

# SHENG TANG HUANG (黃盛唐)

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## EDUCATION

University of Science and Technology of China (USTC), Hefei, China

Aug. 2022 ~ Present

- Bachelor of Computer Science and Technology
- School of the Gifted Young
- Overall GPA: 3.88/4.30, top 5%
- Core Courses:

currently a senior student  
supervised by Prof. Xue Chen  
Major GPA: 4.01/4.30

**Computer Science:** Foundations of Algorithms (100), Computer Programming (H) (99), Data Structures (97), Computer Organization (95), Computer Networks (94).

**Mathematics:** Linear Algebra I & II (90, 92), Advanced Combinatorics (100), Probability Theory & Its Outer Chapter (100, 100), Advanced Probability Theory \*(100), Graph Theory \*(92), Regression Analysis (97), Operations Research (96), Optimization Algorithm \*(92).

**Note:** (H) represents the curriculum of Honors. \* indicates that this course is a graduate-level course.

## PUBLICATIONS & MANUSCRIPTS

Following the convention in theoretical computer science, unless stated otherwise, author names are ordered alphabetically.

### 1. Range Avoidance and Remote Point: New Algorithms and Hardness

Shengtang Huang, Xin Li, Yan Zhong

In the 17th Innovations in Theoretical Computer Science Conference, ITCS 2026

### 2. Explicit Min-wise Hash Families with Optimal Size

Xue Chen, Shengtang Huang, Xin Li

In the 37th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2026

## RESEARCH EXPERIENCES

### Derandomization of load balancing based on linear hashing

Advisors: Xue Chen, USTC; Fernando Granha Jeronimo, UIUC; Xin Li, JHU

Jul. 2025 ~ Present

- Tried to find an explicit linear hash family with small size that has nice load balancing properties.

### Construction of pseudorandom code against insertion-deletion error

Advisor: Xin Li, JHU

Oct. 2025 ~ Present

- Tried to construct a pseudorandom code (PRC) against insertion-deletion error. Previous results only construct PRCs against substitution error.

### New algorithms and hardness for range avoidance and remote point problems

Advisor: Xin Li, JHU

Jul. 2025 ~ Sept. 2025

- Proved the equivalence between the existence of  $\text{FP}^{\text{NP}}$  algorithms for  $\mathcal{C}\text{-AVOID}[n, n^{1+\varepsilon}]$  problem and  $2^{\Omega(n)}$  lower bounds against  $\mathcal{C}$  circuits for the class  $\text{E}^{\text{NP}}$ , for some suitable circuit class  $\mathcal{C}$ .

- Showed the equivalence between the existence of  $\text{FP}^{\text{NP}}$  algorithms for general REMOTEPOINT problem and  $2^{\Omega(n)}$  average-case lower bounds against general circuits for the class  $\text{E}^{\text{NP}}$ .
- Designed a fast graph-based algorithm for  $\text{NC}_k^0\text{-AVOID}[n, n^{1+\varepsilon}]$ , with time complexity  $2^{n^{1-\frac{\varepsilon}{k-1}+o(1)}}$ .
- Found a greedy algorithm for  $\text{NC}_k^0\text{-AVOID}[n, n+1]$ , with time complexity  $O(n2^{\frac{k-1}{k-2}n})$ .
- The paper has been accepted by **ITCS 2026**.

### **Construction of the min-wise hash family with short seed length and small multiplicative error**

*Advisors: Xue Chen, USTC; Xin Li, Johns Hopkins University*

*Sept. 2024 ~ Apr. 2025*

- Found the connection between the min-wise hash family and pseudorandomness generator of combinatorial rectangles.
- Constructed an explicit min-wise hash family  $\mathcal{H} = \{h : [N] \rightarrow [\text{poly}(N)]\}$  with seed length  $O(\log N)$  and multiplicative error  $2^{-O\left(\frac{\log N}{\log \log N}\right)}$ .
- Designed an explicit  $k$ -min-wise hash family  $\mathcal{H} = \{h : [N] \rightarrow [\text{poly}(N)]\}$  with seed length  $O(k \log N)$  and multiplicative error  $2^{-O\left(\frac{\log N}{\log \log N}\right)}$ .
- The paper has been accepted by **SODA 2026**.

### **A fast algorithm for $(1 + \varepsilon)$ -approximate incremental matching problem on general graphs**

*Advisor: Slobodan Mitrović, UCD*

*Jul. 2024 ~ Aug. 2024*

- Extended the method of solving  $(1 + \varepsilon)$ -approximate incremental matching problem from bipartite graphs to general graphs.
- Achieved the amortized complexity  $\exp(1/\varepsilon)$  for  $(1 + \varepsilon)$ -approximate incremental matching problem.
- Attended the workshop **WoLA** at Simons Institute for the Theory of Computing, University of California, Berkeley, with Prof. Slobodan Mitrović and Dr. Wen-Horng Sheu.

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## **TEACHINGS**

### **Teaching Assistant**

*USTC, Hefei, China*

- Operations Research (2024 Fall)
- Foundations of Algorithms (2024 Spring)

*Lecturer: Prof. Shixiang Chen*

*Lecturer: Prof. Xue Chen*

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## **HONORS & AWARDS**

- **Merit Award** in S.-T. Yau College Student Mathematics Contests 2025, **ranked 32nd** in Probability and Statistics track. The contest's difficulty is comparable to qualifying exams for Ph.D. programs at top U.S. universities.
- **Gold Prize for Outstanding Student Scholarship:** Awarded in Oct. 2025, this university-level scholarship is granted to the top 3% of outstanding students at USTC.
- **Qiangwei Yuanzhi Scholarship:** Awarded in Oct. 2024, this university-level scholarship is granted to the top 5% of outstanding students at USTC.
- **Silver Awards** in the 2024 ICPC East Asia Shanghai Regional Contest and the 2023 ICPC East Asia Shenyang Regional Contest.
- **First Prize** in National Olympiad in Informatics in Provinces in 2020 and 2021.

## SKILLS

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- **Programming:** C, C++, Python, Matlab, R, Verilog.
- **Software:** Git, L<sup>A</sup>T<sub>E</sub>X, Microsoft Office.
- **Languages:** English (fluent), Chinese (native).

## REFERENCES

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### Prof. Xue Chen (陈雪)

Specially Appointed Professor

School of Computer Science and Technology  
University of Science and Technology of China  
[xuechen1989@ustc.edu.cn](mailto:xuechen1989@ustc.edu.cn)

### Prof. Xin Li (李昕)

Associate Professor

Department of Computer Science  
Johns Hopkins University (JHU)  
[lixints@cs.jhu.edu](mailto:lixints@cs.jhu.edu)

### Prof. Fernando Granha Jeronimo

Assistant Professor

Department of Computer Science  
University of Illinois Urbana-Champaign (UIUC)  
[granha@illinois.edu](mailto:granha@illinois.edu)

### Prof. Shixiang Chen (陈士祥)

Assistant Professor

School of Mathematical Sciences  
University of Science and Technology of China  
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### Prof. Slobodan Mitrović

Assistant Professor

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University of California, Davis (UCD)  
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