LING LIANG

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EXPERIENCE

- **Postdoctoral Associate, University of Maryland at College Park, USA**
  August 2023 – Present
  Advisor: Dr. Haizhao Yang
- **Visiting Postdoctoral Researcher, Weierstrass Institute, Germany**
  March 2023 – June 2023
  Advisor: Dr. Jia-Jie Zhu
- **Research Fellow, National University of Singapore, Singapore**
  January 2022 – July 2023
  Advisor: Dr. Kim-Chuan Toh
- **Research Assistant, National University of Singapore, Singapore**
  August 2021 – December 2021
  Advisor: Dr. Kim-Chuan Toh

EDUCATION

- **Ph.D. in Mathematics, National University of Singapore, Singapore**
  August 2017 – November 2021
  Advisor: Dr. Kim-Chuan Toh
- **B.Sc. in Mathematics, University of Science and Technology of China, China**
  September 2013 – July 2017
  Advisor: Dr. Zhouwang Yang

AWARDS AND ACKNOWLEDGEMENTS

- **Louis Chen Hsiao Yun Best Dissertation Prize, National University of Singapore, 2022**

Awarded annually to the graduate student with the best PhD thesis in mathematics and its applications.

- **Top Graduate Tutor Award, National University of Singapore, 2019 and 2020**
- **Research Scholarship, National University of Singapore, 2017-2021**

TEACHING

- **University of Maryland at College Park**
  - Instructor, Computational Methods, Fall 2023
  - Instructor, Applications of Linear Algebra, Spring 2024
- **National University of Singapore**
  - Graduate Tutor, Linear Algebra, Fall 2018
  - Graduate Tutor, Linear Algebra, Spring 2019
  - Graduate Tutor, Linear Algebra, Fall 2019
  - Graduate Tutor, Linear Algebra, Spring 2020

PUBLICATIONS

(Note: * = Corresponding Author)

- Hong T.M. Chu, **Ling Liang**, Kim-Chuan Toh, and Lei Yang.

  An Efficient Implementable Inexact Entropic Proximal Point Algorithm for A Class of Linear Programming Problems.

  Computational Optimization and Applications 85, no. 1 (2023): 107-146.

- Heng Yang, **Ling Liang***, Luca Carlone, and Kim-Chuan Toh.

  An Inexact Projected Gradient Method with Rounding and Lifting by Nonlinear Programming for Solving Rank-One Semidefinite Relaxation of Polynomial Optimization.

  Mathematical Programming 201, no. 1-2 (2023): 409-472.

- **Ling Liang***, Xudong Li, Defeng Sun, and Kim-Chuan Toh.

QPPAL: A Two-Phase Proximal Augmented Lagrangian Method for High Dimensional Convex Quadratic Programming.

ACM Transactions on Mathematical Software 48, no. 3 (2022): 1-27.

- Ying Cui, **Ling Liang***, Defeng Sun, and Kim-Chuan Toh.

  On Degenerate Doubly Nonnegative Projection Problems.

  Mathematics of Operations Research 47, no. 3 (2022): 2219-2239.

- Tran-Dinh Quoc, **Ling Liang**, and Kim-Chuan Toh.

  A New Homotopy Proximal Variable-Metric Framework for Composite Convex Minimization.

  Mathematics of Operations Research 47, no. 1 (2022): 508-539.

- **Ling Liang***, Defeng Sun, and Kim-Chuan Toh.

  An Inexact Augmented Lagrangian Method for Second-Order Cone Programming with Applications.

  SIAM Journal on Optimization 31, no. 3 (2021): 1748-1773.

PREPRINTS

- **Ling Liang***, Kim-Chuan Toh, Jia-Jie Zhu

  An Inexact Halpern Iteration for Application to Distributionally Robust Optimization.

  arXiv preprint arXiv:2402.06033 (2024)

- **Ling Liang***, Haizhao Yang

  On the Stochastic (Variance-Reduced) Proximal Gradient Method for Regularized Expected Reward Optimization.

  arXiv preprint arXiv:2401.12508 (2024)

- Di Hou, **Ling Liang***, Kim-Chuan Toh.

  A Sparse Smoothing Newton Method for Solving Discrete Optimal Transport Problems.

  arXiv preprint arXiv:2311.06448 (2023).

- Lei Yang, **Ling Liang***, Hong T.M. Chu, Kim-Chuan Toh.

A Corrected Inexact Proximal Augmented Lagrangian Method with a Relative Error Criterion for a Class of Group-quadratic Regularized Optimal Transport Problems.

arXiv preprint arXiv:2311.01976 (2023).

- **Ling Liang***, Defeng Sun, and Kim-Chuan Toh.

  A Squared Smoothing Newton Method for Semidefinite Programming.

  arXiv preprint arXiv: 2303.05825 (2023).

- Ching-Pei Lee, **Ling Liang**, Tianyun Tang, and Kim-Chuan Toh.

  Escaping Spurious Local Minima of Low-Rank Matrix Factorization through Convex Lifting.

  arXiv preprint arXiv:2204.14067 (2022).

INVITED TALKS

- **25th International Symposium on Mathematical Programming, Montreal, July 2024**

  Escaping Spurious Local Minima of Low-Rank Factorization Through Convex Lifting

- **2024 INFORMS Optimization Society Conference, Houston, March 2024**

  Escaping Spurious Local Minima of Low-Rank Factorization Through Convex Lifting

- **Workshop on Scientific Machine Learning: Theory and Algorithms, Maryland, February 2024**

  On the Stochastic (Variance-Reduced) Proximal Gradient Method for Regularized Expected Reward Optimization

- **SIAM Conference on Optimization, Seattle, May 2023**

  A Squared Smoothing Newton Method for Semidefinite Programming

- **The Hua Luogeng Youth Forum of Applied Mathematics, Beijing, March 2023**

  A Squared Smoothing Newton Method for Semidefinite Programming

- **Argonne National Laboratory, Online Seminar, May 2022**

  An Inexact Projected Gradient Method with Rounding and Lifting by Nonlinear Programming for Solving Rank-One Semidefinite Relaxation of Polynomial Optimization

- **SIAM Conference on Optimization, Online Conference, July 2021**

  On Degenerate Doubly Nonnegative Projection Problems

- **Workshop on Matrix Optimization, Beijing, November 2019**

  A New Homotopy Proximal Variable-Metric Framework for Composite Convex Minimization

- **The Sixth International Conference on Continuous Optimization, Berlin, August 2019**

  A New Homotopy Proximal Variable-Metric Framework for Composite Convex Minimization

PROFESSIONAL SERVICES

- **Referee for Journals**
  - Mathematical Programming
  - SIAM Journal on Optimization
  - Mathematical Programming Computation
  - SIAM Journal on Mathematics of Data Science
  - Computational Optimization and Applications
  - Journal of Scientific Computing
  - Optimization Methods and Software
  - Journal of Industrial and Management Optimization
- **Conference and Workshop Organizations**
  - Session Chair, Optimization in the Big Data Era, National University of Singapore, 2022.
- **Judge for Singapore International Mathematics and Computational Challenge, November 2022.**
- **AD-HOC Non-Teaching Consultation Work, National University of Singapore, November 2022.**