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, low-rank matrix recovery.

RESEARCH PAPERS

- Cédric Josz, Lexiao Lai, Lyapunov stability of the subgradient method with constant step size, Mathematical Programming, 2023 [preprint] [journal doi]
- Cédric Josz, Lexiao Lai, Sufficient conditions for instability of the subgradient method with constant step size, arXiv preprint, 2022 [preprint]
- Cédric Josz, Lexiao Lai, Nonsmooth rank-one matrix factorization landscape, Optimization Letters, 1-21, 2021 [preprint] [journal doi]
- Elliot Cartee, Lexiao Lai, Qianli Song, Alexander Vladimirsky, Time-dependent surveillance-evasion games, 58th IEEE Conference on Decision and Control, 2019 [preprint] [conference doi]

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

RELEVANT COURSES

- **Columbia**: Optimization I & II, Foundation of Optimization, Advanced Topics in IEOR (in polynomial optimization), Stochastic Models I & II, Analysis of Algorithms, Graphical models, Machine learning
- **HKU**: Topics in Math Programming and Optimization (theories and algorithms of convex optimization), Introduction to Optimization, Real Analysis, Functional Analysis, Introduction to Partial Differential Equations, (Ordinary) Differential Equations, Discrete Mathematics, Abstract Algebra, Stochastic Processes, Introductory Econometrics, Mathematical Finance

COMPUTER SKILLS

Programming Languages: Python, MATLAB, LaTeX.