

Yao Li

Michigan State University
Department of Mathematics
Department of Computational Mathematics,
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Education

2017-Pres. Ph.D. - *Michigan State University (MSU)*, East Lansing, MI, USA

Major: Applied Mathematics, expected 2022

Minor: Computational Mathematics, Science and Engineering, expected 2022

Advisor: Prof. [Ming Yan](#)

2013-2017 B.S. - *Southern University of Science and Technology (SUSTech)*, Shenzhen, China

Major: Pure and Applied Mathematics, *summa cum laude*, 2017

Project: *On ADMM for Three Separable Operators and Accelerated Algorithms*

Advisor: Prof. [Bingsheng He](#)

Honors & Awards

Jul 2021 Graduate School Dissertation Completion Fellowship, *MSU*

Apr 2020 Herbert T. Graham Scholarship Fund in Mathematics, *MSU*

Apr 2019 2018-2019 Award for Outstanding Early Student in CMSE, *MSU*

Apr 2019 Douglas A. Spragg Endowed Fellowship in Mathematics, *MSU*

May 2016 Eminence Scholarship, 2nd Prize, *SUSTech*

2013-2017 College Start-up Scholarship, *SUSTech*

Research Interests

Convex Optimization, Large-scale Optimization, Decentralized Algorithm

Publications

- [1] Xiaorui Liu, **Yao Li**, Jiliang Tang, and Ming Yan. [A Double Residual Compression Algorithm for Efficient Distributed Learning](#). In Silvia Chiappa and Roberto Calandra, editors, *Proceedings of the Twenty Third International Conference on Artificial Intelligence and Statistics*, volume 108 of *Proceedings of Machine Learning Research*, pages 133–143, Online, 26–28 Aug 2020. PMLR.

- [2] Xiaorui Liu, **Yao Li**, Rongrong Wang, Jiliang Tang, and Ming Yan. [Linear Convergent Decentralized Optimization with Compression](#). In International Conference on Learning Representations, 2021.
- [3] Hanlin Tang, **Yao Li**, Ji Liu, and Ming Yan. [ErrorCompensatedX: error compensation for variance reduced algorithms](#), Accepted by NeurIPS 2021.
- [4] **Yao Li**, Xiaorui Liu, Jiliang Tang, Ming Yan, and Kun Yuan. [Decentralized Composite Optimization with Compression](#), Submitted to JMLR 2021.
- [5] **Yao Li** and Ming Yan. [On the Linear Convergence of Two Decentralized Algorithms](#). Journal of Optimization Theory and Applications, 189(1):271–290, 2021.
- [6] **Yao Li** and Ming Yan. [On the improved conditions for some primal-dual algorithms](#). arXiv preprint arXiv:2201.00139, 2022.

Professional Experience

- FS 2020** Teaching Assistant: MTH314, Matrix Algebra I, *MSU*
- SS 2020** Teaching Assistant: MTH314, Matrix Algebra I, *MSU*
- FS 2019** Teaching Assistant: MTH133, Calculus II, *MSU*
- US 2019** Graduate Intern: Applied Machine Learning Summer Research Fellowship, *Los Alamos National Laboratory*
 Project: *Matrix Equilibration for Preconditioned ADMM*
 Mentor: Dr. [Brendt Wholberg](#), Dr. [Youzuo Lin](#)
- SS 2019** Teaching Assistant: MTH314, Matrix Algebra I, *MSU*
- FS 2018** Grader: MTH847, Part Differential Equations I, *MSU*
- 2017-2019** Math Learning Center Tutor, *MSU*

Presentations

- Mar 2022** *INFORMS Optimization Society Conference*
 Greenville, SC, US
 Title: *Decentralized Composite Optimization with Compression*
- Dec 2021** *Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS-2021)*
Virtual Meeting
- Aug 2021** *The 30th International Joint Conference on Artificial Intelligence (IJCAI-21)*
Virtual Meeting
 Tutorial: *Communication Efficient Distributed Learning*
- Aug 2021** *Modeling and Optimization: Theory and Applications (MOPTA)*
 Lehigh University, Bethlehem, PA, US
 Title: *A Communication Compression Decentralized Algorithm for Convex Composite Optimization*
- May 2021** *The Ninth International Conference on Learning Representations (ICLR)*

Virtual Meeting

Aug 2020 *The 23rd International Conference on Artificial Intelligence and Statistics (AISTATS)*
Palermo, Italy **Virtual Meeting**

Aug 2019 Title: *Preconditioned ADMM on (Convolutional) Sparse Coding*
Los Alamos National Laboratory, Los Alamos, NM, US

Jun 2019 *Workshop on Recent Developments on Mathematical/Statistical approaches in
DATA Science (MSDAS)*
The University of Texas at Dallas, Dallas, TX, US

Languages & Skills

MATLAB, Python, C/C++, Java