

# Yao Li

Michigan State University  
Department of Mathematics  
Department of Computational Mathematics,  
Science and Engineering

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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

## 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*

## Workshops & Conferences

**Aug 2021** *Modeling and Optimization: Theory and Applications (MOPTA)*  
 Lehigh University, Bethlehem, PA, US  
**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**  
**Jun 2019** *Workshop on Recent Developments on Mathematical/Statistical approaches in DATA Science (MSDAS)*  
 The University of Texas at Dallas, Dallas, TX, US

## Talks & Presentations

**Aug 2021** Title: *A Communication Compression Decentralized Algorithm for Convex Composite Optimization*  
 Lehigh University, Bethlehem, PA, US  
**Aug 2019** Title: *Preconditioned ADMM on (Convolutional) Sparse Coding*  
 Los Alamos National Laboratory, Los Alamos, NM, US

## 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](#), 2021.
- [4] **Yao Li**, Xiaorui Liu, Jiliang Tang, Ming Yan, and Kun Yuan. [Decentralized Composite Optimization with Compression](#), 2021.

- [5] **Yao Li** and Ming Yan. [On the Linear Convergence of Two Decentralized Algorithms](#). Journal of Optimization Theory and Applications, pages 1–20, 2021.

## Languages & Skills

L<sup>A</sup>T<sub>E</sub>X, MATLAB, Python, C/C++, Java