

# 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**, *Algorithms for sparse LPN and LSPN against low-noise (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 – 2024.10       **Algorithms for Sparse LPN and LSPN Against Low-noise** (in submission)  
With Prof. Xue Chen and Wenxuan Shu
  - 1. Contributed to the algorithm design, calculations and parameters optimization, proofs, and writing.
  - 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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