# 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**    *The 30th International Joint Conference on Artificial Intelligence (IJCAI-21)*
**Montreal-themed Virtual Reality**
**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**    Tutorial: *Communication Efficient Distributed Learning*
**Montreal-themed Virtual Reality**
**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

LaTeX, MATLAB, Python, C/C++, Java