Li Jin

Contact information

15 MetroTech Center, Room 6W-18, Brooklyn, NY 11201, United States
Email: lijin@nyu.edu
Webpage: https://wp.nyu.edu/lijin/
Phone: 646.997.3920

Current position

New York University
Assistant Professor, Sep 2018 -- present
Department of Civil and Urban Engineering
Tandon School of Engineering

Education

Massachusetts Institute of Technology
Ph.D., Transportation, 2018
Thesis: "Resilient operations of smart highways: Platooning, ramp metering, and incident management."
Thesis committee: Saurabh Amin (MIT CEE, advisor), Nigel H. M. Wilson (MIT CEE, chair), Demosthenis Teneketzis (Michigan EECS), and Hamsa Balakrishnan (MIT AA).

Purdue University
M.S., Mechanical Engineering, 2012
Thesis: ``Design and evaluation of continuous descent approach as a fuel-saving procedure."
Advisor: Dengfeng Sun (Purdue AA).

Shanghai Jiao Tong University
B.Eng., Mechanical Engineering, 2011
Major: Automation.

Fields of interest

- Connected and autonomous vehicles
- Cyber-physical systems
- Highway/air traffic control
- Stochastic processes
- Dynamic control

Academic experiences

Massachusetts Institute of Technology
Research Assistant, Sep 2013 -- Aug 2018

Interdepartmental Program in Transportation
Advisor: Saurabh Amin

University of Erlangen-Nuremberg
Visiting Scholar, Jun -- Sep 2016
Department of Applied Mathematics
Supervisors: Martin Gugat and Falk Hante

Purdue University
Graduate Researcher, Aug 2011 -- Dec 2012
School of Mechanical Engineering
Advisor: Dengfeng Sun
Exchange Student, Aug 2010 -- May 2011
School of Mechanical Engineering

Teaching experience
New York University
Instructor, Spring 2019
TR-GY 8023 Stochastic models and methods for transportation systems

Massachusetts Institute of Technology
Teaching Assistant, Spring 2018
6.268 Network science and models
Instructor: Patrick Jaillet

Fellowships and awards
- Ho-Ching and Hang-Ching Fund Award
- Schoettler Scholarship Fund
- Dean's List of Semester Honors for Outstanding Scholastic Performance
- Undergraduate Scholarship Award

Publications
Working papers
- X. Xiong, E. Xiao, & L. Jin, Investigation of congestion due to vehicle platooning via micro-simulation
- X. Xiong & L. Jin, Analysis of platoon formation under stochastic vehicle arrivals
- L. Jin, M. Čičić, S. Amin, & K. H. Johansson, Coordinated control of vehicle platoons in mixed traffic: A fluid model-based approach
- L. Jin, Correspondence between cell transmission model and fluid model
- L. Jin, F. Hante, & M. Gugat, Resilient boundary control of friction-dominated gas pipelines

Journal papers

- L. Jin, A. Kurzhanskiy, & S. Amin, Throughput-improving control of highways facing stochastic perturbations, under review. pdf
- L. Jin & S. Amin, Analysis of a stochastic switching model of freeway traffic incidents, to appear in *IEEE Transactions on Automatic Control*. pdf
- L. Jin & S. Amin, (2018) Stability of fluid queueing systems with parallel servers and stochastic capacities, *IEEE Transactions on Automatic Control*, vol.63, no.11, pp. 3948-3955. pdf
- Y. Cao, L. Jin, N. V. P. Nguyen, S. Landry, D. Sun, & J. Post. (2015) Evaluation of fuel benefits depending on continuous descent approach procedures, *Air Traffic Control Quarterly*, vol.22, no.3, pp.1-25.
- L. Jin, Y. Cao, & D. Sun (2013) Investigation of potential fuel savings due to continuous-descent approach, *AIAA Journal of Aircraft*, 50(3), 807-816.

Conference papers

- L. Jin & S. Amin (2019) Analyzing a tandem fluid queueing model with stochastic capacity and spillback", Transportation Research Board 98th Annual Meeting, Washington, DC. pdf
- M. Wu, L. Jin, S. Amin, & P. Jaillet, (2018) Signaling game-based misbehavior inspection in V2I-enabled highway operations, 57th IEEE Conference on Decision and Control, Miami Beach, MI. pdf
- L. Jin, M. Čičić, S. Amin, & K. H. Johansson, (2018) Modeling impact of vehicle platooning on highway congestion: A fluid queuing approach, 21st ACM International Conference on Hybrid Systems: Computation and Control, Porto. pdf
- L. Jin & S. Amin (2017) Calibration of a macroscopic traffic flow model with stochastic saturation rates, Transportation Research Board 96th Annual Meeting, Washington, DC. pdf
- L. Jin & S. Amin (2014) A piecewise-deterministic Markov model of freeway accidents, 53rd IEEE Conference on Decision and Control, Los Angeles, CA.

Talks

- "Stochastic fluid queuing model for evaluating smart highway operations," INFORMS Annual Meeting, Phoenix, AZ, on November 6, 2018.
- ''Resilient operations of smart highways with smart vehicles,'' New York University Department of Civil and Urban Engineering, Brooklyn, NY, on March 27, 2018.
- ''Modeling, analysis, and control of smart highways under capacity perturbations,'' University of California, Institute of Transportation Studies, Berkeley, CA, on March 2, 2018.
- ''Operational resilience of smart transportation systems," Purdue University School of Aeronautics and Astronautics, West Lafayette, IN, on January 25, 2018.

- ''Capacity allocation in stochastic flow networks: Applications in smart transportation systems,'' University of Tennessee Department of Electrical Engineering and Computer Science, Knoxville, TN, on November 20, 2017.
- ''Analysis and control of dynamic flow models with stochastic disruptions,'' Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, on August 5, 2016.
- ''Stability and control of flow networks with capacity disruptions," University of Nuremberg-Erlangen Department of Applied Mathematics, Erlangen, on June 13, 2016.
- ''Stability and control of piecewise-deterministic queueing systems," Foundations of Resilient Cyber-Physical Systems (FORCES) All Hands Meeting, Cambridge, MA, on June 9, 2016.
- ''Hierarchical control of freeway networks subject to disturbances," System Science of SecUrity and Resilience for cyber-physical systems (SURE) Review Meeting, Arlington, VA, on November 18, 2015.
- ''Stochastic hybrid modeling of flow network incidents,'' Foundations of Resilient Cyber-Physical Systems (FORCES) All Hands Meeting, Oakland, CA, on June 16, 2014.