Zhaienhe Zhou

(Ethan Zhou)

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Research Interests

I'm broadly interested in topics related to theoretical computer science, including randomized algorithms, graph theory, etc.

Education

2022 – 2026 (expected)   **Bachelor in Computer Science,**
University of Science and Technology of China (USTC)
School of the Gifted Young
GPA: **3.71/4.30**, Average score: **88.24**, Rank **30/174**
Advisor: Prof. Xue Chen
Selected Courses: Foundations of Algorithms (100/100), Data Structures (97/100), Introduction to Computer System (Honor, 90/100), Linear Algebra (90/100), Probability Theory and Mathematical Statistics (90/100), Graph Theory (88/100), Mathematical Analysis (88/100), Computational Methods (87/100)

Skills

Languages   TOEFL: 98, GRE: 322+3, CET-6: 629.

Skills   Competitive Programming: **ICPC 2024 World-Finalist (14th place)**, rewarded in NOI, ICPC Regional Contests & East Continent Final (2 gold medals), USACO and Codeforces. C & C++ , Latex, Verilog,

Publications

Preprint

1. X. Chen, W. Shu, and **Z. Zhou**, *Learning sparse parity with noise in linear samples (draft)*, 2024. 🔗 URL: https://arxiv.org/abs/2407.19215.

Honors and Awards

Competitive programming

2024.9   **Highest Honor, 14th place** , ICPC **World Finals** Astana (solved same number of problems as the 12th place bronze medal team).

2024.3   **2430 contest rating** , Codeforces.

2024.1   **Gold Medal, 14th place** , ICPC **Asia-East Continent Final**.

2023.12   **Gold Medal, 6th place** , ICPC Asia Hangzhou Regional.

2023.10   **Gold Medal, 6th place** , ICPC Asia Xian Regional.

2023.3   **Gold Medal, 28th place** , ICPC **Asia-East Continent Final**.

Honors and Awards (continued)

2023.1	🔖	**Gold Medal, 8th place** , ICPC Asia Xian Regional.
2022.11	🔖	**Gold Medal, 27th place**, ICPC Asia Shenyang Regional.
2022	🔖	**Silver Medal**, National Olympiad of Informatics Winter Camp.
2021	🔖	**Bronze Medal**, **National Olympiad of Informatics of China**.
2020, 2021	🔖	**First Prize**, National Olympiad of Informatics in Provinces (Beijing).
2020	🔖	**Silver Medal**, Asia-Pacific Informatics Olympiad, China region.

Math

2023	🔖	**Second Prize**, National College Student Mathematics Competition, Non-Mathematics Category.

Scholarships

2023.10	🔖	**Silver Scholarship**, awarded by the School of the Gifted Young, USTC.
2022.10	🔖	**Talent Program Scholarship**, awarded by the Talent Program in Computer Science and Technology (Hua Xia).
2022.9	🔖	**Admission Scholarship**, awarded by the School of the Gifted Young, USTC.

Research Projects

2024.7 – 2024.8	🔖	**Improved decoding of tanner codes** (in preparation) With Prof. Zeyu Guo

1. Present improved algorithms for decoding tanner codes.

2. Investigated previous work on expander codes, tanner codes, and insertion-deletion codes.

2024.2 – present	🔖	**Learning Sparse Parity with Noise in Linear Samples** (in preparation) With Prof. Xue Chen and Wenxuan Shu

1. Present improved algorithms in both low-noise & high-noise settings.

2. Investigated previous LPN algorithms.

2023.9 – 2024.1	🔖	**Expansion on regular Graph** Advisor: Prof. Xue Chen

1. Investigated two approaches for establishing lower bounds on graph expansions: the second eigenvalue method and the girth method. Gained knowledge of their theoretical foundations and limitations.

2. Explored potential avenues for enhancing the girth method to derive stronger lower bounds on graph expansions. Analyzed existing approaches and evaluated the challenges and limitations in improving the methodology.

Research and Study Experience

2024.7 – 2024.8	🔖	**Undergraduate Summer Intern**, The Ohio State University, Advisor: Prof. Zeyu Guo

Research and Study Experience (continued)

2024.7   **Summer School on TCS**, Nanjing University, Excelled in the take-home exam, earning direct access to the graduate program interview.

Teaching

2024.2 – 2024.6   **Teaching Assistant**, Foundations of Algorithms, USTC. Designed lab assignments and conducted weekly office hours.

2024.1 – 2024.2   Competition Coach, TopsCoding, Winter 2024 Coding Course. Presented tutorials on string algorithms and number theory.

Activities

2022.9 – 2024.6   **Vice President of Computer Programming Club**, USTC.

    Member of Publicity Department, Student Union of the School of the Gifted Young, USTC.

2023   Top 20/300, Short-distance Marathon, USTC.

2022   Third place, Freshman Eaglet Cup Football Tournament, USTC

References

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