Lexiao Lai

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EDUCATION

Columbia University in the City of New York — New York, U.S.
Doctor of Philosophy in Operations Research — Sept. 2019 - May 2024 (expected)
Master of Science in Operations Research — Sept. 2019 - May 2020

The University of Hong Kong — Hong Kong
Bachelor of Science Major in Mathematics, Minor in Finance — Sept. 2015 - June 2019

RESEARCH INTERESTS

Nonconvex optimization, semi-algebraic geometry, data science

PUBLICATION & PREPRINTS

1. Cédric Josz, Lexiao Lai, Sufficient conditions for instability of the subgradient method with constant step size, To appear in SIAM Journal on Optimization, 2023 [preprint]
2. Cédric Josz, Lexiao Lai, Global stability of first-order methods for coercive tame functions, preprint, 2023 [preprint]
3. Cédric Josz, Lexiao Lai, Lyapunov stability of the subgradient method with constant step size, Mathematical Programming, 2023 [preprint] [journal doi]
4. Cédric Josz, Lexiao Lai, Nonsmooth rank-one matrix factorization landscape, Optimization Letters, 1-21, 2021 [preprint] [journal doi]
5. Elliot Cartee, Lexiao Lai, Qianli Song, Alexander Vladimirsky, Time-dependent surveillance-evasion games, 58th IEEE Conference on Decision and Control, 2019 [preprint] [conference doi]

TALKS

1. SIAM Conference on Optimization, Seattle, June 1st 2023, *Global stability of first-order methods with constant step size for coercive tame functions*
2. CUHK SEEM Department Seminar, Hong Kong, December 8th 2022, *Lyapunov stability of the subgradient method with constant step size*
3. HKU Optimization and Machine Learning Seminar, Hong Kong, December 6th 2022, *Lyapunov stability of the subgradient method with constant step size*
4. PGMODAYS 2022, Paris, November 29th 2022, *Lyapunov stability of the subgradient method with constant step size*
5. Institute for Operations Research and the Management Sciences, Annual Meeting, Indianapolis, October 17th 2022, *Lyapunov stability of the subgradient method with constant step size*

AWARDS & HONOURS

- Columbia IEOR Department Fellowship — 2019
- Walter Brown Memorial Prizes in Mathematics, HKU — 2019
- Doris Chen Undergraduate Project Prize, HKU — 2018
- Liu Ming-Chit Prize in Mathematics, HKU — 2018
- Outstanding Winner of *Mathematical Contest in Modelling* — 2017
  Organized by COMAP Inc.
- Ranked 134 out of 4638 in *78th William Putnam Mathematical Competition* — 2017
  Organized by *Mathematical Association of America*
- Alan John Allis Prize in Mathematics, HKU — 2016,2017
- Dean's Honours List, HKU — 2016,2017,2019
- HKSAR Government Scholarship, HKU — 2015-2019

TEACHING EXPERIENCE

As Teaching Assistant:

- **Columbia**: EEOR6616 Convex Optimization (TA evaluation: 4.42/5) — Spring 2023
- **HKU**: MATH2101 Linear Algebra I — Spring 2019

COMPUTER SKILLS

Programming Languages: Python, MATLAB, LaTeX