, Wilfredo F. Yushimito Del Valle, and Shivkumar Kalyanaraman (2009). Optimization Models to Characterize the Broadcast Capacity of Vehicular Ad Hoc Networks. *Transportation Research Part C: Emerging Technologies* 17(6), 571-585.
- [30]. Satish Ukkusuri and **Lili Du** (2008). Geometric Connectivity of Vehicular Ad Hoc Networks: Analytical Characterization. *Transportation Research Part C: Emerging Technologies* 16(5), 615-634.
- [31]. **Lili Du**, Satish Ukkusuri, and Shivkumar Kalyanaraman (2008). Integrating Traffic Flow Features to Characterize the Interference in Vehicular Ad Hoc Networks. In Huaqun Guo eds. *Automotive Informatics and Communicative Systems: Principals in Vehicular Networks and Data Exchange*. Hershey, PA: Information Science Reference; 2008:162-179.
- [32]. Zhenggang Dan, Linning Cai, **Lili Du**, and Li Zheng (2006). Load Balancing of the Vehicle Routing Problem. *Journal of Tsinghua University (Science and Technology)* 46(11), 1945-1948.

- [33]. Sunderesh Heragu, **Lili Du**, Ronald Mantel, and Peter Schuur (2005). A Mathematical Model for Warehouse Design and Product Allocation. *International Journal of Production Research* 43(2), 327-338.

PEER-REVIEWED CONFERENCE PUBLICATIONS AND PRESENTATIONS

- [1]. Ala Alobeidyeen *, **Lili Du**, Information Dissemination Dynamics through Vehicle-to-Vehicle Communication over Transportation Networks. IEEE ITSC 2019, Auckland, New Zealand 27-30 October.
- [2]. Stephen PanaG, **Lili Du**, Yafeng Yin. A Coordinated Route-Guidance System For Connected Vehicles Under Mixed-Strategy Congestion Game With Information Perturbation (CRM-M-IP), INFORMS annual meeting, Seattle, WA, October 20-23, 2019.
- [3]. Chen Mu, **Lili Du**, Multi-Stage Discrete Trajectory Control for Merging Two Traffic Streams at Highway-Ramp Intersection, TRB annual meeting 2020, January 12–16, Washington DC.
- [4]. Hongcheng Liu, **Lili Du**, Yongpen Guan, Data-Driven Re-Optimization for Taxi Routing Under Small Data, TRB annual meeting 2020, January 12–16, Washington DC.
- [5]. Ala Alobeidyeen*, Lili Du, Mathematical Formulations for Understanding Interference and Transmission Range of V2V Communication in an Urban Road Intersection. TRB annual meeting 2020, January 12–16, Washington DC.
- [6]. Stephen SpanaG, **Lili Du**, Yafeng Yin. A Coordinated Routing Mechanism for Connected Vehicles with Information Perturbation Under Mixed-Strategy Congestion Game. TRB annual meeting 2020, January 12–16, Washington DC.
- [7]. Hanyi Yang*, **Lili Du**, and Jamshid Mohammadi. A Shock Wave Diagram based Deep Learning Model for online Public Event Prediction, 2020 ASCE International Conference on Transportation & Development (ICTD 2020), Seattle, WA, May 26-29, 2020
- [8]. Ala S Alobeidyeen*, **Lili Du**, A Discrete Mathematical Framework for Tracking Information Dissemination Dynamics via Vehicle-to-Vehicle Communications in an urban roadway Network, IEEE Intelligent Transportation Systems on Conference - ITSC 2019, Auckland, New Zealand 27-30 October, 2019.
- [9]. Peng Wang*, **Lili Du**, Clustering based Online Coordinated In-Vehicle Routing Built upon Understanding the Competition Potential among Travelers on Network Route Resources, 98th Annual Meeting of the Transportation Research Board, Washington DC, January 13-17, 2019.
- [10]. **Lili Du**, Ala S Alobeidyeen, Information Dissemination Dynamics through Vehicle-to-Vehicle Communication Over Transportation Network. 98th Annual Meeting of the Transportation Research Board, Washington DC, January 13-17, 2019.
- [11]. Han, J. *, Jung, T., Li, X. Y., & **Du, L.** (2016, December). Ensuring Semantic Validity in Privacy-Preserving Aggregate Statistics. In *Mobile Ad-Hoc and Sensor Networks (MSN)*, 2016 12th International Conference on (pp. 160-166). IEEE.
- [12]. Siyuan Gong*, **Lili Du**. Constrained Model Predictive Control and Distributed Computation based Car-Following Control for a Platoon Mixed with Connected and Autonomous Vehicles and Human-Drive Vehicles. INFORMS Transportation and Logistics Society First Triennial Conference, Chicago, July 26 – 29, 2017.
- [13]. Siyuan Gong*, Jinglai Shen, **Lili Du**. Constrained Optimization and Distributed Computation based Car Following Control of A Connected and Autonomous Vehicle Platoon. 96th Annual Meeting of the Transportation Research Board, Washington DC, January 8-12 2017.
- [14]. Mohamad Hossein Noruzoliaee*, Bo Zou, **Lili Du**. Modeling Transportation Network Equilibrium for Multimodal Intercity Travel: A New Equilibrium Problem with Equilibrium Constraints Framework. Accepted for Presentation in 96th Annual Meeting of the Transportation Research Board, Washington DC, January 8-12 2017.
- [15]. **Lili Du**, Siyuan Gong*, Lu Wang*, Xiangyang Li. Discrete Information Spreading Dynamics over Vehicular Ad Hoc Network on One-way Road Segments. Accepted for Presentation in 96th Annual Meeting of the Transportation Research Board, Washington DC, January 8-12 2017.
- [16]. Shuwei Chen*, **Lili Du**. Simulation Study of the Impact of Local Real-Time Traffic Information Provision Strategy in Connected Vehicle Systems. Accepted for Presentation in 96th Annual Meeting of the Transportation Research Board, Washington DC, January 8-12 2017.
- [17]. Shuwei Chen* and **Lili Du**. Investigating the Impact of Local Real-Time Traffic Information Provision Strategy in a Connected Vehicle System. Presentation in 16th COTA conference International Conference of Transportation Professionals (CICTP 2016), Shanghai China, July 6-9 2016.

- [18]. **Lili Du** and Siyuan Gong*. Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism. Presentation in 95th Annual Meeting of the Transportation Research Board, Washington DC, January 10-14 2016.
- [19]. Yi Liu*, **Lili Du** and Zongzhi Li. Intersection Signal Timing Optimization for Urban Street Network Integrating HCM 2010 Control Delay and Traffic User Equilibrium. Presentation in 95th Annual Meeting of the Transportation Research Board, Washington DC, January 10-14 2016.
- [20]. **Lili Du**, Lanshan Han, and Shuwei Chen* (2015). Coordinated Online In-Vehicle Navigation Guidance Based on Routing Game Theory. Presentation in 94th Annual Meeting of the Transportation Research Board, Washington DC, January 11-15 2015.
- [21]. Lu Liu, Xianghui Cao, Yu Cheng, **Lili Du**, Wei Song and Yu Wang. Energy-efficient capacity optimization in wireless networks. The 33rd Annual IEEE International Conference on Computer Communications, INFOCOM 2014. Toronto, Canada, April 27 - May 2, 2014.
- [22]. **Lili Du**, Srinivas Peeta, Peng Wei, Dengfeng Sun. A quantitative and systematic methodology to investigate energy consumption efficiency in multimodal transportation systems. Presentation in 93th Annual Meeting of the Transportation Research Board, Washington DC, January 12-16 2014.
- [23]. **Lili Du**, Srinivas Peeta, Yong Hoon Kim. Online Stochastic Routing Incorporating Real-Time Traffic Information. Presentation in 92th Annual Meeting of the Transportation Research Board, Washington DC, January 13-17 2013.
- [24]. **Lili Du**, Anuj Sharma, Srinivas Peeta. Optimal Advance Detector Location for Green Termination Systems on High-speed Isolated Intersections. Presentation in 91th Annual Meeting of the Transportation Research Board, Washington DC, January 22-26 2012.
- [25]. **Lili Du**, Srinivas Peeta. A Bi-Level Stochastic Optimization Model to Enhance Transportation Network Survivability and Reduce Response Times under Disasters. Presentation in 91th Annual Meeting of the Transportation Research Board, Washington DC, January 22-26 2012.
- [26]. **Lili Du**, Srinivas Peeta, Yong Hoon Kim, and Satish Ukkusuri. Online Stochastic Routing Incorporating Real-Time Information Accuracy. Proceedings of 2011 World Congress on Intelligent Transport Systems, Orlando, Florida, October 16-20 2011.
- [27]. **Lili Du**, Srinivas Peeta, Yong Hoon Kim, and Satish Ukkusuri. Adaptive Information Fusion Model to Estimate the Short-term Link Travel Time Distribution. Presentation in the 90th Annual Meeting of the Transportation Research Board, Washington DC, January 23-27 2011.
- [28]. **Lili Du** and Srinivas Peeta. A Bi-level Stochastic Optimization Model to Enhance Infrastructure Network Survivability and Reduce Emergency Response Time under Disasters. 1st Conference of the Transportation Research Group, Bangalore, India, December 2011.
- [29]. Srinivas Peeta, **Lili Du**, and F. Sibel Salman. A Strategic Planning Framework to Enhance Infrastructure Network Survivability and Functionality under Disasters. Proceedings of ODYSSEUS 2009 Fourth International Workshop on Freight Transportation and Logistics, Salm / IZMIR, Turkey, May 26-29, 2009.
- [30]. **Lili Du**, Satish Ukkusuri, and Shivkumar Kalyanaraman. Characterizing Interference in Vehicle Ad Hoc Network on Freeway Segment under Various Traffic Flow Conditions. Presentation in the 87th Annual Meeting of the Transportation Research Board, Washington DC, January 13-17 2008.
- [31]. Satish Ukkusuri, **Lili Du**, and Shivkumar Kalyanaraman. Geometric Connectivity of Vehicular Ad Hoc Networks: Analytical Characterization. Poster at The Fourth ACM Workshop on Vehicular Ad Hoc Networks (VANET 2007), Montreal, Canada, September 10 2007.
- [32]. Satish Ukkusuri, **Lili Du**, and Gitakrishnan Ramadurai. Modeling Limited Peer to Peer Vehicle Information Exchange for Online Traffic Assignment. Proceedings of 11th World Conference on Transportation Research, Berkeley CA, July 24-28 2007.
- [33]. **Lili Du**, Linning Cai, and Jian Yao. An Improved Heuristic Algorithm for the Assembly Line Balancing Problem. Proceedings of IE&EM' 2002 & IceCE' 2002, Beijing, China, October 2002.

TECHNICAL REPORT

- [1]. **Lili Du**, Xia Jin, Jiahua Qiu[†], Peng Wang[†], Ghazaleh Azimi[†], Alireza Rahimi[†], Ming Lee[†] (2020). Discovering Potential Market for the Integration of Public Transportation and Emerging Shared-Mobility

[†]Student co-author under PIs' supervision.

- Services. Project No. F2, STRIDE, USDOT Region IV Regional University Transportation Center, University of Florida, FL.
- [2]. Marshall Brown, **Lili Du**, Laura Forlano, Ron Henderson (2016). The Driverless City. Project report submitted to IIT Nayar Prize Foundation, Illinois Institute of Technology.
 - [3]. Zongzhi Li, **Lili Du**, Yi Liu (2016). Optimal Signal Timing Design for Urban Street Network under User Equilibrium based Traffic Conditions. Project No. 019FY02, NEXTRANS, USDOT Region V Regional University Transportation Center, Purdue University, IN.
 - [4]. Srinivas Peeta, **Lili Du**, Yong Hoon Kim (2009). A Decision Support Tool for Vehicle Infrastructure Integration: Understanding Information Effects and Advancing Data Fusion Algorithms for Traffic Management Applications. Project No. 013PY01, NEXTRANS, USDOT Region V Regional University Transportation Center, Purdue University, IN.

NON-PEER-REVIEWED CONFERENCE PRESENTATIONS

- [1]. Clustering based Online Coordinated In-Vehicle Routing Built upon Understanding the Competition Potential among Travelers on Network Route Resources. INFORMS 2018, Phoenix, AZ, Nov. 4-7, 2018.
- [2]. Information Dissemination Dynamics through Vehicle-to-Vehicle Communication Over Transportation Network. INFORMS 2018, Phoenix, AZ, Nov. 4-7, 2018.
- [3]. Cooperative Platoon Control for a Mixed Traffic Flow Including Human Driven Vehicles and Connected and Autonomous Vehicles, ASCE International Conference on Transportation and Development, Pittsburgh, Pennsylvania, July 15-18, 2018.
- [4]. Cooperative Platoon Control for a Mixed Traffic Flow Including Human Driven Vehicles and Connected and Autonomous Vehicles, Automated Vehicle Symposium, San Francisco, July 9-12, 2018.
- [5]. Supply-demand-performance equilibrium in multimodal intercity transportation networks: a novel framework and application, INFORMS 2016, Nashville, NT, Nov. 13-16, 2016.
- [6]. Distributed Computation based Car-following Control Integrating Optimal System Performance for a Platoon of Autonomous Vehicles, INFORMS 2016, Nashville, NT, Nov. 13-16, 2016.
- [7]. Information Spreading Dynamics over Vehicular Ad Hoc Network on Road Segments based Cell Transmission Model, INFORMS 2016, Nashville, NT, Nov. 13-16, 2016.
- [8]. Green Same Day Delivery with Real-time Demand, INFORMS 2016, session on Modeling and Analysis of Innovative Mobility Services II, Nashville, TN, Nov. 13-16.
- [9]. Green Same Day Delivery with Real-time Demand, 28th European Conference on Operational Research, session on Green Vehicle Routing, Poznan, Poland, July 3-6, 2016.
- [10]. A Mathematical Model to Locate Optimal Lane changing Zone at a Highway Off-ramp, INFORMS 2015, Philadelphia, PA, Nov. 1-4, 2015.
- [11]. Investigating the Impact of Local Real-Time Traffic Information Provision Strategy in a Connected Vehicle Systems, Poster at Transport Chicago Conference, June 6, 2014
- [12]. Information Dissemination Delay in a Connected Vehicle Network Running on a Single Two-way Road, INFORMS 2013, Minneapolis, MN, Oct 6-9, 2013.
- [13]. Enhancing Energy Consumption Efficiency in Multimodal Transportation Networks. INFORMS Annual Meeting, Austin TX, Nov. 7-10, 2010.
- [14]. Optimal Advance Detector Location for Green Termination Systems on High Speed Isolated Intersections. INFORMS Annual Meeting, Austin TX, Nov. 7-10, 2010.
- [15]. A Strategic Planning Framework to Enhance Infrastructure Network Survivability and Functionality under Disasters. INFORMS Annual Meeting, San Diego CA, October 11-14, 2009.
- [16]. Closed Loop Adaptive On-line Routing under Uncertain Information Reliability in VANETs, INFORMS Annual Meeting, San Diego CA, October 11-14, 2009.
- [17]. Fundamental Problems in Vehicular Ad Hoc Networks: Connectivity, Reachability, Capacity and Online Routing, Doctoral Dissertation Seminar, 87th Transportation Research Board Annual Meeting, Washington DC, Jan. 13-17, 2008.
- [18]. Optimization Models to Characterize the Broadcast Capacity of Vehicular Ad Hoc Networks, INFORMS Annual Meeting, Washington, DC, October 12-15, 2008.
- [19]. Online Routing in Vehicular Ad Hoc Network, INFORMS Annual Meeting, Washington, DC, Oct. 12-15, 2008.

TEACHING EXPERIENCE

- UF: TTE 4300/5305: Transportation Systems Analysis. Key topics: paradigm of transportation systems analysis, overview of optimization, preferences and utility, demand function, discrete choice, cost minimization, transportation network equilibrium, project evaluation, cost-benefit analysis. *Reference* : (i) Varian, Hal. Intermediate Microeconomics: A Modern Approach, 9th Editions, W.W Norton & Company, 2014. (ii) Sheffi, Yosef. Urban Transportation Networks: Equilibrium Analysis with Mathematical Programming Methods, Prentice-Hall Inc, 1984.
- UF: TTE 6606: Urban Transportation Models. Key topics: shortest path, deterministic user equilibrium and solution algorithm, stochastic user equilibrium and solution algorithm, equilibrium analysis with elastic demand, bi-level programming models and network reliability/vulnerability assessment. *Reference* : (i) Sheffi, Yosef. Urban Transportation Networks: Equilibrium Analysis with Mathematical Programming Methods, Prentice-Hall Inc, 1984, ISBN: 0-13-939729-9. (ii) Bell, M.G.H. and Iida, Y. Transportation Network Analysis, John Wiley, 1997.
- IIT: CAE547: Advanced Traffic Engineering, Illinois Institute of Technology. *Key topics*: traffic sensing, traffic flow characteristics, equilibrium traffic flow models, macroscopic traffic modeling including wave, partial differential equations, conservation law, shock wave, LWR models, cell transmission models, simplified K-wave theory, car-following models. *Textbook*: D. Ni. Traffic Flow Theory: Characteristics, Experimental Methods, and Numerical Techniques. Butterworth-Heinemann, 2015.
- IIT: CAE581: Algorithms in Transportation, Illinois Institute of Technology. *Key topics*: algorithm complex analysis, network models, theories, algorithms, and applications of shortest path, maximum flow, minimum cut, minimum spanning, minimum cost flow, linear programming, nonlinear programming, and static traffic assignment. *Textbook*: Ravindra K. Ahuja, Thomas L. Magnanti, James B. Orlin. Network Flows: Theory, Algorithms, and Applications. Prentice Hall, 1993.
- IIT: CAE523: Statistical Analysis of Engineering Data, Illinois Institute of Technology. Key topics: Descriptive statistics and graphs, probability distribution, random sampling, independence, significance tests, design of experiments, regression, time series analysis, statistical process control, and introduction to multivariate analysis. *Textbook*: D.C. Montgomery and G.C. Runger. Applied Statistics and Probability for Engineers, 6th Edition. John Wiley & Sons, Inc., 2014.
- IIT: CAE312: Engineering System Analysis, Illinois Institute of Technology. Key topics: introduction and applications of engineering economics, microscopic economics in civil engineering, elementary probability and statistics theory and applications in civil engineering. *Textbook*: C.J. Khisty, J. Mohammadi, and A. A. Amedkudzi. Systems Engineering with Economics, Probability, and Statistics, 2nd Edition. J. Ross Publishing, 2012.
- IIT: Instructor of Civil Engineering Seminar: well-established scholars from both academia and industry are invited to give talks in the class for graduate students.

INVITED TALK

- HERE Technologies Webinar, "A shock wave diagram based deep learning model for early alerting a upcoming public event", Oct. 13, 2020.
- DOT "Getting to Know Artificial Intelligence (AI)" Webinar, "AI Aided Transportation System Management and Decision Making", Oct. 1st, 2020.
- Online semi-centralized CAV ridesharing matching to promote carpooling, 5th Conference on Sustainable Urban Mobility Virtual CSUM2020, 17-19 June 2020.
- Time Series Shock Wave Diagrams based Deep Learning Model for Online Public Event Prediction Pre-CICTP2019 Workshop, Beijing University of Technology, Beijing July 04, 2019.
- Clustering based Online Coordinated In-Vehicle Routing Built upon Competition Potential among Travelers on Network Route Resources, Distinguished Speaker, Beijing, July 3-5, 2019.
- Coordinated In-Vehicle Routing Built Upon Online Learning and Distributed Optimization for Connected and Autonomous Vehicles. Intelligent Computing Division, Toyota InfoTechnology Center. Mountain View, California, May 23, 2019.
- Distributed Computation based Cooperative Model Predictive Control for a Platoon Mixed with Connected and Autonomous Vehicles and Human-Drive Vehicles, ASCE International Conference on Transportation and Development 2018, Pittsburgh, Pennsylvania, July 15-18, 2018.

- Cooperative Platoon Control for a Mixed Traffic Flow Including Human Driven Vehicles and Connected and Autonomous Vehicles, Automated Vehicle Symposium 2018, San Francisco, California, July 6–13, 2018.
- Distributed Computation based Cooperative Model Predictive Control for a Platoon Mixed with Connected and Autonomous Vehicles and Human-Drive Vehicles, 18th COTA International Conference of Transportation Professionals (CICTP2018), Beijing, China, July 5-8.
- Coordinated In-Vehicle Routing Built Upon Online Learning and Distributed Optimization Computation for Connected and Autonomous Vehicles, University of Arizona, Nov. 2, 2018.
- Coordinated In-Vehicle Routing Built Upon Online Learning and Distributed Optimization Computation for Connected and Autonomous Vehicles, George Mason University, Oct. 11, 2018.
- Coordinated In-Vehicle Routing Built Upon Online Learning and Distributed Optimization Computation for Connected and Autonomous Vehicles, University of Maryland, Oct. 12, 2018.
- Distributed Computation based Constrained Model Predictive Control (MPC) for a Mixed Flow Platoon and Information Dissemination via V2V, Intelligent Computing Division, Toyota InfoTechnology Center, Oct. 4, 2018.
- Big Data Analytics for Transportation Systems and Interdependent Infrastructure network modeling, UF ABE Biocomplexity Group, University of Florida, Sept. 18, 2018.
- Distributed Computation based Cooperative Model Predictive Control for a Platoon Mixed with Connected and Autonomous Vehicles and Human-Drive Vehicles, Worcester Polytechnic Institute, Apr. 26, 2018
- Distributed Computation based Cooperative Model Predictive Control for a Platoon Mixed with Connected and Autonomous Vehicles and Human-Drive Vehicles, University of Massachusetts Amherst, Apr. 26, 2018
- Distributed Computation based Cooperative Model Predictive Control for a Platoon Mixed with Connected and Autonomous Vehicles and Human-Drive Vehicles, University of South Florida, Oct 13, 2017
- Constrained Optimization and Distributed Computation based Car Following Control of A Connected and Autonomous Vehicle Platoon. The 17th COTA International Conference of Transportation Professionals. July 7-9, Shanghai, China
- Research in Connected and Autonomous Vehicle Systems and Distributed Computation based Constrained Model Predictive Control for a Mixed Flow Platoon, Seminar at University of Institute of Transportation Engineers, Nov. 7, 2017
- Speaker for International Forum of Career Development for Students and Young Professionals. July 6, CICTP 2017
- Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism, University of Florida, Sep. 22 2016.
- Research on Connected and Autonomous Vehicle Systems, Argonne Research Lab, August 24, 2016
- Research on Connected and Autonomous Vehicle Systems: Information Propagation via V2V and Coordinated Driving. Chang'an University, China, Jul. 20 2016.
- Research in Connected and Autonomous Vehicle Systems. Tsinghua University, China, Jul. 13 2016.
- Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. University of Science and Technology of China, Jun. 27 2016.
- Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism. Tsinghua University, China. Jun. 21 2016
- Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. University of Michigan. Mar. 17 2016
- Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. University of California Irvine. Feb 23 2016
- Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. University of Illinois at Chicago, Nov 6 2015
- Information Propagation and Coverage Dynamics in Vehicle-to-Vehicle Communication on a Road Segment Argonne National Laboratory, Jun. 11 2015.
- Coordinated Driving for Connected and Automated Vehicle. Argonne National Laboratory, Jun. 4 2015.

- Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. Argonne National Laboratory, May 20 2015.
- Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. Northwestern University, Feb. 27 2014.
- Information Dissemination Delay in Vehicle-to-Vehicle Communication network formed in a traffic stream. University of Illinois at Chicago, Nov. 14 2013.
- Reducing Energy Use in Multimodal Transportation System, the meeting of Chicago Area Transportation User Modeling Group (CATMUG), Mar. 6, 2013

ACADEMIC SERVICE

Editorial Service

- Member of Editorial Board Editors for Transportation Research Part B: Methodological, present
- Guest Editor for IEEE ITS Special Issue on Modeling Dynamic Transportation Networks in the Age of Connectivity, Autonomy and Data, present
- Member of Editorial Board for Transportation Research Record, present
- Member of Editorial Board for International Journal of Transportation Science and Technology, 2016-2020
- Member of Editorial Board for the International Journal of Business Analytics, 2013 - 2018
- Associate Editor for the International IEEE Conference on Intelligent Transportation Systems, 2014, 2015, and 2019

International Academia Committee

- Active Chair of AI Committee, Transportation & Development Institute, ASCE
- Active Chair of TRB subcommittee on Emerging Technologies in Network Modeling (AEP40-5)
- Active Member of TRB Committee on Transportation Network Modeling (AEP40)
- Active Member of ACES Connected and Autonomous Vehicle Impacts Committee
- Member of ICTD2019 Emerging Technologies Task Committee
- Member of IEEE and IEEE ITS Society
- Previous Member of Transportation Research Board Technology Transfer Committee (ABG30)

International Conference Service

- Co-organizer of special session on "Advanced Network Modeling and Computing Solutions for Electric Mobility Systems", IEEE International Conference on Intelligent Transportation Systems, 2020
- Co-organizer of workshop on Network Impacts of Emerging Mobility Trends, IEEE International Conference on Intelligent Transportation Systems, 2020
- Co-organizer of breakout session on Big Data Analytics, Machine Learning and Advanced Computing in Network Modeling, ASCE International Conference on Transportation and Development, 2020.
- Organizer of breakout technical session on Network Modeling Solutions for Connected and Automated Vehicles: Advances in Computing and Communication Technologies, 2019 IEEE International Conference on Intelligent Transportation Systems, 2019
- Co-organizer of AVS2019 breakout session on Enabling AV Transportation Network: from Individual Vehicle Motion Control to Network Fleet management, 2019 Automated Vehicles Symposium.
- Co-organizer of TRB Workshop on Network Modeling in the Era of Automation Technologies, Big-Data Analytics, and Advanced Computing: Identifying Challenges and Pathways to Future Breakthroughs, TRB 2019 Annual Meeting
- Session Chair of Artificial Intelligence, ASCE International Conference on Transportation and Development (ICTD 2019)
- Session Chair of Integration of Learning Approaches and Emerging Traffic Operation and Control Technologies, INFORMS 2018 Annual Meeting
- Session Chair of Advanced Vehicle Control and Traffic Operations with Connected Vehicles, INFORMS 2017 Annual Meeting
- Session Chair of Modeling Information for Intelligent Transportation Systems, INFORMS 2016 Annual Meeting

- Session Chair of Resilient Infrastructure Systems-Transportation, INFORMS 2015 Annual Meeting
- Session Chair of Advances in V2V and V2I Modeling I: Information, INFORMS 2013 Annual Meeting
- Chair of session 844: Shortest Paths, Stochastic Routing, and Network Design, Transportation Research Board 2013 Annual Meeting.
- Session Chair of Interfaces of Energy and Transportation, INFORMS 2011 Annual Meeting
- Session Chair of Sustainable Transportation Networks, INFORMS 2010 Annual Meeting
- Session Chair of Network Science in Transportation, INFORMS 2010 Annual Meeting

GRADUATE STUDENT ADVISOR

- PhD students (eight in total): Stephen Spana, Peng Wang, Jiahua Qiu, Hangyu Zhang, Yucheng Ning, Hanyi Yang (Graduated), Siyuan Gong (Graduated), Wei Zhou (Graduated, Co-Advisor)
- MS students (seven in total): Kaitai Yang, Chaofan Li (graduated), Chuanbin Zang (graduated), Brian Steele (graduated), Lu Wang (graduated), Shuwei Chen (graduated), Marc Domingo Vidal (graduated)
- Total number of students advised to graduation: 3 Ph.D. and 6 M.S. students