

# Xudong Li

## Curriculum Vitae

Institute Of Operations Research and Analytics  
National University of Singapore  
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### 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

Design, analysis, and implementation of algorithms for large scale optimization problems  
Data-driven optimization and applications in machine learning

### Positions

Aug 2018– Visiting Senior Research Fellow, Institute of Operations Research and Analytics, National University of Singapore

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

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

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

### Publications

- ✉ Estimation of Markov chain via rank-constrained likelihood (with Mengdi Wang and Anru Zhang), *arXiv:1804.00795*, ICML, 2018
- ✉ On efficiently solving the subproblems of a level-set method for fused lasso problems (with Defeng Sun and Kim-Chuan Toh), *arXiv:1706.08732*, *SIAM Journal on Optimization*, in print, 2018
- ✉ QSDPNAL: A two-phase augmented Lagrangian method for convex quadratic semidefinite programming (with Defeng Sun and Kim-Chuan Toh), *arXiv:1512.08872*, *Mathematical Programming Computation*, in print, 2018
- ✉ A block symmetric Gauss-Seidel decomposition theorem for convex composite quadratic programming and its applications (with Defeng Sun and Kim-Chuan Toh), *arXiv:1703.06629*, *Mathematical Programming*, in print, 2018
- ✉ A highly efficient semismooth Newton augmented Lagrangian method for solving Lasso problems (with Defeng Sun and Kim-Chuan Toh), *SIAM Journal on Optimization*, 28 (2018), 443-458
- ✉ A Schur complement based proximal ADMM for convex quadratic conic programming and extensions (with Defeng Sun and Kim-Chuan Toh), *Mathematical Programming*, 155 (2016), 333-373
- ✉ On the convergence of a majorized ADMM for the linearly constrained convex optimization problems of coupled objective functions (with Ying Cui, Defeng Sun and Kim-Chuan Toh), *Journal of Optimization Theory and Applications*, 169 (2016), 1013-1041

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## Preprints

- ⚡ On the equivalence of inexact proximal ALM and ADMM for a class of convex composite programming (with Liang Chen, Defeng Sun, and Kim-Chuan Toh), *arXiv:1803.10803*, 2018
- ⚡ On the efficient computation of a generalized Jacobian of the projector over the Birkhoff polytope (with Defeng Sun and Kim-Chuan Toh), *arXiv:1702.05934*, 2017 (submitted to Mathematical Programming)

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## Softwares

- ⚡ LassoNAL: a MATLAB software for Lasso regularized linear least squares problems
- ⚡ QSDPNAL: a MATLAB software for convex quadratic semidefinite programming problems

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## Conferences

- July 2018 The 23rd International Symposium on Mathematical Programming, 1–6 July 2018, Bordeaux, France
- June 2018 DIMACS Workshop on ADMM and Proximal Splitting Methods in Optimization, DIMACS Center Rutgers University, 11–13 June 2018, Piscataway, NJ, United States
- May 2018 Bridging Mathematical Optimization, Information Theory, and Data Science, Princeton University, 14–16 May 2018, Princeton, NJ, United States
- April 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

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## Other Experiences

- 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

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## Awards

- Aug 2015 Letter of Commendation for Graduate Tutor for AY 2014/2015, Department of Mathematics, National University of Singapore
- Aug 2014 Letter of Commendation for Graduate Tutor for AY 2013/2014, Department of Mathematics, National University of Singapore
- Oct 2013 Part-Time Teaching Assistant Award for AY 2012/2013, National University of Singapore
- Aug 2013 Letter of Commendation for Graduate Tutor for AY 2012/2013, Department of Mathematics, National University of Singapore

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## Professional Service

- ⌘ Section Chair, 2018 INFORMS Annual Meeting
- ⌘ Secretary, SIAM NUS Student Chapter, 2013-2014
- ⌘ Referee for *Mathematical Programming*, *SIAM Journal on Optimization*, *SIAM Journal on Numerical Analysis*, *Mathematical Programming Computation*, *IEEE Transactions on Signal Processing*, *NIPS*, *Numerical Algorithms, Optimization and Engineering*, *Asia-Pacific Journal of Operational Research*, *Applied Mathematics and Mechanics (English Edition)*

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## Teaching Experience

- 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