

Zi Yang

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Education

UC San Diego

PhD in Mathematics (In progress), Department of Mathematics

Advisor: Jiawang Nie

Expected Date to Receive PhD's degree: June 2021

San Diego, USA

Sept. 2016–Present

University of Science and Technology of China (USTC)

B.S. in Mathematics, Special Class for the Gifted Young Program

Hefei, China

Sept. 2012–June 2016

Research Interests

My research interests are optimization, especially polynomial and convex optimization, tensor computation, and their applications in machine learning and data science.

Papers

- With B. Guo and J. Nie, *Learning Diagonal Gaussian Mixture Models and Incomplete Tensor Decompositions*, submitted to Vietnam Journal of Mathematics, arXiv:2102.04500.
- With M. Dressler and J. Nie, *Separability of Hermitian Tensors and PSD Decompositions*, submitted to Linear and Multilinear Algebra, arXiv:2011.08132.
- With J. Nie and G. Zhou, *The Saddle Point Problem of Polynomials*, submitted to Foundations of Computational Mathematics, under minor revision, arXiv:1809.01218.
- With J. Nie, *Hermitian Tensor Decompositions*, SIAM Journal on Matrix Analysis and Applications, Vol. 41, pp. 1115-1144, 2020.
- With J. Nie and X. Zhang, *A Complete Semidefinite Algorithm for Detecting Copositive Matrices and Tensors*, SIAM Journal on Optimization, Vol. 28, pp. 2902-2921, 2018.
- With B. Chen and Z.W. Yang, *An Algorithm for Low-rank Matrix Factorization and Its Applications*, Neurocomputing, Vol. 275, pp. 1012-1020, 2018.

Teaching Experiences

As Instructor:

MATH 10C: *Calculus III (Vector Calculus)*, Spring 2020, UCSD 87.2% Recommendation Rate

MATH 20D: *Intro. to Differential Equations*, Winter 2020, UCSD 82.1% Recommendation Rate

As Teaching Assistant:

Math 18: *Linear Algebra*, Math 20D: *Intro. to Differential Equations*, Math 140: *Foundations of Real Analysis*, Math 142: *Intro. to Analysis*, Math 171: *Intro. to Numerical Optimization*, Math 173: *Optimization Methods for Data Science*.

Honors and Awards

- o ICERM Workshop Travel Support, Brown University, 2018
- o James B.Ax Graduate Fellowship, UC San Diego, 2016-2017
- o Outstanding Student Scholarship, USTC, 2012-2015.

Conference Participations

- o Center for Computational Mathematics seminar talk, UC San Diego, October 2020
- o Data science seminar talk, UC San Diego, April 2020.
- o Attendance of ICERM workshop "*Real Algebraic Geometry and Optimization*", Brown University, October 2018.
- o Conference talk, Xiangtan University, August 2018.