

LIJUN DING

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EDUCATION

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|-------------------|---|---------------------|
| 09/2016 - present | Cornell University, School of Operations Research and Information Engineering (ORIE) ◦ PhD Student ◦ Advisors: Prof. Yudong Chen and Prof. Madeleine Udell ◦ A+ or A in all ORIE, mathematics and statistics courses ◦ Cumulative Grade Average (CGA): 4.06/4.3 | U.S.A. |
| 09/2014 - 06/2016 | University of Chicago, Department of Statistics ◦ M.S. in Statistics ◦ Advisor: Prof. Lek-Heng Lim ◦ A or A- (one only) in all statistic/computer science courses, GPA: 3.98/4 | U.S.A. |
| 09/2010 - 08/2014 | Hong Kong University Of Science And Technology(HKUST), Department of Mathematics ◦ B.S. in Mathematics and Economics (First Honour) ◦ Minor in Actuarial Mathematics ◦ Cumulative Grade Average (CGA): 4.08/4.3 Grade: A ◦ Performance on Mathematic and Economics courses: either A or A+ | Hong Kong |
| 02/2013 - 06/2013 | Eidgenössische Technische Hochschule Zürich(ETH), Department of Mathematics ◦ Exchange Study | Zurich, Switzerland |

ACADEMIC BLOG

I maintain a blog (<https://threesquirrelsdotblog.com/>) to post my discoveries of optimization, statistics and probability. These are small, interesting and original results that arising from my studies at Cornell.

RESEARCH INTERESTS

Lijun's research lies at the intersection of optimization, statistics, and machine learning, where he works on solving large-scale and high dimensional optimization problems. By exploring ideas and techniques such as Frank-Wolfe, strict complementarity, and the leave-one-out argument in these fields, he is able to design computationally and statistically efficient algorithms for both classical convex optimization problems such as semidefinite programming, and newly arising nonconvex problems.

PUBLICATIONS & WORKING PAPERS

- Lijun Ding, Yuqian Zhang, and Yudong Chen. "Low-rank matrix recovery with non-quadratic loss: projected gradient method and regularity projection oracle", *arXiv preprint arXiv:2008.13777* (2020).
- Lijun Ding and Benjamin Grimmer. "Revisit of spectral bundle methods: Primal-dual (sub) linear convergence rates", *arXiv preprint arXiv:2008.07067* (2020)
- Lijun Ding, Jicong Fan, and Madeleine Udell. "kfw: A frank-wolfe style algorithm with stronger subproblem oracles", *arXiv preprint arXiv:2006.16142* (2020).
- Lijun Ding, Yingjie Fei, Qiantong Xu, and Chengrun Yang. "Spectral Frank-Wolfe Algorithm: Strict Complementarity and Linear Convergence." *arXiv preprint arXiv:2006.01719* (2020).
- Lijun Ding and Madeleine Udell. "On the regularity and conditioning of low rank semidefinite programs", *arXiv preprint arXiv:2002.10673* (2020).
- Lijun Ding, and Benjamin Grimmer. "Bundle Method Sketching for Low Rank Semidefinite Programmin", 11th OPT Workshop on Optimization for Machine Learning (OPT2019), 2019.
- Jicong Fan, Lijun Ding, Yudong Chen, and Madeleine Udell. "Factor Group-Sparse Regularization for Efficient Low-Rank Matrix Recovery" Neural Information Processing Systems Conference (NeurIPS), 2019.
- Vasileios Charisopoulos, Yudong Chen, Damek Davis, Mateo Díaz, Lijun Ding, and Dmitriy Drusvyatskiy. "Low-rank matrix recovery with composite optimization: good conditioning and rapid convergence", *arXiv preprint arXiv:1904.10020* (2019).

- Lijun Ding, and Lek-Heng Lim. "Higher-Order Cone Programming", *arXiv preprint arXiv:1811.05461* (2018).
- Lijun Ding, Alp Yurtsever, Volkan Cevher, Joel A. Tropp and Madeleine Udell. "Storage Optimal and Efficient Methods for Solving SDP via Complementary Slackness.", *Submitted, arXiv preprint arXiv:1902.03373*(2019).
- Lijun Ding, and Yudong Chen. "The Leave-one-out Approach for Matrix Completion: Primal and Dual Analysis." *arXiv preprint arXiv:1803.07554* (2018).
- Lijun Ding, and Madeleine Udell. "Frank-Wolfe Style Algorithms for Large-Scale Optimization.", *Large-Scale and Distributed Optimization*, Springer, 2018.

AWARDS & SCHOLARSHIPS

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| 2019 | Winner of the INFORMS Optimization Society Student Paper Prize |
| 2016-2017 | Cornell University, ORIE PhD Fellowship |
| 2014-2016 | University of Chicago, Department of Statistics Scholarship |
| 10/2014 | Hong Kong University of Science and Technology, Academic Achievement Medal |
| 09/2010 -08/2014 | HKUST - Dean's List |
| 09/2013 | Hong Kong Government - Reaching out award |
| 2012/2013 | The Cheng Foundation Scholarships for Chinese Mainland UG Students |
| 2012/2013 | Lee Hysan Foundation Exchange Scholarship |
| 05/2012 | HKUST - MATH Department: The 7th Epsilon Fund Award to Top Students |
| 2011/2012 | The Joseph Lau Luen Hung Charitable Trust Scholarship |
| 2010/2011 | HKUST- School of Science Scholarship |

TALKS

- Spectral Frank-Wolfe Algorithm: Strict Complementarity and Linear Convergence
 - at International Conference on Machine Learning (ICML), 07/2020
- Higher Order Cone Programming
 - at 2016 China-Korea International Conference on Matrix Theory with Applications, 12/2016
 - at International Symposium on Mathematical Programming, 07/2018
- The Leave-one-out Approach for Matrix Completion: Primal and Dual Analysis
 - at International Symposium on Mathematical Programming, 07/2018
- An Optimal-Storage Approach to Semidefinite Programming using Approximate Complementarity
 - at SIAM Conference on Computational Science and Engineering, 02/2019
 - at 2019 INFORMS Annual Meeting, 10/2019

INTERNSHIP & TEACHING EXPERIENCE

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|-------------------|---|
| 07/2019 - 08/2019 | ◦ Research Intern: Alibaba group, DAMO academy |
| 01/2019 - 03/2019 | ◦ <i>Instructor</i> of ORIE 5270: Big Data Technologies (more than 50 students) |
| 01/2019 - present | ◦ <i>Instructor</i> of ORIE 6125: Computational Methods in Operations Research (PhD Level Course) |
| 01/2017 - 05/2017 | ◦ <i>TA</i> of ORIE 6326: Convex Optimization (more than 40 students) |
| 10/2012 - 12/2012 | ◦ <i>MATH tutor</i> of MATH support centre |
| 09/2012 - 12/2012 | ◦ <i>Grader</i> of MATH 3121: Algebra I (more than 50 students) |

COMPUTING SKILLS & LANGUAGE

- Proficient in \LaTeX , R, Matlab, Python
- Language: Mandarin(native), English(fluent), Cantonese(fluent), Hangzhou dialect (native)