

# Xin Jiang

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## Research interests

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My research interests broadly include theory and algorithms for optimization, especially large-scale semidefinite programming. I design, analyze, and implement efficient and scalable algorithms for various applications including engineering and machine learning.

## Education

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**Ph.D. Electrical and Computer Engineering** 09/2017 – 06/2022 (expected)  
*University of California, Los Angeles* *Los Angeles, CA*

- Thesis: Bregman first-order proximal splitting methods: Theory and Applications
- Advisor: Lieven Vandenbergh

**M.S. Electrical and Computer Engineering** 09/2015 – 06/2017  
*University of California, Los Angeles* *Los Angeles, CA*

- Thesis: Minimum rank positive semidefinite matrix completion with chordal sparsity pattern
- Advisor: Lieven Vandenbergh

**B.Eng. Electronic and Communication Engineering** 09/2012 – 07/2015  
*The University of Hong Kong* *Hong Kong, China*

- First class honors. Minor in Finance
- Thesis: Power optimization in hybrid localization mechanism for logistic applications
- Advisor: Victor O. K. Li

## Awards and Honors

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Summer Mentored Research Fellowship (SMRF)	2021
Ph.D. Preliminary Exam Fellowship	2018
Dean's Honors List	2013 – 2015
URFP Research Internship Award	2015
Tso Chiu Kit Scholarship	2015
Kai Chong Tong Scholarship	2013 – 2014
Chiap Hua Cheng's Foundation Scholarship	2013
S. Y. King Prize	2012
HKU Worldwide U/G Student Exchange Scholarship	2012

## Publications

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### Preprints

- [P1] **X. Jiang** and L. Vandenbergh. Bregman three-operator splitting methods. 2021.
- [P2] **X. Jiang**, K. Cheng, S. Jiang, and Y. Sun. Chordal-GCN: Exploiting sparsity in training large-scale graph convolutional networks. 2019.

### Journal articles

- [J1] **X. Jiang** and L. Vandenbergh. Bregman primal–dual first-order method and application to sparse semidefinite programming. *Computational Optimization and Applications*, 2021.

## Conference Proceedings (\* as equal contribution)

- [C1] J. Xu, Y. Sun, **X. Jiang**, Y. Wang, C. Wang, J. Lu, and Y. Yang. Blindfolded attackers still threatening: Strict black-box adversarial attacks on graphs. In *Proceedings of the 36th Conference on Artificial Intelligence (AAAI)*, 2022.
- [C2] J. Xu, Y. Yang, J. Chen, **X. Jiang**, C. Wang, J. Lu, and Y. Sun. Unsupervised adversarially robust representation learning on graphs. In *Proceedings of the 36th Conference on Artificial Intelligence (AAAI)*, 2022.
- [C3] Z. Jiao\*, Z. Zhang\*, **X. Jiang**, D. Han, S.-C. Zhu, Y. Zhu, and H. Liu. Consolidating kinematic models to promote coordinated mobile manipulations. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021.

## Presentations

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<b>Primal–dual proximal methods with Bregman distances</b> <i>EUROPT Workshop on Continuous Optimization</i>	07/2021 <i>Toulouse (virtual)</i>
<b>Bregman proximal methods for semidefinite optimization</b> <i>SIAM Conference on Optimization (OP21)</i>	07/2021 <i>Virtual</i>
<b>Bregman primal–dual first-order methods</b> <i>INFORMS Annual Meeting</i>	11/2020 <i>Virtual</i>

## Teaching and Mentorship

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### Teaching Experience

<b>Teaching Assistant</b> (five times) <i>ECE236B Convex Optimization (five times)</i>	2017 – 2022 <i>UCLA</i>
<b>Teaching Assistant</b> (four times) <i>ECE133A Applied Numerical Computing</i>	2017 – 2021 <i>UCLA</i>
<b>Teaching Assistant</b> <i>ECE236C Optimization Methods for Large-Scale Systems</i>	Spring 2019 <i>UCLA</i>
<b>Teaching Assistant</b> <i>ECE205A Matrix Analysis for Scientists and Engineers</i>	Fall 2020 <i>UCLA</i>

### Mentorship Experience

<b>Summer Research Program Supervisor</b> <i>Summer Undergraduate Research Program (SURP)</i> <ul style="list-style-type: none"><li>Project: Solving large-scale non-metric multidimensional scaling using ADMM</li><li>Co-supervised (with Prof. Lieven Vandenbergh) three undergraduate students on a summer research project</li></ul>	06/2021 – 08/2021 <i>UCLA</i>
<b>Academic Mentor</b> <i>Research in Industrial Projects for Students (RIPS) Program</i> <ul style="list-style-type: none"><li>Project: Obstacle avoidance of autonomous vehicles</li><li>Guided four international undergraduates to work on an industrial project</li><li>Communicated with industrial sponsor Amazon for technical assistance</li></ul>	06/2019 – 08/2019 <i>IPAM, UCLA</i>

## Reviewing

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### Journal reviewer

Mathematical Programming · SIAM Journal on Optimization · Mathematics of Operations Research · IEEE Transactions on Pattern Analysis and Machine Intelligence

### Conference reviewer

International Conference on Machine Learning (ICML) · AAAI Conference on Artificial Intelligence (AAAI) · International Conference on Learning Representations (ICLR)

## Experience

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### Research Internship

01/2020 – 09/2020

*Damo Academy, Alibaba*

*Seattle, WA*

- Work in the Decision Intelligence (Foundation) Group, supervised by Wotao Yin
- Participated in designing MindOpt, an optimization solver for large-scale linear programs
- Developed algorithms for bottom-level numerical linear algebra, and re-designed data structure

### IEEE Eta Kappa Nu (HKN)

01/2014 – now

*Department of Electrical and Electronic Department, HKU*

*Hong Kong, China*

- Participated as a student member of Lambda Iota Chapter, IEEE-HKN, a student honor society of IEEE
- Conducted tutorials to mentor juniors on their coursework