Han Feng | Curriculum Vitae

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https://scholar.google.com/citations?user=A8xTWm4AAAAJ

Education

University of California, Berkeley *August 2016 - Present, Expected May 2021*
Ph.D. Candidate in Industrial Engineering and Operational Research
Minor in Statistics and Electrical Engineering

University of Science and Technology of China (USTC) *Sep 2012 - Jun 2016*
B.S. in Mathematics and Applied Mathematics (GPA 4.0/4.3)

Skills and Expertise

Modeling:	Regression, SVM, random forests, linear and nonlinear control, hybrid control
Statistics:	Statistical learning theory, robust statistics,
Algorithms:	Approximation algorithms, network flow and graph, spectral methods, integer programming
Coding:	C++, Python & Cython, Julia, Shell, LaTeX
Tools:	Tensorflow, Pytorch, Vim, git, SublimeText, Matlab, Mathematica, AMPL
Theory:	Optimization, dynamic programming, stochastic process, error-control coding

Research and Collaboration Experience

Research Assistant at Laboratory of Control, Optimization and Power *April 2017- Present*

Optimal Distributed Control Prof. Javad Lavaei

- Approximation techniques and fundamental hardness of optimal distributed control problem.
- Reduction of the number of local optimal controllers via homotopy continuation methods.
- Simulations of distributed control models in power systems with many local minimal.
- Study of the landscape of non-convex optimization problems.

Implementation of Gromory Cuts in CPLEX with Prof. Deepak Rajan

- Cut plane adding strategy in the branch-and-bound solver of mixed integer linear programming.

Observer Design for Lipschitz Systems with Dr. Ming Jin

- Reducing conservativeness of observer design with dissipative theory and semi-definite programming.

Research Internship at the University of Birmingham *Jul 2015- Aug 2015*

Development of real-time imaging capabilities for Diffuse Optical Imaging (DOI) of the human brain Dr. Hamid Dehghani

- Implement Python packages for the NIRFAST software and **Multi-thread Cython** interface to C code.

National Undergraduate Training Program for Innovation *Jul 2014- May 2015*

Construction of closed minimal surface with finite conical points in $\mathbb{R}^3$ Prof. Bin Xu, Prof. Xisheng Luo

- We studied global analytic functions and hypergeometric equations, their relationships with Weierstrass Representation and theories of explicit minimal surfaces.

Selected Publications

Conference Proceedings

Han Feng, Javad Lavaei, "On the Exponential Number of Connected Components for the Feasible Set of Optimal Decentralized Control Problem", Proceedings of the American Control Conference (ACC), 2019, **Finalist for Best Student Paper**.

Han Feng, Javad Lavaei, "A Convex Approximation of Optimal Distributed Controller in Frequency Domain", Proceedings of Conference on Decision and Control (CDC), 2018.

Han Feng, Javad Lavaei, "Escaping Locally Optimal Decentralized Control Polices via Damping, Proceedings of the American Control Conference (ACC), 2020."

Preprints

Han Feng, Javad Lavaei, "Connectivity Properties of the Set of Stabilizing Static Decentralized Controllers. Submitted for journal publication.

Han Feng, Javad Lavaei, "Damping with Varying Regularization in Optimal Decentralized Control. Submitted for journal publication.

Han Feng, Javad Lavaei, "Analysis of the Landscape of Time-Varying Non-convex Optimization Problems via Linear Operators. Submitted for conference publication.

Ruijiang Gao, *Han Feng*, "Identify Best Fair Intervention". Submitted for conference publication.

Teaching Experience

Teaching Assistant

Mathematical Optimization II (262B) — UC Berkeley, *Spring 2019*

Nonlinear and Discrete Optimization (160) — UC Berkeley, *Fall 2017 and Fall 2018*

Mathematical Analysis (B1) — USTC, *Fall 2015*

Extracurricular activities

- Signatory Committee Member of IEOR Graduate Student Organization
  - Organize social events
  - Advise new students in the department
- Member of the Yongmudo Martial Arts Club
  - Organize and participate in workouts
  - Volunteer in promotion and social events
- Amateur Radio Technician Class License