Jiaming Liang

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Research Interests

Nonconvex and nonsmooth optimization; Foundation of data science; Sampling algorithms

Education

Ph.D. in Operations Research, Georgia Institute of Technology	2017-2022 (expected)
M.S. in Computational Science & Engineering, Georgia Institute of Technology	2015-2017
B.S. in Ocean Engineering, Shanghai Jiao Tong University	2011-2015
B.S. in Applied Mathematics, Shanghai Jiao Tong University	2013-2015

Publications

2020	J. Liang, S. Di Cairano, and R. Quirynen. Early Termination of Convex QP Solvers in Mixed-Integer Programming for Real-Time Decision Making. *Submitted to IEEE Control Systems Letters and American Control Conference*, 2020
	J. Liang and R. D. C. Monteiro. A proximal bundle variant with optimal iteration-complexity for a large range of prox stepsizes. *Available on arXiv:2003.11457*, 2020
2019	J. Liang, R. D. C. Monteiro, and C.-K. Sim. A FISTA-type accelerated gradient algorithm for solving smooth nonconvex composite optimization problems. *Available on arXiv:1905.07010*, 2019
	J. Liang and R. D. C. Monteiro. An average curvature accelerated composite gradient method for nonconvex smooth composite optimization problems. *Available on arXiv:1909.04248*, 2019
2018	J. Liang and R. D. C. Monteiro. A doubly accelerated inexact proximal point method for nonconvex composite optimization problems. *Available on arXiv:1811.11378*, 2018
2015	Jiaming Liang and Zhiliang Lin. Ship roll behaviour in large amplitude beam waves. In *ASME 2015 34th International Conference on Ocean, Offshore and Arctic Engineering*. American Society of Mechanical Engineers, 2015
	Jifeng Cui, Jiaming Liang, and Zhiliang Lin. Stability analysis for periodic solutions of the Van der Pol–Duffing forced oscillator. *Physica Scripta*, 91(1):015201, 2015

Professional Experience

- Intern in Mitsubishi Electric Research Laboratories, Cambridge, MA, May-August 2020
  - Developed a projection and early termination strategy tailored to primal-dual interior point methods for mixed-integer model predictive control applications

- Summer Research Associate in NEC Labs America, Princeton, NJ, May-August 2017
  - Distributed Temperature Sensing (DTS) system spatial resolution improvement by impulse response and optimization algorithms
  - Developed algorithms to greatly improve the DTS spatial resolution from 1m to 20cm
- Software Engineer Intern in Schlumberger, Houston, TX, May-August 2016
  - Exploratory Data Analysis & Interpretation of Geophysical Data

Patents

1. Jiaming Liang, Stefano Di Cairano, and Rien Quirynen. Early Termination of Convex QP Solvers in Mixed-Integer Programming for Real-Time Decision Making. 2020, Filed
2. Yaowen Li and Jiaming Liang. Spatial resolution of a DTS system by impulse response deconvolution and optimization. 2019, Filed

Teaching

- Courses TAed at Georgia Tech
  - Fall 2016 CX/MATH 4640 Numerical Analysis I
  - Summer 2019/Fall 2020 ISYE 8803 Topics on High-Dimensional Data Analytics
  - Fall 2019 ISYE 6669 Deterministic Optimization

Awards

2019	ARC-TRIAD Fellowship, Georgia Tech
2015	Outstanding Graduate of Shanghai Jiao Tong University
2014	Honorable Mention of Interdisciplinary Contest In Modeling (MCM/ICM)
2014	China Shipping Industry Scholarship
2009	First Prize, Chinese National Olympiad in Mathematics in Provinces

Invited Talks

- A Proximal Bundle Variant with Optimal Iteration-complexity for a Large Range of Prox Stepsizes
  - INFORMS Annual Meeting, Washington, D.C., November 2020
  - Optimization Interest Group Meeting, Mitsubishi Electric Research Laboratories, Cambridge, MA, July 2020
- An Average Curvature Accelerated Composite Gradient Method for Nonconvex Smooth Composite Optimization Problems
  - INFORMS Annual Meeting, Seattle, WA, October 2019

  - DOS Seminar in Georgia Tech, Atlanta, GA, October 2019

- A Doubly Accelerated Inexact Proximal Point Method for Nonconvex Composite Optimization Problem
  - INFORMS Annual Meeting, Seattle, WA, October 2019
  - Machine Learning Theory Reading Group in Georgia Tech, Atlanta, GA, April 2019
  - ISyE PhD Student Seminar in Georgia Tech, Atlanta, GA, November 2018
  - DOS Seminar in Georgia Tech, Atlanta, GA, November 2018

- Ship Roll Behaviour in Large Amplitude Beam Waves
  - International Conference on Ocean, Offshore and Arctic Engineering, St. Johns, NL, Canada, June 2015

Academic Activities

- Reviewer for IEEE Transactions on Signal Processing
- Organizer of Optimization Interest Group Meeting, Mitsubishi Electric Research Laboratories