Yuhao Ding

PhD Candidate · Industrail Engineering and Operations Research

University of California, Berkeley

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Education

University of California, Berkeley — *Berkeley, CA*

Ph.D. student in Industrial Engineering and Operations Research — *August 2018-May 2023*

- Advisor: Prof. Javad Lavaei
- GPA: 3.94/4.0

University of Michigan, Ann Arbor — *Ann Arbor, MI*

MS in Electrical and Computer Engineering — *September 2016-April 2018*

- Advisor: Prof. Necmiye Ozay
- GPA: 4.0/4.0

Nanjing University of Aeronautics and Astronautics — *Nanjing, China*

BE in Aerospace Engineering — *September 2012-June 2016*

- GPA: 93/100
- Honor Graduate

Professional Experience

Microsoft Research — *Remote*

Research intern — *May 2021-August 2021*

- Mentor: Dr. Emre Kiciman
- Co-mentors: Dr. Cheng Zhang, Dr. Qie Zhang, Dr. Swati Sharma

University of California, Berkeley — *Berkeley, CA*

Graduate research assistant — *August 2018-Now*

- Advisor: Prof. Javad Lavaei

Ford Motor Company — *Ann Arbor, MI*

Part-time Research intern — *December 2017-May 2018*

- Advisor: Prof. Ilya Kolmanovsky, Dr. Subramanya Nageshrao

Publications

Journal

Y. Ding, J. Lavaei, and M. Arcak, "Time-variation in Online Nonconvex Optimization Enables Escaping from Spurious Local Minima", conditionally accepted for IEEE Transactions on Automatic Control.

S. Fattahi, C. Josz, **Y. Ding**, R. Mohammadi, J. Lavaei, S. Sojoudi, "Absence of spurious local trajectories in time-varying optimization", conditionally accepted for IEEE Transactions on Automatic Control.

Conference proceedings

Y. Ding, and J. Lavaei, "Structured Projection-free Online Convex Optimization with Multi-Point Bandit Feedback". 2021 IEEE conference on Decision and Control (CDC).

Y. Ding, Y. Bi, and J. Lavaei "Analysis of Spurious Local Solutions of Optimal Control Problems: One-Shot Optimization Versus Dynamic Programming". 2021 American Control Conference (ACC).

Y. Ding, J. Lavaei, and M. Arcak "Escaping spurious local minimum trajectories in online time-varying nonconvex optimization". 2021 American Control Conference (ACC). **Finalist for Best Student Paper Award**.

Y. Ding, F. Harirchi, S.Z. Yong, E. Jacobsen, N. Ozay, "Optimal Input Design for Affine Model Discrimination with Applications in Intention-Aware Vehicles". 9th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), Porto, Portugal, April 2018

K. Singh, **Y. Ding**, N. Ozay, S.Z. Yong, "Input Design for Nonlinear Model Discrimination via Affine Abstraction". Proc. 6th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS), Oxford, UK, July 2018.

In Review

D. Ying, **Y. Ding**, J. Lavaei, "A Dual Approach to Constrained Markov Decision Processes with Entropy Regularization", https://arxiv.org/abs/2110.08923

Y. Ding, J. Zhang, J. Lavaei. "Beyond Exact Gradients: Convergence of Stochastic Soft-Max Policy Gradient Methods with Entropy Regularization",https://arxiv.org/abs/2110.10117

Y. Ding, J. Zhang, J. Lavaei. "On the Global Convergence of Momentum-based Policy Gradient", https://arxiv.org/abs/2110.10116

Y. Ding, H. Feng, and J. Lavaei. "Aggressive Local Search for Constrained Optimal Control Problems with Many Local Minima." arXiv preprint arXiv:1903.08634.

In Preparation

Y. Ding, E. Kiciman, and C. Zhang, Q. Zhang, S. Sharma "Causal-aware Models for Simulator-based Decision-making".

Awards, Fellowships, & Grants

2021 **Finalist for Best Student Paper Award**, 2021 American Control Conference (ACC)

2018 **Graduate student Fellowship**, IEOR, UC Berkeley

2016 **China Scholarship Council (CSC) scholarship**, CSC

2015 **The Alan Mulally Leadership Scholarship**, Ford Motor Company
German Academic Exchange Service (DAAD) scholarship,

2014 **Excellent scholarship**, Chinese Aviation Electromechanical System Company

2013 **Chinese Mathematics Competition (Jiangsu province)**, First prize
Chinese National Scholarship,

Teaching Experience

Fall 2019 **IEOR 160: Nonlinear and discrete optimization**, Graduate Student Instructor *UC Berkeley*

Courses

Operations research

Mathematical Programming I, II (A+); Applied Stochastic Process I,II; Optimization for machine learning (A+); Network Flows and Graphs (A+); Control and Optimization for Power Systems (A+); Supply Chain and Logistics Management.

Statistics

Theoretical Statistics I; Theoretical Statistics II (A+); High-dimensional statistics for low-dimensional model (A+); Statistical Learning Theory; Statistical Models: Theory and Application.

Deep learning

Designing, Visualizing and Understanding Deep Neural Networks (A+); Deep Reinforcement Learning.

Others

Stochastic Systems: Estimation and Control (A+); Population Games.

Outreach & Professional Development

Peer Review

Systems & Control Letters
Conference on Neural Information Processing Systems
American Control Conference
Conference on Decision and Control
Conference on Artificial Intelligence and Statistics

Professional Memberships

IEEE, student member
INFORMS, student member