Jiachen Li

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Education

University of California, Berkeley **Berkeley, CA, USA**
Ph.D. in Robotics (Mechanical Engineering) *08/2016 - Present*
Academic advisor: Prof. Masayoshi Tomizuka
Specialization: machine learning, prediction, tracking, planning

Harbin Institute of Technology **Harbin, China**
B. Eng. in Automation (Honors School) *08/2012 - 07/2016*
Academic advisors: Prof. Huijun Gao and Shen Yin
Thesis: Partial Least Squares and Its Application to Process Control

Research Interests

My research interest lies at the intersection of machine learning, optimization, computer vision approaches and their applications to state estimation, behavior prediction, decision making and motion planning for multi-agent intelligent systems such as autonomous vehicles and robotics.

Research and Industry Experience

Honda Research Institute **San Jose, CA, USA**
Research Intern *09/2019 - Present*
Computer Vision and Behavior Prediction

Toyota Research Institute **Los Altos, CA, USA**
Research Intern *06/2019 - 08/2019*
Machine Learning and Perception Teams, Behavior Prediction

University of California, Berkeley **Berkeley, CA, USA**
Graduate Student Researcher *08/2016 - Present*
Mechanical Systems Control (MSC) Laboratory & Berkeley DeepDrive (BDD)

Harbin Institute of Technology **Harbin, China**
Research Assistant *03/2014 - 06/2016*
Research Institute of Intelligent Control and System

Teaching Experience

University of California, Berkeley **Berkeley, CA, USA**
Graduate Student Instructor (Dynamic Systems and Control) *01/2017 - 05/2017*

Harbin Institute of Technology **Harbin, China**
Teaching Assistant (Automatic Control Theory) *09/2014 - 01/2015*

Journal and Conference Publications

- **J. Li***, F. Yang*, M. Tomizuka and C. Chio, "EvolveGraph: Heterogeneous Multi-Agent Multi-Modal Trajectory Prediction with Evolving Interaction Graphs", under review.
- **J. Li**, H. Ma, Z. Zhang, J. Li and M. Tomizuka, "Social-WaGDAT: Interaction-aware Trajectory Prediction via Wasserstein Graph Double-Attention Network", under review.
- **J. Li**, W. Zhan, Y. Hu and M. Tomizuka, "Generic Tracking and Prediction Framework and Its Application in Autonomous Driving", *IEEE Transactions on Intelligent Transportation Systems*, DOI: 10.1109/TITS.2019.2930310, early access, 2019.
- **J. Li**, H. Ma, and M. Tomizuka, "Conditional Generative Neural System for Probabilistic Trajectory Prediction", in *2019 IEEE Conference on Robotics and Systems (IROS)*, 2019.
- **J. Li***, H. Ma* and M. Tomizuka, "Interaction-aware Multi-agent Tracking and Probabilistic Behavior Prediction via Adversarial Learning", in *2019 IEEE Conference on Robotics and Automation (ICRA)*, 2019.
- **J. Li**, H. Ma, W. Zhan and M. Tomizuka, "Coordination and Trajectory Prediction for Vehicle Interactions via Bayesian Generative Modeling", in *2019 IEEE Intelligent Vehicles Symposium (IV)*, 2019.
- H. Ma, **J. Li**, W. Zhan and M. Tomizuka, "Wasserstein Generative Learning with Kinematic Constraints for Probabilistic Interactive Driving Behavior Prediction", in *2019 IEEE Intelligent Vehicles Symposium (IV)*, 2019.
- **J. Li**, H. Ma, W. Zhan and M. Tomizuka, "Generic Probabilistic Interactive Situation Recognition and Prediction: From Virtual to Real", in *2018 IEEE International Conference on Intelligent Transportation Systems (ITSC)*, 2018.
- **J. Li**, W. Zhan and M. Tomizuka, "Generic Vehicle Tracking Framework Capable of Handling Occlusions Based on Modified Mixture Particle Filter", in *2018 IEEE Intelligent Vehicles Symposium (IV)(oral)*, 936-942, 2018.
- W. Zhan, L. Sun, Y. Hu, **J. Li** and M. Tomizuka, "Towards a Fatality-Aware Benchmark of Probabilistic Reaction Prediction in Highly Interactive Driving Scenarios", in *2018 IEEE International Conference on Intelligent Transportation Systems (ITSC)*, 2018.
- W. Zhan, **J. Li**, Y. Hu and M. Tomizuka, "Safe and Feasible Motion Generation for Autonomous Driving via Constrained Policy Net", in *Industrial Electronics Society, IECON 2017-43rd Annual Conference of the IEEE*, 4588-4593, 2017.
- **J. Li**, C. Duan and Z. Fei, "A Novel Variable Selection Approach for Redundant Information Elimination Purpose of Process Control", *IEEE Transactions on Industrial Electronics*, 63(3), 1737-1744, 2016.
- C. Duan, Z. Fei and **J. Li**, "A Variable Selection Aided Residual Generator Design Approach for Process Control and Monitoring", *Neurocomputing*, 171, 1013-1020, 2016.
- S. Shi, Z. Fei and **J. Li**, "Finite-time Hinf Control of Switched Systems with Mode-dependent Average Dwell Time", *Journal of the Franklin Institute*, 353(1), 221-234, 2016.

Invited Talks

- Inductive Bias in Behavior Prediction Models, *Carnegie Mellon University* *08/2019*
- Incorporating Relational Reasoning in Multi-agent Trajectory Prediction, *IROS Workshop* *11/2019*

Awards and Honors

- Top Ten Outstanding Graduate at Harbin Institute of Technology (Top 1%) *2016*
- Chunhui Innovation Fellowship (Top 1%) *2016*
- Meritorious Winner, Mathematical/Interdisciplinary Contest in Modeling *2015*

Professional Activities

- Associate Editor of *IEEE Intelligent Vehicles Symposium (IV)* — *2020*
- Co-organizer of Workshops at *IEEE Intelligent Vehicle Symposium* — *2019, 2020*
- Reviewer of *Adcances in Neural Information Processing Systems (NeurIPS)* — *2020*
- Reviewer of *International Conference on Machine Learning (ICML)* — *2020*
- Reviewer of *IEEE Transactions on Industrial Electronics* — *2017 – Present*
- Reviewer of *IEEE Transactions on Intelligent Transportation Systems* — *2017 – Present*
- Reviewer of *IEEE Transactions on Intelligent Vehicles* — *2018 – Present*
- Reviewer of *IEEE Transactions on Robotics* — *2020 – Present*
- Reviewer of *IEEE Transactions on Mechatronics* — *2019 – Present*
- Reviewer of *IEEE International Conference on Robotics and Automation (ICRA)* — *2018 - Present*
- Reviewer of *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* — *2019 - Present*
- Reviewer of *IEEE Intelligent Vehicles Symposium (IV)* — *2018 - Present*
- Reviewer of *IEEE Conference on Intelligent Transportation Systems (ITSC)* — *2018 - Present*
- Research mentor of undergraduate students — *2019 - Present*

Affiliations

- Member of *IEEE Intelligent Transportation Systems Society (ITSS)* — *2016 - Present*
- Member of *IEEE Robotics and Automation Society (RAS)* — *2016 - Present*

Computer Skills

- **Programming**: Python, C & C++, MATLAB/Simulink
- **Deep Learning Framework**: TensorFlow, PyTorch, Caffe
- **Design and Simulation**: ROS, Multisim, AutoCAD, OrCAD