

# Qi Zhou



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## EDUCATIONAL BACKGROUND

<b>Shanghai Jiao Tong University</b>	2018 – 2022
<i>Bachelor</i> — Major: Mathematics and Applied Mathematics (Wen-Tsun Wu's class) Minor: Computer Science and Technology	
<b>Shanghai Jiao Tong University</b>	2022 – Now
<i>Ph.D. Candidate (Combined Master and Doctoral)</i> — Computational Mathematics (Advisor: Zhenli Xu)	

## ACADEMIC GRADE

- GPA (Rank): 4.00/4.00 (1/82)
- Graduate courses (Courses in bold received a full mark):
  - *General Fundamental Courses*: English for Academic Purposes (A), Scientific Writing, Integrity and Ethics (A), Theory and Practice of Socialism with Chinese Characteristics in the New Era (A), Introduction to Dialectics of Nature (A), Marxism in China (A+), Specialized English (A+).
  - *Core Courses*: **Analysis (A+)**, **Scientific Computing (A+)**, **Partial Differential Equations (A+)**, Measure Theory and Probability (A+).
  - *Elective Courses*: **Algebraic Combinatorics (A+)**, Integrability and Bifurcation Theory of Dynamical Systems (A+), **Advanced Computation Methods (A+)**, Applied Mathematical Methods (A+), Variational Methods and Degree Theory (A+).
  - *Frontier Courses*: Additive Combinatorics in Number Theory (A+), High-Performance Computation for Differential Equations (A+).

## RESEARCH INTEREST AND PUBLICATIONS

I am currently interested in fast algorithms of molecular dynamics (MD) simulation, especially scalable algorithms for general interaction kernels. Also, I consider the design of specialized MD hardware and supercomputers and the application of new algorithms, expected to approach the SOTA. I am also interested in other fast algorithms such as convolution equations and non-local interactions. Publications are listed as follows:

1. (Alphabetic order) J. Liang, Z. Xu and **Q. Zhou**, Random batch sum-of-Gaussians method for molecular dynamics simulations of particle systems, *SIAM J. Sci. Comput.*, 45 (2023), B591-B617.
2. (Alphabetic order) J. Liang, Z. Xu and **Q. Zhou**, Error estimate of the u-series method in molecular dynamics simulations, arXiv:2305.05369.
3. W. Gao, T. Zhao, Y. Guo, J. Liang, H. Liu, M. Luo, Z. Luo, W. Qin, Y. Wang, **Q. Zhou**, S. Jin and Z. Xu, RBMD: A molecular dynamics package enabling to simulate 10 million all-atom particles in a single graphics processing unit, arxiv:2407.09315.
4. (Alphabetic order) Z. Xu, Y. Zhao and **Q. Zhou\***, Variance-reduced random batch Langevin dynamics, arXiv:2411.01762.

## PATENT

1. Co-inventor, "A Random batch sum-of-Gaussians method for molecular dynamics simulations of particle systems", Patent number: ZL 2022 1 0449795.9.

## AWARD AND SCHOLARSHIPS

<b>Recommendation of full-scholarship Ph.D program in YMSC, Tsinghua Univ.</b>	Nov. 2020
<b>Outstanding Trainee in summer camp of Shanghai Jiao Tong Univ.</b>	July 2021
Zhiyuan honorary scholarship	Apr. 2019
Honorable mentioned in 2019 MCM/ICM	Apr. 2019

The third prize (provincial level) in 2019 CUMCM	Oct. 2019
The first prize (national level) of the 11-th Chinese mathematics competition, qualified for final	Nov. 2019
Finalist in 2020 MCM/ICM	Apr. 2020
<b>Distinguished prize in 2nd Alibaba international mathematics competition</b>	July 2020
Chia-Chiao Lin bronze medal in 11-th Yau's mathematics competition	Oct. 2020
Distinguished prize in 11-th Yau's mathematics competition (Analysis)	Nov. 2020
The second prize (provincial level) in 2020 CUMCM	Nov. 2020
The first prize (national level) of the 12-th Chinese mathematics competition	Dec. 2020
The second prize of the 11-th final Chinese mathematics competitions	Apr. 2021
<b>Outstanding winner, COMAP scholarship and SIAM award in 2021 MCM/ICM</b>	Apr. 2021
<b>Chia-Chiao Lin silver medal in 12-th Yau's mathematics competition</b>	May 2021
<b>Baosteel outstanding student scholarship</b>	Sept. 2021
<b>The 5-th SenseTime scholarship</b>	Nov. 2021
The third prize (collegiate level) of 3rd SJTU life science innovation competition	Dec. 2021
The second scholarship of outstanding undergraduate in SJTU	Dec. 2021
Distinguished prize in 13-th Yau's mathematics competition (Analysis)	Aug. 2022
Distinguished prize in 13-th Yau's mathematics competition (Applied Math)	Aug. 2022
First-class graduate scholarship	Dec. 2022
<b>National scholarship for graduate</b>	Sept. 2023
SJTU merit student	Oct. 2023
First-class graduate scholarship	Dec. 2023
<b>Bonditech spark scholarship</b>	May 2024
<b>Excellent oral presentation in the 8-th CSIAM Student Forum</b>	Oct. 2024

