Yao Li

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

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619 Red Cedar Road
East Lansing, MI 48824
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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

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