

Xudong Li

Curriculum Vitae

School of Data Science
Fudan University
Zibin Yuan S304, 220 Handan Road, Shanghai 200433
✉ lixudong@fudan.edu.cn

Last updated: 20 August 2019

Education

2010–2015 **Ph.D. in Mathematics** (major in Optimization), *National University of Singapore*, Singapore.
Dissertation: *A two-phase augmented Lagrangian method for convex composite quadratic programming*
Advisors: Defeng Sun, Kim-Chuan Toh

2006–2010 **B.S. in Mathematics**, *University of Science and Technology of China*, Hefei, China.

Research Interests

Efficient algorithms for large scale optimization problems in data science

Optimization and decision making under uncertainty

Matrix Optimization Problems, in particular, large scale convex quadratic semidefinite programming

Positions

Sep 2018– Associate Professor, School of Data Science and Shanghai Center for Mathematical Sciences, Fudan University

2017–2018 Postdoctoral Research Associate, Department of Operations Research and Financial Engineering, Princeton University

2015–2017 Research Fellow, Department of Mathematics, National University of Singapore, Singapore

Feb–Aug 2015 Research Assistant, Department of Mathematics, National University of Singapore, Singapore

Honors and Awards

Aug 2019 Best Paper Prize for Young Researchers in Continuous Optimization, by the Mathematical Optimization Society, 2019 (**Awarded once every three years**)

Oct 2013 Part-Time Teaching Assistant Award for AY 2012/2013, National University of Singapore

Professional Service

✉ Associate Editor, *Mathematical Programming Computation*

✉ Member of the Program Committee, the 34th AAAI Conference on Artificial Intelligence, AAAI-20

✉ Section Chair, the Sixth International Conference on Continuous Optimization (ICCOPT 2019)

✉ Section Chair, 2019 INFORMS Annual Meeting

✉ Section Chair, 2018 INFORMS Annual Meeting

✉ Secretary, SIAM NUS Student Chapter, 2013-2014

✉ Reviewer for AMS Mathematical Reviews

✉ Referee for *Mathematical Programming*, *SIAM Journal on Optimization*, *SIAM Journal on Numerical Analysis*, *Mathematical Programming Computation*, *IEEE Transactions on Signal Processing*, *ICML*, *NIPS*, *Numerical Algorithms*, *Optimization and Engineering*, *Asia-Pacific Journal of Operational Research*, *Applied Mathematics and Mechanics (English Edition)*

Preprints

- 👤 Ziwei Zhu, Xudong Li, Mengdi Wang and Anru Zhang, Learning Markov models via low-rank optimization, arXiv:1907.00113, 2019
- 👤 Xudong Li, Defeng Sun and Kim-Chuan Toh, An asymptotically superlinearly convergent semismooth Newton augmented Lagrangian method for Linear Programming, arXiv:1903.09546, 2019, minor revision with *SIAM Journal on Optimization*

Publications

- 👤 Liang Chen, Xudong Li, Defeng Sun and Kim-Chuan Toh, On the equivalence of inexact proximal ALM and ADMM for a class of convex composite programming, arXiv:1803.10803, *Mathematical Programming*, in print, 2019
- 👤 Xudong Li, Defeng Sun and Kim-Chuan Toh, On the efficient computation of a generalized Jacobian of the projector over the Birkhoff polytope, arXiv:1702.05934, *Mathematical Programming*, in print, DOI: 10.1007/s10107-018-1342-9, 2018
- 👤 Xudong Li, Defeng Sun and Kim-Chuan Toh, A block symmetric Gauss-Seidel decomposition theorem for convex composite quadratic programming and its applications, *Mathematical Programming*, 175 (2019), 396–418
- 👤 Xudong Li, Mengdi Wang and Anru Zhang, Estimation of Markov chain via rank-constrained likelihood, arXiv:1804.00795, *Proceedings of the 35-th International Conference on Machine Learning (ICML)*, Stockholm, Sweden, PMLR 80, 2018
- 👤 Xudong Li, Defeng Sun and Kim-Chuan Toh, QSDPNAL: A two-phase augmented Lagrangian method for convex quadratic semidefinite programming, *Mathematical Programming Computation*, 10 (2018), 703–743
- 👤 Xudong Li, Defeng Sun and Kim-Chuan Toh, On efficiently solving the subproblems of a level-set method for fused lasso problems, *SIAM Journal on Optimization*, 28 (2018), 1842–1866
- 👤 Xudong Li, Defeng Sun and Kim-Chuan Toh, A highly efficient semismooth Newton augmented Lagrangian method for solving Lasso problems, *SIAM Journal on Optimization*, 28 (2018), 443–458
Best Paper Prize for Young Researchers in Continuous Optimization, ICCOPT 2019 (1 in 3 years)
- 👤 Ying Cui, Xudong Li, Defeng Sun and Kim-Chuan Toh, On the convergence of a majorized ADMM for the linearly constrained convex optimization problems of coupled objective functions, *Journal of Optimization Theory and Applications*, 169 (2016), 1013–1041
- 👤 Xudong Li, Defeng Sun and Kim-Chuan Toh, A Schur complement based proximal ADMM for convex quadratic conic programming and extensions, *Mathematical Programming*, 155 (2016), 333–373

Softwares

- 👤 SuiteLasso: a MATLAB suite for regression problems with generalized Lasso regularizers
- 👤 QSDPNAL: a MATLAB software for convex quadratic semidefinite programming problems

Conferences

- Aug 2019 The Sixth International Conference on Continuous Optimization, Technical University (TU) of Berlin, 03–08 August 2019, Berlin, Germany
- Dec 2018 The 4th International Conference on Big Data and Information Analytics, 17–19 December 2018, Houston, TX, United States
- Jun 2018 The 23rd International Symposium on Mathematical Programming, 26–28 June 2018, Bordeaux, France

- May 2018 Bridging Mathematical Optimization, Information Theory, and Data Science, Princeton University, 14–16 May 2018, Princeton, NJ, United States
- Apr 2018 Applied Math Days 2018, Rensselaer Polytechnic Institute, 6–7 April 2018, Troy, NY, United States
- May 2017 SIAM Conference on Optimization, 22–25 May 2017, Vancouver, Canada
- Aug 2016 The Fifth International Conference on Continuous Optimization, 6–11 Aug 2016, Tokyo, Japan
- Jul 2015 The 22nd International Symposium on Mathematical Programming, 12–17 Jul 2015, Pittsburgh, United States
- Jan 2014 The 9th Mathematical and Physical Science Graduate Congress, Faculty of Science, University of Malaya, 8–10 Jan 2014, Kuala Lumpur, Malaysia
- Jul 2013 The Fourth International Conference on Continuous Optimization, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, 27 Jul–1 Aug 2013, Lisbon, Portugal
- Nov 2011 Optimization: Computation, Theory and Modeling, Institute for Mathematical Sciences, National University of Singapore, 1 Nov–23 Dec 2012, Singapore

Other Experiences

- Aug 2018 Visiting Senior Research Fellow, Institute of Operations Research and Analytics, National University of Singapore
- Aug 2017 Visiting Scholar, Department of Statistics, University of Wisconsin-Madison, 16 Aug–31 Aug 2017
- Mar 2017 Visiting Scholar, Operations Research and Financial Engineering, Princeton University, 5 Mar–18 Mar 2017
- Feb 2017 Visiting Scholar, Faculty of Science and Engineering, Curtin University, 7 Feb–18 Feb 2017
- Apr 2015 Visiting Academic, Mathematical Sciences, University of Southampton, 6 Apr–19 Apr 2015

Teaching Experience

- 2019 Spring Operations Research, Fudan University, Lecturer
- 2018 Fall Algorithms for Big data, Fudan University, Lecturer
- 2014 Fall Matrix Computation (MA4230), National University of Singapore, Teaching Assistant
- 2014 Spring Discrete Optimization (MA4254), National University of Singapore, Teaching Assistant
- 2013 Fall Nonlinear Programming (MA3236), National University of Singapore, Teaching Assistant
- 2013 Spring Discrete Optimization (MA4254), National University of Singapore, Teaching Assistant
- 2012 Spring and Fall Mathematics I & II (MA1505 & MA1506), National University of Singapore, Teaching Assistant