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
- Electric vehicle related network modeling
- Big data analytics for traffic flow analysis
- AI applications in transportation systems
- Resilient civil infrastructure networks
- Mobility as a service, shared mobility, transit operations and network design

EMPLOYMENT

- Associate Professor, Aug. 2017 - Present, University of Florida, USA
- Consultant, Jul. 2018- Mar. 2020, Chang'an University, Xi'an, China.
- 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

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
- 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 (student: Siyuan Gong, advisor: Lili Du.)
- 3rd Place - 2018 Florida Automated Vehicle Summit Poster Competition: A Mixed-Strategy Coordinated Route-Guidance System for Connected Vehicles Using Information Perturbation (student: Stephen Spana, advisor: Lili Du.)

SPONSORED PROJECTS

- NSF: INTERN DCL - Collaborative Research: Smart Vehicle Platooning Built upon Real-Time Learning and Distributed Optimization. Sponsor: National Science Foundation, GOALI-Grnt Opp Acad Lia wIndus Program (Recommended), $33,364, Lili Du (PI).

- NSF: INTERN DCL - CAREER: Integrated Online Coordinated Routing and Decentralized Control for Connected Vehicle Systems. GOALI-Grnt Opp Acad Lia wIndus Program (Recommended), $33,364, Lili Du (PI).

- NSF: Encoding Dynamic Traffic Flow Analysis into AI for Network-Wide Early Alarming of Traffic-Demand-Influencing Events and Their Impacts. Sponsor: National Science Foundation (Recommended). $300,000 (8/15/2022-8/14/2025). Lili Du (PI), Hongcheng Liu (Co-PI)

- NSF: Collaborative Research: Workshop Proposal: The Frontiers of Artificial Intelligence-Empowered Methods and Solutions to Urban Transportation Challenges. Sponsor: National Science Foundation, Award CMMI 2203497, $45,000 (Total award: $90,000), (5/1/2022-4/30/2023). Lili Du (PI).

- FMRI Y6 project: Sequential synchronization control scheme for freeway truck platooning formation. Sponsor: FMRI (Tier 1 UTC), $10,000 (05/01/2022-04/30/2023). Lili Du (PI), Scott Washburn (Co-PI).

- STRIDE (AWD01573) B6 Project: Optimal Charging Station Planning to Adapt Mass Adoption of Electric Vehicles under Both Normal and Evacuation Scenarios. Sponsor: STRIDE (Reginal UTC) $60,000 (Total award: $90,000) (02/01/2022-05/31/2023). Lili Du (PI), Hadi,Mohammed A. (Co-PI).

- NSF REU Site: Secure, Accessible, and Sustainable Transportation. Sponsor: National Science Foundation, $397,382.00, (3/1/2022-2/28/2025). Lili Du (Senior Personnel)

- NSF: SCC-PG: SmartCurb: Building Smart Urban Curb Environments. Sponsor: National Science Foundation, Award CNS: 2124858, $149,999 (10/01/2021-09/30/2022). Yan Wang (PI), Lili Du (Co-PI), Sigang Chen (Co-PI).

- 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). Hongcheng Liu (PI), Lili Du (Co-PI).

- NSF: Collaborative Research: Smart Vehicle Platooning Built upon Real-Time Learning and Distributed Optimization. Sponsor: National Science Foundation, award CMMI 1901994, $199,999 (Total award: $420,000) (06/01/2019-05/31/2022). Lili Du (PI).

- NSF: 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).

- NSF: 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 (Total award: $350,000) (08/01/2014-07/31/2017). Lili Du (PI).

- Toyota Miscellaneous Donors. Sponsor: Toyota InfoTechnology Center-Intelligent Computing Division, $30,000. Lili Du (PI).

- FMRI project: Sustainable Urban Freight Mobility through Optimization of Logistics Facility Location. Sponsor: FMRI (Tier 1 UTC), $95,733 (UF share $50,000) (09/01/2018-08/31/2019). Lili Du (PI at UF).

- FMRI project: Curriculum Development. Sponsor: FMRI (Tier 1 UTC), $18,909 (09/01/2018-

08/31/2019). Lili Du (co-PI).

- STRIDE F2 project: Discovering Potential Market for the Integration of Public Transportation and Emerging Shared-mobility Services. Sponsor: STRIDE (Reginal UTC) $78,849 (Total award: $124,268) (01/15/2019-07/14/2020). Lili Du (PI).

- STRIDE H3 project: Smartphone-Based Incentive Framework for Dynamic Network-Level Traffic Congestion Management. Sponsor: STRIDE (Reginal UTC) $145,000 (UF share $70,000) (01/15/2020-07/14/20222). 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).

- 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).

PATENTS AND COPYRIGHTS

- U.S. Utility Patent. Swarup Bhunia, Prabuddha Chakrabory, Lili Du, and Sandip Ray, Multi-Purpose Context-Aware Bump (CAB) Supporting Dynamic Adaptation of Form Factors and Functionality. Patent No.: US 11,183,068 B2. Date of Patent: Nov 23, 2021.

PUBLICATIONS

(1) Refereed Publications under Review or Revision

(1) Hanyu Zhang[G], **Lili Du** (2022). System Optimal Vehicle Platooning Control for Eco-driving at Signalized Intersections Built upon Hybrid MPC System, Online Learning, and Distributed Optimization Part I: Modeling and Solution Algorithms. *Transportation Research Part B: Methodological* (under revision), pp. 1-35.

(2) Hanyu Zhang[G], **Lili Du** (2022). System Optimal Vehicle Platooning Control for Eco-driving at Signalized Intersections Built upon Hybrid MPC System, Online Learning, and Distributed Optimization Part II: Theoretical Analyses. *Transportation Research Part B: Methodological* (under revision), pp. 1-35.

(3) Yuqiang Ning[G], **Lili Du** 2022. Robust and Resilient Equilibrium Routing Mechanism for Traffic Congestion Mitigation Built upon Mixed Strategy Correlated Game and Distributed Optimization, Transportation Research Part B: Methodological (under revision), 1-32.

(4) Kaitai Yang[G], Hanyi Yang, **Lili Du** (2022). A Data-Driven Traffic Shockwave Detection Approach Based on Vehicle Trajectories Data, *Journal of Intelligent Transportation Systems Technology, Planning, and Operations* (under revision), pp. 1-15.

(5) Wang Peng[G], **Lili Du** (2022). Clustering Aided Coordinated Online Mixed-modal Route Choice Guidance Based on Game Theory. *IEEE ITS* (under review), pp. 1-19.

(6) Jiahua Qiu[G], **Lili Du** (2022). Cooperative Trajectory Synchronization Control for Two Connected

and Autonomous Vehicles Scattered in a Mixed Flow. *Transportation Research Part B: Methodological* (under review), pp. 1-40.

(2) Refereed Journals

[1] Jiahua Qiu[G], **Lili Du** (2022). Electric Vehicle Routing and Solution for Providing Charging on-the-Move Service in the Early EV Market. *Transportation Research Part C: Emerging Technologies* (minor revision), pp. 1-24.

[2] Hanyi Yang[G], **Du, Lili**, Guohui Zhang, Tianwei Ma (2022). A Traffic Flow Dependency and Dynamics Based Deep Learning Approach for Network-Wide Traffic Speed Evolution Prediction. *Transportation Research Part B: Methodological* (Accepted), 1-23.

[3] Jiahua Qiu[G], Yue Jing[G], Wang Peng[G], **Lili Du**, Yujie Hu (2022). Identifying critical transfer zones to coordinate transit with on-demand services using crowdsourced trajectory data. Journal of Intelligent Transportation Systems Technology, Planning, and Operations, pp. 1-27. doi.org/10.1080/15472450.2022.2132389

[4] Haiyan Hao[G], Yan Wang, **Lili Du**, Shigang Chen, 2022. Modeling Spatiotemporal Dynamics of Diverse Curb Uses with MultiGCN-LSTM for Smart Curb Environment, *Computers, Environment and Urban Systems (99) 1011914*, pp. 1-11. doi.org/10.1016/j.compenvurbsys.2022.101914.

[5] Jinglai Shen, Eswar[G] Hathibelagal Kammara, **Lili Du** (2022). Nonconvex, Fully Distributed Optimization Based CAV Platooning Control under Nonlinear Vehicle Dynamics, *IEEE Transactions on ITS. DOI: 10.1109/TITS.2022.3175668, pp. 1-16*.

[6] Prabuddha Chakraborty[G], Robert Parker[G], Tamzidul Hoque, **Lili Du**, ShuoWang, and Swarup Bhunia (2022). Addressing the Range Anxiety of Battery Electric Vehicles with Charging En Route, Scientific Reports 12 (1), pp. 1-15.

[7] Stephen Spana[G], **Lili Du** (2022). Optimal Information Perturbation for Traffic Congestion Mitigation: Gaussian Process Regression and Optimization. *Transportation Research Part C: Emerging Technologies* 138: 103647. DOI: 10.1016/j.trc.2022.103647, pp. 1-24.

[8] Wang Peng[G], **Lili Du** (2022). Investigating optimal carpool scheme by a semi-centralized ride-matching approach. *IEEE Transactions on ITS. DOI*: 10.1109/TITS.2021.3135648, pp. 1-15

[9] Hanyu Zhang[G], **Lili Du**, Jinglai Shen (2021). Machine Learning Aided Platoon-Based Cooperative Lane-change Control Using MPC Approach. *Transportation Research Part B: Methodological* 159, pp. 104-142.

[10] Shen, Jinglai; Hathibelagal Kammara, Eswar[G]; **Du, Lili** (2021). Fully Distributed Optimization based CAV Platooning Control under Linear Vehicle Dynamics, *Transportation Science, 56(2),* pp. 381-403.

[11] Wang Peng[G], **Lili Du** (2021). Forming Coordination Group for Coordinated Traffic Congestion Management Schemes. *Transportation Research Part C: Emerging Technologies* 128: 103113, DOI:10.1016/j.trc.2021.103113, pp. 1-27.

[12] Chen Mu[F], **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, 125:103006, DOI:10.1016/j.trc.2021.103006, pp. 1-30.

[13] Stephen Spana[G], **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*, DOI: 10.1109/TITS.2020.3045907, pp. 1-15.

[14] Hanyi Yang[G], **Lili Du**, and Jamshid Mohammadi (2021). A Shock Wave Diagram based Deep Leaning Model for Online Public Event Prediction. *Transportation Research Part C: Emerging Technologies 122: 102862,* pp. 1-19.

[15] Charisis, A.[G], Spana, S.[G], Kaiser, E, **Du, L**. (2021). Locating and Scheduling Inner-City Hubs for Last-Mile Deliveries, *International Journal for Traffic and Transportation Engineering,* 10(2), pp. 169-186.

[16] Yinyin Ge[G], **Lili Du**, Hongxing Ye (2019). Co-optimization approach to post-storm recovery for inter-dependent power and transportation systems. *Journal of Modern Power Systems and Clean Energy*, pp. 1-8.

[17] Siyuan Gong[G], 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*, pp. 25-61.

[18] Jane Lin, Wei Zhou[G], and **Lili Du** (2018). Is on-demand same day package delivery service green? *Transportation Research Part D: Transport and Environment* 61, pp. 118-139.

[19] Shuwei Chen[G], 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), pp. 229-239.

[20] **Lili Du**, Siyuan Gong[G], Lu Wang[G] 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, pp. 30-48.

[21] Siyuan Gong[G], 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, pp. 314-334.

[22] **Lili Du** and Siyuan Gong[G] (2016). Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism. *Transportation Research Part B*: Methodological 87, pp. 44-63.

[23] Siyuan Gong[G] and **Lili Du** (2016). Optimal Location of Advance Warning for Mandatory Lane Change near a Two-Lane Highway On-ramp. *Transportation Research Part B: Methodological* 84, pp. 1-30.

[24] **Lili Du**, Srinivas Peeta, PengWei[G], 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), pp. 229-256.

[25] **Lili Du**, Lanshan Han, and Shuwei Chen[G] (2015). Coordinated Online In-Vehicle Routing Balancing User Optimality and System Optimality through Information Perturbation. *Transportation Research Part B: Methodological* 79, pp. 121-133.

[26] **Lili Du**, Shuwei Chen[G], 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, pp. 106-116.

[27] **Lili Du** and Hoang Dao[G] (2015). Information Propagation Delay in a Connected Vehicle Network on a Road Segment. *IEEE Transactions on ITS*, 16(1), pp. 66-80.

[28] **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, pp. 1-15.

[29] Lili Du and <u>Srinivas Peeta</u> (2014). A Stochastic Optimization Model to Reduce Expected Post-Disaster Response Time through Pre-Disaster Investment Decisions. *Networks and Spatial Economics* 14(2), pp. 271-295.

[30] **Lili Du**, <u>Srinivas Peeta</u> and Yong Hoon Kim*G* (2013). Online Stochastic Routing Incorporating Real-Time Traffic Information. *Transportation Research Record: Journal of the Transportation Research Board* 2334, pp. 95-104.

[31] Yin Hang*G*, **Lili Du**, <u>Qu Min</u>, and <u>Srinivas Peeta</u> (2013). Multi-objective optimization of integrated solar absorption cooling and heating systems for medium-sized office buildings. *Renewable Energy* 52(4), pp. 67-78.

[32] **Lili Du**, <u>Srinivas Peeta</u>, and Yong Hoon Kim*G* (2012). Adaptive Information Fusion Models to Estimate the Short-Term Travel Time Distribution. *Transportation Research Part B: Methodological* 46(1), pp. 235-252.

[33] <u>Lanshan Han</u> and **Lili Du** (2012). On a Link-Based Day-to-Day Traffic Assignment Model. *Transportation Research Part B: Methodological* 46(1), pp. 72-84.

[34] **Lili Du**, <u>Anuj Sharma</u>, and <u>Srinivas Peeta</u> (2012). Optimal Advance Detector Location for Green Termination Systems on High Speed Isolated Intersections. *Transportation Research Part B: Methodological* 46(10), pp. 1404-1418.

[35] **Lili Du** and <u>Satish Ukkusuri</u> (2010). The Relative Mobility of Vehicles Improves the Performance of Information Flow in Vehicle Ad Hoc Networks. *Networks and Spatial Economics* 10, pp. 209-240.

[36] **Lili Du**, <u>Satish Ukkusuri</u>, Wilfredo F. Yushimito Del Valle*G*, and <u>Shivkumar Kalyanaraman</u> (2009). Optimization Models to Characterize the Broadcast Capacity of Vehicular Ad Hoc Networks. *Transportation Research Part C: Emerging Technologies* 17(6), pp. 571-585.

[37] <u>Satish Ukkusuri</u> and **Lili Du (2008).** Geometric Connectivity of Vehicular Ad Hoc Networks: Analytical Characterization. *Transportation Research Part C: Emerging Technologies* 16(5), pp. 615-634

[38] **Lili Du**, <u>Satish Ukkusuri</u>, <u>Shivkumar Kalyanaraman</u> (2008). Integrating Traffic Flow Features to Characterize the Interference in Vehicular Ad Hoc Networks. *Automotive Informatics and Communicative Systems: Principals in Vehicular Networks and Data Exchange,* pp. 162-179.

[39] Zhenggang Dan*G*, <u>Linning Cai</u>, **Lili Du**, and <u>Li Zheng</u> (2006). Load Balancing of the Vehicle Routing Problem. *Journal of Tsinghua University (Science and Technology)* 46(11), pp. 1945-1948.

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

(1) Refereed Proceedings:

[1] <u>Luchen Pu*G*,</u> **Lili Du.** A Real-time Shockwave Detection Approach Based on Vehicle Trajectory Data. Transportation Research Board 102nd Annual meeting, January 8–12, 2022, pp. 1-19.

[2] <u>Hanyi Yang, Wanxin Yu*G*, Guohui Zhang</u>, **Lili Du**, Yiwei Wang*G*, Tianwei Ma, A Network-wise Traffic State Evolution Prediction Approach Based on Road Network Topology Informed Deep Learning Model. Transportation Research Board 102nd Annual Meeting, January 8–12, 2022, pp.

1-20

[3] Hanyu Zhang[G], **Lili Du**. System Optimal Vehicle Platooning Control for Eco-driving at Signalized intersection Built upon Hybrid MPC System, Online Learning and Distributed Optimization, IEEE Intelligent Transportation Systems on Conference - ITSC 2022, Macau, China, October 8-12, 2022. pp. 1-7.

[4] Yuqiang Ning[G], **Lili Du**. Navigating towards system optimum: A distributed routing scheme under mixed-strategy correlated game, Transportation Research Board 101st Annual Meeting, Washington DC, January 9-13, 2022, pp. 1-22.

[5] Jiahua Qiu[G], **Lili Du**. A New Vehicle Routing Model and Solution Approach for Large-scale Electric Vehicle to Vehicle Charging Service on the Move, Transportation Research Board 101st Annual Meeting, Washington DC, January 9-13, 2022. pp. 1-18.

[6] Jinglai Shen, Eswar Kumar Hathibelagal Kammara[G], **Lili Du**. Nonconvex, Fully Distributed Optimization Based CAV Platooning Control under Nonlinear Vehicle Dynamics, Transportation Research Board 101st Annual Meeting, Washington DC, January 9-13, 2022, pp. 1-23.

[7] Kaitai Yang[G], Hanyi Yang[F], and **Lili Du**. A Data-Driven Traffic Shockwave Detection Approach Based on Vehicle Trajectories Data, Transportation Research Board 101st Annual Meeting, Washington DC, January 9-13, 2022, pp. 1-15.

[8] Jiahua Qiu[G], Wang Peng[G], **Lili Du**, "A Crowdsourcing Approach for Finding Critical Areas to Implement Hybrid Transit Service", 15th International Conference on Advanced Systems in Public Transport (Virtual), 2021, pp. 1-4.

[9] Jiahua Qiu[G], **Lili Du**, A Commercial Charging-as-a-Service Platform for Emerging Mobile EV to EV Charging Service, 2021 International Symposium on Transportation Data and Modelling, University of Michigan, June 21-24, 2021, pp. 1-5.

[10] Hanyu Zhang[G], **Lili Du**, Jinglai Shen, Machine Learning Aided Platoon-based Cooperative Lane-Change Control Using MPC Approach, Transportation Research Board 100th Annual Meeting 2021 (virtual), pp. 1-18.

[11] Jinglai Shen, Eswar Kumar H K[G], **Lili Du**, Fully Distributed Optimization Based CAV Platooning Control Under Linear Vehicle Dynamics. Transportation Research Board 100th Annual Meeting 2021 (virtual), pp. 381-430.

[12] Chen Mu[F], **Lili Du**, Multi-Stage Discrete Trajectory Control for Merging Two Traffic Streams at Highway- Ramp Intersection, Transportation Research Board 99th Annual Meeting, January 12–16, Washington DC, 2020, pp. 1-18.

[13] Hongcheng Liu, **Lili Du**, Yongpen Guan, Data-Driven Re-Optimization for Taxi Routing Under Small Data, Transportation Research Board 99th Annual Meeting, January 12–16, Washington DC, 2020, pp. 1-13.

[14] Ala Alobeidyeen[G], **Lili Du**, Mathematical Formulations for Understanding Interference and Transmission Range of V2V Communication in an Urban Road Intersection. Transportation Research Board 99th Annual Meeting, January 12–16, Washington DC, 2020, pp. 1-19.

[15] Stephen Spana[G], **Lili Du**, Yafeng Yin. A Coordinated Routing Mechanism for Connected Vehicles with Information Perturbation Under Mixed-Strategy Congestion Game. Transportation Research Board 99th Annual Meeting, January 12–16, Washington DC, 2020, pp. 1-44.

[16] Qiu, J. H., Peng, W., Du, L. (2020). Analyzing transit and ridesharing trip data to support hybrid transit service. The 25th International Conference of Hong Kong Society for Transportation

Studies (HKSTS@25). 12-14 December 2020, Hong Kong, China (canceled due to covid-19), pp. 1-20.

[17] Peng, W., Du, L. (2020). A clustering aided online semi-centralized solution for promoting carpooling in ridesharing system. The 25th International Conference of Hong Kong Society for Transportation Studies (HKSTS@25). 12-14 December 2020, Hong Kong, China (canceled due to covid), pp. 1-14.

[18] Elefteriadou, Lily, Blaine Leonard, **Lili Du**, Wei Ma, Jun Liu, Kuilin Zhang, Jiaqi Ma, Ziqi Song, Xiaopeng Li, and Sevgi Erdogan. "Enabling transportation networks with automated vehicles: From individual vehicle motion control to networked fleet management." In Automated Vehicles Symposium, Springer, Cham, 2019, pp. 49-62.

[19] Ala S Alobeidyeen[G], **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, pp. 3886-3891.

[20] Peng Wang[G], **Lili Du**, Clustering based Online Coordinated In-Vehicle Routing Built upon Understanding the Competition Potential among Travelers on Network Route Resources, Transportation Research Board 98th Annual Meeting, Washington DC, January 13-17, 2019, pp. 1-17.

[21] Ala S Alobeidyeen[G], **Lili Du**, Information Dissemination Dynamics through Vehicle-to-Vehicle Communication Over Transportation Network. Transportation Research Board 98th Annual Meeting, Washington DC, January 13-17, 2019, pp. 1-12.

[22] Han, J.[G], Jung, T.[G], Li, X. Y., & **Du, L**. (2016, December). Ensuring Semantic Validity in Privacy- Preserving Aggregate Statistics. IEEE 2016 12th International Conference on Mobile Ad-Hoc and Sensor Networks (MSN), 16-18 Dec, 2016, Chengdu, China, pp. 160-166.

[23] Siyuan Going[G], **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 2017, pp. 1-6.

[24] Siyuan Going[G], **Lili Du**, Distributed Computation based Car Following Control of A Connected and Autonomous Vehicle Platoon. Transportation Research Board 96th Annual Meeting, Washington DC, January 8-12, 2017, pp. 1-21.

[25] **Lili Du**, Siyuan Gong[G], Lu Wang[G], Xiangyang Li. Discrete Information Spreading Dynamics over Vehicular Ad Hoc Network on One-way Road Segments. Transportation Research Board 96th Annual Meeting, Washington DC, January 8-12, 2017, pp. 1-14.

[26] Shuwei Chen[G], **Lili Du**. Simulation Study of the Impact of Local Real-Time Traffic Information Provision Strategy in Connected Vehicle Systems. Transportation Research Board 96th Annual Meeting, Washington DC, January 8-12, 2017, pp. 1-14.

[27] Shuwei Chen[G] and **Lili Du**. Investigating the Impact of Local Real-Time Traffic Information Provision Strategy in a Connected Vehicle System. The 16th COTA conference International Conference of Transportation Professionals (CICTP 2016), Shanghai China, July 6-9, 2016, pp. 1-10.

[28] **Lili Du** and Siyuan Gong[G]. Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism. Transportation Research Board 95th Annual Meeting, Washington DC, January 10-14, 2016, pp. 1-15.

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[29] Yi Liu[G], **Lili Du** and Zongzhi Li. Intersection Signal Timing Optimization for Urban Street Network Integrating HCM 2010 Control Delay and Traffic User Equilibrium. Transportation Research Board 95th Annual Meeting, Washington DC, January 10-14 2016, pp. 1-6.

[30] **Lili Du**, Lanshan Han, and Shuwei Chen[G] (2015). Coordinated Online In-Vehicle Navigation Guidance Based on Routing Game Theory. Transportation Research Board 94th Annual Meeting, Washington DC, January 11-15, 2015, pp. 106–116.

[31] Lu Liu[G], Xianghui Cao[G], 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, Apr 27 -May 2, 2014, pp. 1-9.

[32] **Lili Du**, Srinivas Peeta, Peng Wei[G], **Dengfeng Sun**. A quantitative and systematic methodology to investigate energy consumption efficiency in multimodal transportation systems. Transportation Research Board 93th Annual Meeting, Washington DC, January 12-16, 2014, pp. 1-18.

[33] **Lili Du**, Srinivas Peeta, Yong Hoon Kim[G]. Online Stochastic Routing Incorporating Real-Time Traffic Information. Transportation Research Board 92th Annual Meeting, Washington DC, January 13-17, 2013, pp. 1-17

[34] **Lili Du**, Anuj Sharma, Srinivas Peeta. Optimal Advance Detector Location for Green Termination Systems on High-speed Isolated Intersections. Transportation Research Board 91th Annual Meeting, Washington DC, January 22-26, 2012, pp. 1-22.

[35] **Lili Du**, Srinivas Peeta. A Bi-Level Stochastic Optimization Model to Enhance Transportation Network Survivability and Reduce Response Times under Disasters. Transportation Research Board 91th Annual Meeting, Washington DC, January 22-26, 2012, pp. 1-17.

[36] **Lili Du**, Srinivas Peeta, Yong Hoon Kim[G], and Satish Ukkusuri. Online Stochastic Routing Incorporating Real-Time Information Accuracy. 2011 World Congress on Intelligent Transport Systems (18th ITS World congress), Orlando, Florida, October 16-20, 2011, pp.1-15.

[37] **Lili Du**, Srinivas Peeta, Yong Hoon Kim[G], and Satish Ukkusuri. Adaptive Information Fusion Model to Estimate the Short-term Link Travel Time Distribution. Transportation Research Board 90th Annual Meeting, Washington DC, January 23-27, 2011, pp. 1-18.

[38] **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, pp. 1-12.

[39] 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, pp. 1-3.

[40] **Lili Du**, Satish Ukkusuri, and Shivkumar Kalyanaraman. Characterizing Interference in Vehicle Ad Hoc Network on Freeway Segment under Various Traffic Flow Conditions. Transportation Research Board 87th Annual Meeting, Washington DC, January 13-17, 2008, pp. 1-15.

[41] Satish Ukkusuri, **Lili Du**, and Shivkumar Kalyanaraman. Geometric Connectivity of Vehicular Ad Hoc Networks: Analytical Characterization. The Fourth ACM Workshop on Vehicular Ad Hoc Networks (VANET 2007), Montreal, Canada, Sept 10, 2007, DOI: 10.1145/1287748.1287765. pp.79-80.

[42] Satish Ukkusuri, **Lili Du**, and Gitakrishnan Ramadurai[G]. Modeling Geometric Connectivity in Vehicular Ad Hoc Networks. Proceedings of 11th World Conference on Transportation Research,

Berkeley CA, July 24-28, 2007, pp. 1-14.

[43] **Lili Du**, <u>Linning Cai</u>, and <u>Jian Yao</u>. An Improved Heuristic Algorithm for the Assembly Line Balancing Problem. Proceedings of IE&EM' 2002 & IceCE' 2002, Beijing, China, October 2002, pp. 1-12.

(2) Project Report

[1] **Lili Du**, Srinivas Peeta, Yuqiang Ning[G], Viswa Sri Rupa Anne[G], (2022). Smartphone-Based Incentive Framework for Dynamic Network-Level Traffic Congestion Management. Project No. H3, STRIDE, USDOT Region IV Regional University Transportation Center, Univerity of Florida, FL. pp. 1-58.

[2] **Lili Du**, Xia Jin, Jiahua Qiu[G], Peng Wang[G], Ghazaleh Azimi [G], Alireza Rahimi[G], Ming Lee[G] (2020). Discovering Potential Market for the Integration of Public Transportation and Emerging Shared-Mobility Services. Project No. F2, STRIDE, USDOT Region IV Regional University Transportation Center, Univerity of Florida, FL. pp. 1-87

[3] <u>Marshall Brown</u>, **Lili Du**, <u>Laura Forlano</u>, <u>Ron Henderson</u> (2016). The Driverless City. Project report submitted to IIT Nayar Prize Foundation, Illinois Institute of Technology. <u>https://www.thedriverlesscityproject.org/</u>, pp. 1-200.

[4] <u>Zongzhi Li</u>, **Lili Du**, Yi Liu[G] (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. pp. 1-102

LECTURES, SPEECHES, POSTERS PRESENTED

<u>Invited Talks</u>

a. <u>International</u>

[1] **Lili Du**. Clustering based Online Coordinated In-Vehicle Routing Built upon Competition Potential among Travelers on Network Route Resources, Second Forum on Frontiers of Science and Engineering (FFSE-2019): Smart and Sustainable Communities, Beijing, July 3-5, 2019. (Distinguished Speaker)

[2] Chenlu Pu[G], **Lili Du**, A Data-Driven Traffic Shockwave Detection Approach Based on Vehicle Trajectories Data, INFORMS 2022, Indianapolis, IN October 16-19, 2022.

[3] Hanyu Zhang[G], **Lili Du**, System Optimal Vehicle Platooning Control for Eco-driving at Signalized Intersections Built upon Hybrid MPC System, Online Learning, and Distributed Optimization, INFORMS 2022, Indianapolis, IN, October 16-19, 2022.

[4] Jiahua Qiu[G], **Lili Du**, Identifying critical transfer zones to coordinate transit with on-demand services using crowdsourced trajectory data, INFORMS 2022, Indianapolis, IN, October 16-19, 2022.

[5] Yuqiang Ning[G], **Lili Du**, Robust and Resilient Equilibrium Routing Mechanism for Traffic Congestion Mitigation Built upon Mixed Strategy Correlated Game and Distributed Optimization, INFORMS 2022, Indianapolis, IN, October 16-19, 2022.

[6] Wang Peng[G], **Lili Du.** Investigating optimal carpool scheme by a semi-centralized ride-matching

approach, ASCE ICTD, May 31-June 3, 2022.

[7] **Lili Du**. Platoon Centered Control for CAV Driving Built upon Hybrid MPC System, Online Learning and Distributed Optimization, Webinar at McMaster University, Canada, Mar 10, 2022.

[8] Stephen Spana[G], **Lili Du,** Yafeng Yin. Strategic information perturbation for online in-vehicle coordinated routing mechanism under mixed-strategy congestion game, workshop on Next Generation Transportation Networks: Emerging Technologies, Data Analytics and Perspectives, The 24th IEEE International Conference on Intelligent Transportation Systems, Sept 19, 2021.

[9] Yanyi Yang[G], **Lili Du,** Jamshid Mohammadi. A shock wave diagram based deep learning model for early alerting an upcoming public event, Special session on Smart Traffic Analytics and Management with Deep Learning, ASCE ICTD 2021.

[10] Wang Peng[G]**, Lili Du**. Online semi-centralized CAV ridesharing matching to promote carpooling, 5th Conference on Sustainable Urban Mobility Virtual CSUM2020, 17-19 June 2020.

[11] Wang Peng[G]**, Lili Du**. Clustering based Online Coordinated In-Vehicle Routing Built upon Understanding the Competition Potential among Travelers on Network Route Resource，Automated Vehicles Symposium, Orlando, FL,vJuly 15-18, 2019.

[12] Wang Peng[G]**, Lili Du**. Clustering based Online Coordinated In-Vehicle Routing Built upon Understanding the Competition Potential among Travelers on Network Route Resources, ASCE International Conference on Transportation & Development Alexandria, Virginia, June 9-12, 2019.

[13] Hanyi Yang[G]**, Lili Du,** Jamshid Mohammadi. Time Series Shock Wave Diagrams based Deep Leaning Model for Online Public Event Prediction, Pre-CICTP2019 Workshop, Beijing University of Technology, Beijing, Jul 4, 2019.

[14] Siyuan Gong[G]**, Lili Du**. 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.

[15] Siyuan Gong[G]**, Lili Du**. Cooperative Platoon Control for a Mixed Traffic Flow Including Human Driven Vehicles and Connected and Autonomous Vehicles, Automated Vehicle Symposium 2018, Sab Francisco, California, July 6-13, 2018.

[16] Siyuan Gong[G], **Lili Du**. 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, Jul 5-8, 2018.

[17] **Lili Du**. 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.

[18] **Lili Du**. Invited speaker for International Forum of Career Development for Students and Young Professionals. Jul 6, CICTP 2017.

[19] **Lili Du**. Research Connected and Autonomous Vehicle Systems: Information Propagation via V2V and Coordinated Driving. Smart Cars and Smart Transportation-Tsinghua University Summer School Forum, China, Jul 13 2016.

[20] **Lili Du**. Research on Connected and Autonomous Vehicle Systems: Information Propagation via V2V and Coordinated Driving. Chang'an University, China, Jul 20 2016.

[21] **Lili Du**. Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. University of Science and Technology of China, Jun 27 2016.

[22] **Lili Du**. Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism. Seminar in Tsinghua University, China. Jun 21 2016.

b.   National

[23] **Lili Du**. Platoon Centered Control for CAV Driving Built upon Hybrid MPC System, Online Learning and Distributed Optimization, Webinar at University of Texas at Austin, Mar 25, 2022.

[24] **Lili Du**. Charging Station Planning and Emerging Mobile Charging Technology, PURC Annual Conference on Feb 23, 2022.

[25] Jiahua Qiu[G]**, Lili Du**. A Charging-as-a-Service Platform for Charging Electric Vehicles On the Move: A New Vehicle Routing Model and Solution, Webinar at National Renewable Energy Laboratory (NREL), Jun 4, 2021.

[26] **Lili Du**. System Optimal Vehicle Platooning Control Built upon Online Learning and Distributed Optimization. Webinar at University of Michigan, Ann Arbor, Apr 8, 2021.

[27] **Lili Du**. System Optimal Vehicle Platooning Control for Eco-driving at Signalized intersection Built upon Hybrid MPC System, Online Learning and Distributed Optimization, Fourth Annual CAMMSE Research Symposium, Nov 4, 2021.

[28] Hanyi Yang[G], **Lili Du,** Jamshid Mohammadi. A shock wave diagram based deep learning model for early alerting a upcoming public event, HERE Technologies Webinar, Oct 13, 2020.

[29] **Lili Du**. AI Aided Transportation System Management and Decision Making, DOT "Getting to Know Artificial Intelligence (AI)" Webinar, Oct 1, 2020.

[30] **Lili Du**. Big Data Analytics, Machine Leaning integrated Optimization and Control for (Connected and Autonomous Vehicles) Transportation Systems, Seminar at Turner-Fairbank Highway Research Center, FHWA, Dec 05, 2019.

[31] **Lili Du**. 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.

[32] **Lili Du**. Coordinated In-Vehicle Routing Built Upon Online Learning and Distributed Optimization Computation for Connected and Autonomous Vehicles, University of Arizona, Nov 2, 2018.

[33] **Lili Du**. Coordinated In-Vehicle Routing Built Upon Online Learning and Distributed Optimization Computation for Connected and Autonomous Vehicles, George Mason Unversity, Oct 11, 2018.

[34] **Lili Du**. Coordinated In-Vehicle Routing Built Upon Online Learning and Distributed Optimization Computation for Connected and Autonomous Vehicles, University of Maryland, Oct 12, 2018.

[35] **Lili Du**. 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.

[36] **Lili Du**. 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.

[37] **Lili Du**. 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.

[38] **Lili Du**. 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.

[39] **Lili Du**. 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.

[40] **Lili Du**. Stochastic Poisson Game for an Online Decentralized and Coordinated Parking Mechanism, University of Florida, Sept 22, 2016.

[41] **Lili Du**. Research on Connected and Autonomous Vehicle Systems, Argonne Research Lab, Aug 24, 2016

[42] **Lili Du**. Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. University of Michigan. Mar 17, 2016.

[43] **Lili Du**. Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. University of California Irvine. Feb 23, 2016.

[44] **Lili Du**. Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. Seminar at University of Illinois at Chicago, Nov 6, 2015.

[45] **Lili Du**. Information Propagation and Coverage Dynamics in Vehicle-to-Vehicle Communication on a Road Segment Argonne National Laboratory, Jun 11, 2015.

[46] **Lili Du**. 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.

[47] **Lili Du**. Distributed Coordinated in-Vehicle Online Routing Using Mixed-Strategy Congestion Game. Northwest- ern University, Feb 27, 2014.

[48] **Lili Du**. Information Dissemination Delay in Vehicle-to-Vehicle Communication network formed in a traffic stream. University of Illinois at Chicago, Nov 14, 2013.

c.   <u>Regional</u>

[49] **Lili Du**. Data-driven Approach for First/Last Mile Gaps & Transit User Demand Models for First/Last Mile Trips, 2021 STRIDE Products Showcase November 16-18, 2021.

[50] **Lili Du**. Strategic Planning Framework to Enhance Civil Infrastructure Network Resilience. UFTI-T2 Webinar on UFTI Resilience and Sustainability Initiative, Nov 19, 2020

[51] **Lili Du**. Discovering Potential Market for the Integration of Public Transportation & Emerging Shared-Mobility Services, STRIDE webinar, Aug 19, 2020

d.   <u>State</u>

[52] **Lili Du**. Lili Du, Charging Station Planning and Emerging Mobile Charging Technology, Southeast Florida FSUTMS Users Group, FDOT, Apr 15, 2022.

[53] **Lili Du**. Big Data Analytics, Optimization and Control for (Connected and Autonomous) Transportation Systems, Gainesville Research Showcase, FDOT, Gainesville, FL, Apr 12, 2019

e.   <u>Local</u>

[54] **Lili Du**. Research on Electrical Vehicles and Connected and Autonomous Vehicles, JM Family Enterprises Visiting, Oct 21, 2021

[55] **Lili Du**. Supply Market Analysis for Integration of Ridesharing and Public Bus, Gainsville RTS, Oct 3, 2019.

[56] **Lili Du**. Big Data Analytics for Transportation Systems and Interdependent Infrastructure network modeling, UF ABE Biocomplexity Group, University of Florida, Sept 18, 2018.

[57] **Lili Du**. Reducing Energy Use in Multimodal Transportation System, the meeting of Chicago Area Transportation User Modeling Group (CATMUG), Mar 6, 2013.

Presentation and Poster by Submitting Abstract to Conferences

a. International

[58] Hanyu Zhang[G], Lili Du, Machine Learning Aided Platoon-Based Cooperative Lane-change Control Using MPC Approach, ICTD conference Seattle, WA,May 31- Jun 3, 2022.

[59] Hanyi Yang[G], **Lili Du**, Guohui Zhang, Tianwei Ma. Coordination of Variable Speed Limit Control to Optimize Fuel Consumption and Traffic Efficiency for Freeway Corridor System, ICTD conference Seattle, WA,May 31- Jun 3, 2022.

[60] Stephen Pana[G], **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, Oct. 20-23, 2019.

[61] Jiahua Qiu[G], **Lili Du**. Charging on The Move for Electric Vehicles: A New Vehicle Routing Problem And Solution", INFORMS Annual Meeting, 2021

[62] Wang Peng[G], **Lili Du**. 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.

[63] Ala S Alobeidyeen[G], **Lili Du**, Information Dissemination Dynamics through Vehicle-to-Vehicle Communication Over Transportation Network. INFORMS 2018, Phoenix, AZ, Nov. 4-7, 2018.

[64] Mohamadhossein Noruzoliaee[G], Bo Zou, **Lili Du**, Supply-demand-performance equilibrium in multimodal intercity transportation networks: a novel frame-work and application, INFORMS 2016, Nashville, NT, Nov. 13-16, 2016.

[65] Siyuan Gong[G], **Lili Du**. Distributed Computation based Car-following Control Integrating Optimal System Performance for a Platoon of Autonomous Vehicles, INFORMS 2016, Nashville, NT, Nov. 13-16, 2016.

[66] **Lili Du**, Siyuang Gong[G], Lu Wang[G], and Xiang-Yang Li. Information Spreading Dynamics over Vehicular Ad Hoc Network on Road Segments based Cell Trans- mission Model, INFORMS 2016, Nashville, NT, Nov. 13-16, 2016.

[67] Wei Zhou[G], Jane Lin, **Lili Du**. 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.

[68] Wei Zhou[G], Jane Lin, **Lili Du.** 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.

[69] Siyuan Gong[G], **Lili Du**. A Mathematical Model to Locate Optimal Lane changing Zone at a Highway Off-ramp, INFORMS 2015, Philadelphia, PA, Nov. 1-4, 2015.

[70] Shuwei Chen[G], **Lili Du**. Investigating the Impact of Local Real-Time Traffic Information Provision Strategy in a Connected Vehicle Systems, Poster at Transport Chicago Conference, Jun 6, 2014

[71] Dao Huang[G], **Lili Du**, Information Dissemination Delay in a Connected Vehicle Network Running on a Single Two-way Road, INFORMS 2013, Minneapolis, MN, Oct 6-9, 2013.

[72] **Lili Du**, Peng Wei[G], Srinivas Peeta, Dengfeng Sun. Enhancing Energy Consumption Efficiency in Multimodal Transportation Networks. INFORMS Annual Meeting, Austin TX, Nov. 7-10, 2010.

[73] **Lili Du**, Anuj Sharma, Srinivas Peeta. Optimal Advance Detector Location for Green Termination Systems on High Speed Isolated Intersections. INFORMS Annual Meeting, Austin TX, Nov. 7-10, 2010.

[74] **Lili Du**, Srinivas Peeta, A Strategic Planning Framework to Enhance Infrastructure Network Survivability and Functionality under Disasters. INFORMS Annual Meeting, San Diego CA, October 11-14, 2009.

[75] **Lili Du**, Srinivas Peeta, Yong Hoon Kim[G]. Closed Loop Adaptive On-line Routing under Uncertain Information Reliability in VANETs, INFORMS Annual Meeting, San Diego CA, October 11-14, 2009.

[76] **Lili Du**, Fundamental Problems in Vehicular Ad Hoc Networks: Connectivity, Reachability, Capacity and Online Routing, Doctoral Dissertation Seminar, 87th Transportation Research Board Annual Meeting, Washing- ton DC, Jan. 13-17, 2008.

[77] **Lili Du**, Satish Ukkusuri, Wilfredo F.Yushimito Del Valle[G], Shivkumar Kalyanaraman. Optimization Models to Characterize the Broadcast Capacity of Vehicular Ad Hoc Networks, INFORMS Annual Meeting, Washington, DC, October 12-15, 2008.

[78] **Lili Du**, Srinivas Peeta, Satish Ukkusuri. Online Routing in Vehicular Ad Hoc Network, INFORMS Annual Meeting, Washington, DC, Oct. 12-15, 2008

b. Regional

[79] Yuqiang Ning[G], **Lili Du**. Robust and Resilient Equilibrium Routing Mechanism for Traffic Congestion Mitigation Built upon Mixed Strategy Correlated Game and Distributed Optimization, 7th UTC Conference for the Southeastern Region, Boca Raton, FL, March 24-25, 2022.

[80] Stephen Spana[G], **Lili Du**, Yafeng Yin, An online in-vehicle coordinated routing mechanism for connected vehicles with information perturbation under mixed-strategy congestion game, Florida Automated Vehicle Summit, 2018.

[81] Wang Peng[G], **Lili Du**. Methodology for coordination group formation for coordinated routing mechanisms. Florida Automated Vehicles (FAV) Summit, 2019.

c. Local

[82] Wang Peng[G], Lili Du. Methodology for coordination group formation for coordinated routing mechanisms. The First Warren B. Nelms Annual IoT Conference, University of Florida, 2019.

[83] Jiahua Qiu[G], Wang Peng[G], **Lili Du**, Market analysis for integration of ridesharing and public transit.The First Warren B. Nelms Annual IoT Conference, University of Florida, 2019

TEACHING EXPERIENCE

UF-TTE 4300/5305: (Advanced) Transportation Systems Analysis is co-listed as a required course for graduate and elective undergraduate students in the transportation program at UF. The class teaches systems analysis approaches in transportation planning and engineering, including supply, demand, equilibrium,

evaluation, and decision analysis. <u>Objectives</u>: the course aims to help students develop a "systems perspective" necessary for intelligent planning and management of transportation systems; to explore a set of quantitative tools of great value to transportation analysts and decision makers; to foster a critical perspective of the limitations of these tools when applied to transportation systems analysis.

UF-TTE 6606: Urban Transportation Models is a graduate course at UF. This class teaches selected mathematical models for decision making in the planning and operation of urban highway and transit systems. <u>Objectives</u>: the lectures aim to explore a set of quantitative models for urban transportation planning and operations; to learn how to interpret the results of these models and foster a critical perspective of their limitations; to develop the capability of modeling for a variety of applications.

IIT-CAE 312: Engineering System Analysis is a required undergraduate course at IIT. It introduces the fundamental principles of economics, probability, statistics, and system analysis to students. <u>Objectives</u>: upon completion of this course, students should be able to understand how to apply the systems engineering concepts to civil engineering problems, learn how to solve the engineering problem involving economics, decision-making, and design under uncertainties, and learn how to evaluate alternatives in the planning stages of a project.

IIT-CAE523/CHE426: Statistical Analysis of Engineering Data is a graduate and undergraduate co-listed required course at IIT. The primary focus of this course is to teach probabilistic and statistical methods to collect, process, analyze, and learn from existing data. <u>Objectives</u>: upon completion of this course, students should be able to design tests that efficiently and effectively collect data; make meaningful predictions from existing data; avoid common problems associated with data collection and interpretation; and develop the foundation you need to continue to learn about statistical tools

IIT-CAE547: Advanced Trafic Engineering is an elective graduate course. The key topics of this course include traffic sensing, traffic flow characteristics, equilibrium traffic flow models, macroscopic and microscopic traffic models. <u>Objectives</u>: Upon completion of this course, students should understand and have the general knowledge of traffic flow sensors and data collection; understand macroscopic traffic flow characteristics and static model; understand discrete and continuous dynamic traffic flow models; understand microscopic car-following models; and understand the Wardrop traffic equilibrium and optimization model.

IIT-CAE581: Algorithms in Transportation is an elective graduate course. The key topics of this course include computing complexity; network flow algorithms; vehicle routing algorithms, transportation problem; algorithms for static user equilibrium traffic assignment. <u>Objective</u>: Upon completion of this course, students should be able to use quantitative techniques of operations research to model system performance, design transportation services, and analyze transportation network problems through the design, analysis and implementation of algorithms.

UNIVERSITY GOVERNANCE AND SERVICE

At University of Florida
- Coordintor of transporation program graduate student admission
- Member of UF Faculty Senate   2022-2025
- Coordinator of transporation program Ph.D. student pre-qualify exam   2021
- Member of transportation program faculty search committee   2018 - 2020
- Leader of Resilience and Sustainability Group under UFTI   2019 - present
- Core member of Warren B. Nelms Institute – for the Connected World   2018 - present

- Affiliated faculty in the Industrial and Systems Engineering Department   2018 – present

At my previous employer Illinois Institute of Technology
- Department representative in University Research Council   2016
- Judges for the poster competition on IIT Research Day   2016
- Mentor, ACE Program for Undergraduate Research in Engineering   2013 and 2015
- Reader in commencement of Armour College of Engineering graduation   2016
- Faculty advisor in the program of M.S. in Computational Decision Science and Operations Research   2015- 2017
- CAEE Department Chair search committee   2016
- Served on department faculty search committee   2015
- IIT faculty advisor in WTS   2015-2017
- Interviewed associate deans for CAEE chair review   2015
- Department course scheduler   2014
- Organized department seminars   2014
- Departmental curriculum committee   2012
- B.S. advisor for CAEE programs   2012-2017

EDITORIAL SERVICE FOR JOURNALS AND BOOKS

- Editor for Transportation Research Part B: Methodological   2020 - present
- Associate Editor for IEEE Transactions on ITS   2020-present
- Guest Editor for IEEE ITS special issue on Dynamic Traffic assignment in the Age of Connectivity, Autonomy, and Data   2019-2021
- Associate Editor for IEEE Intelligent Transportation Systems Conference   2014-2021
- Editor for AEP40 Committee Editorial Board of Transportation Research Record   2015-2020
- Member of Advisory Board for Transportation Research Part C: Emerging Technologies   2021-present
- Member of Advisory Board for International Journal of Transportation Science and Technology   2016-2020
- Reviewer for book: Ni, Daiheng. Traffic flow theory: characteristics, experimental methods, and numerical techniques. Butterworth-Heinemann   2015
- Reviewer for book: Ukkusuri, S.V. and Ozbay, K (Editors). Advance in Dynamic Traffic Guidance and Control, Springer Publications   2013

MEMBERSHIP AND ACTIVITIES IN THE PROFESSION

A.   MEMBERSHIPS

- Member of ASCE   2021 – present
- Member of IEEE[1] and IEEE ITS Society   2020 – present
- Member of INFORMS[2]   2007 – 2018

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[1] IEEE: Institute of Electrical and Electronics Engineers
[2] Institute for Operations Research and the Management Sciences

- Member of WTS[3]   2015 – 2017
- Member of COTA[4]   2012 – Present
- Member of Advisory Board for NSF Center for Multidisciplinary   2021-present
  Research Excellence in Cyber-Physical Infrastructure Systems
- Chair of ASCE AI in Transportation Committee   2020- present
- Chair of TRB AEP40-4 Subcommittee on Emerging Technologies   2019-present
  in Network Modeling
- Member of WTC[5] Technical Committee on Shared Logistics and   2019-present
  Transportation Systems
- Member of ASCE CAV Impact Committee   2018-present
- Member of TRB AEP40 Committee on Network modeling   2012-2021
- Member of TRB Tech Transfer Committee (ABG30)   2010-2013

B.   ACTIVITIES IN THE PROFESSION

Reviewed Awards, Dissertation, and Abstracts for:
- Best Paper Award in TRB AEP50 Committee   2021
- Ph.D. Dissertation at UNSW   2020
- Best Paper Award in TRB AEP40 Committee   2019-present

- Honor of Martin Beckmann in TRB AEP40 Committee   2019
- Poster Abstracts Submitted to AVS   2017
- ITS-JPO Research Data Exchange (RDE) Connected Vehicle   2016
  Data Challenge

Reviewed proposals and awards for:
- NCHRP panel   2022-present
- C2Smart[6] USDOT University Transportation Center   2018-present
- Group leader of Resilience and Sustainability Group under UFTI   2019- present
- National Science Foundation (7 panels including one CAREER panel)   2015-present
- PacTrans[7] USDOT University Transportation Center   2015
- Evaluator of David Boyce Scholarship at the University of Illinois   2015
- at Chicago
- Member of IIT Operation Research Program   2014-2017

Chair, Co-Chair, Organizer of or moderated Sessions and Workshops:
- Chair of NSF workshop: The Frontiers of Artificial Intelligence-   2022
  Empowered Methods and Solutions to Urban Transportation Challenges

- Co-organizer of the special session: AI Empowered Modeling solutions   2021
  for CAV Impacts: From Individual Vehicle Control to Networked
  system Management, IEEE ITSC
- Co-Organizer of the session: AI Empowered Shared Mobility and   2021

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[3] WTS: Advancing Women in Transportation
[4] COTA: Chinese Overseas Transportation Association
[5] WTC: World Transport Convention
[6] Connected Cities with Smart Transportation

[7] Pacific Northwest Transportation Consortium

Connected Transportation Systems, ASCE ICTD

- Co-Chair of Breakout Session B309: The Long and Winding Road: Planning and Network Analysis for CAV, The 2021 TRB Annual Automated Road Transportation Symposium — 2021

- Chair of ASCE ICTD virtual workshop on Artificial Intelligence Enabled Next Generation Transportation Systems — 2021

- Co-Chair of the workshop: Next-Generation Transportation Networks: Emerging Technologies, Data Analytics and Perspectives, IEEE International Conference on Intelligent Transportation Systems — 2021

- Organizer of the special session on Advanced Network Modeling and Computing Solutions for Electric Mobility Systems, IEEE International Conference on Intelligent Transportation Systems — 2020

- Organizer of workshop on Network Impacts of Emerging Mobility Trends, IEEE International Conference on Intelligent Transportation Systems — 2020

- Co-chair of breakout session on Big Data Analytics, Machine Learning and Advanced Computing in Network Modeling, ASCE International Conference on Transportation and Development — 2020

- Co-chaired and Moderated 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-chaired and Moderated AVS2019 breakout session on Enabling AV Transportation Network: from Individual Vehicle Motion Control to Network Fleet management, Automated Vehicles Symposium — 2019

- 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 — 2019

- Session Chair of Artificial Intelligence, ASCE International Conference on Transportation and Development (ICTD 2019) — 2019

- Session Chair of Integration of Learning Approaches and Emerging Traffic Operation and Control Technologies, INFORMS 2018 Annual Meeting — 2018

- Session Chair of Advanced Vehicle Control and Traffic Operations with Connected Vehicles, INFORMS 2017 Annual Meeting — 2017

- Session Chair of Modeling Information for Intelligent Transportation Systems, INFORMS 2016 Annual Meeting — 2016

- Session Chair of Resilient Infrastructure Systems-Transportation, INFORMS 2015 Annual Meeting — 2015

- Session Chair of Advances in V2V and V2I Modeling I: Information, INFORMS 2013 Annual Meeting — 2013

- Chair of session 844: Shortest Paths, Stochastic Routing, and Network Design, Transportation Research Board 2013 Annual Meeting. — 2013

- Session Chair of Interfaces of Energy and Transportation, INFORMS 2011 Annual Meeting — 2011

- Session Chair of Sustainable Transportation Networks, INFORMS Annual Meeting — 2010

- Session Chair of Network Science in Transportation, INFORMS Annual Meeting — 2010

GRADUATE STUDENT ADVISOR

- PhD students (ten in total): Current: Jiahua Qiu, Hangyu Zhang, Yucheng Ning, Chenlu Pu. Graduated: Stephen Spana, Peng Wang, Hanyi Yang, Siyuan Gong, Wei Zhou (Co-Advisor)

- MS students (nine in total): Current: Tonghui Li. Graduated: Kaitai Yang, Hanqing Zhao, Qiwei Zhang, Chaofan Li, Chuanbi Zang, Brian Steele, Lu Wang, Shuwei Chen, Marc Domingo Vidal

- Total number of students advised to graduate: 5 Ph.D. and 9 M.S. students