# YIFAN GUO

University of Science and Technology of China ⋄ Hefei, Anhui, China

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## EDUCATION

**University of Chicago, Computer Science Department**

*Mar 2023-June 2023*

Visiting Student (ongoing)

**University of Science and Technology of China, School of the Gifted Young**

*Sep 2020-Present*

Interdisciplinary Talent Class (Math & Computer Science)

Overall GPA: 4.02/4.3      Major GPA (Math): 4.15/4.3      Minor GPA (Computer Science): 4.16/4.3

Rank Top 3% in the School of the Gifted Young (All Major)                Rank 1/48 (Math Major)

Selected cources (Math) Combinatorics 99, Graph theory (Graduate) 98, Probability Theory 98, Real Analysis 95, Moderen Algebra 95, Differential Equations 95 (Computer Science) Computaional Economics (Graduate) 92, Foundations of Algorithms 100

## RESEARCH INTERESTS

Theoretical Computer Science, Computational Economics, Optimization

## HONORS AND AWARDS

**China National Scholarship (Top 1%)**                                      *December 2022*

**Excellent Student Scholarship Gold (Top 3%)**                              *December 2021*

**SGY Class of 87 Innovation Scholarship (10/1000)**                         *December 2021*

**S.-T.Yau College Student Mathmatics Contest (Final, 8th place in China)**  *August 2022*

**The ICPC Asia Nanjing Regional Contest (Silver Medal\*2)**          *December 2020, 2021*

**The ICPC Asia Shanghai Regional Contest (Silver Medal)**                   *November 2021*

**2021 China Collegiate Programming Contest, Weihai Site (Bronze Medal)**    *November 2021*

**Anhui Collegiate Programming Contest (First Prize)**                       *November 2021*

**National Competition of Informatics in Anhui, China, First Prize**      *2019, 2018, 2017*

## RESEARCH EXPERIENCE

**Undergrduate Research**                                                 June 2022 - Present
*Advised by Prof.Shuai Shao*              *University of Science and Technology of China*

Edge-Constraint Satisfaction Problem (edge-CSP) is the restriction of Constraint Satisfaction Problem to those instances in which every variable is present in exactly two constraints. It can represent graph factors. During the research, we study the complexity classification of decision and optimization problems of edge-CSP. We extend the odd $\Delta$-matriod relations to a larger class of $\Delta$-matriod. This research is two-fold. We are trying to find algorithms and decide the hardness.

### Graph Seminar
*Organized by Prof.Jie Ma*  
June 2022 - Present  
*University of Science and Technology of China*

· Topic: Extremal Combinatorics, Graph Theory, Probabilistic Methods in Combinatorics
· Book: *Probability Methods in Combinatorics* by Yufei Zhao, MIT

### Algorithm Seminar
*Organized by Prof.Xue Chen and Prof.Pan Peng*  
December 2021 - Present  
*University of Science and Technology of China*

· Topic: Expander graph, Random algorithm, Algorithms
· Book: *Probability and Computing* by Michael Mitzenmacher and Eli Upfal
· Book: *Pseudorandomness* by Salil P. Vadhan

### Academic Seminar
*Advisor: Prof.Lan Zhang*  
September 2020 - July 2021  
*University of Science and Technology of China*

· In this class, we learned some basic methods of doing research and finished an academic paper about designing an efficient algorithm to distribute AED equipment in campus.
· Academic writing: *Optimal Design and Management of AED for college campus: a case in USTC*

## TEACHING ASSISTANT

### Foundations of Algorithms
*Haisheng Tan, Xiangyang Li*  
2022 Fall  
*University of Science and Technology of China*

· 170 stduents enrolled
· Compulsory course for undergraduate students in the School of Computer Science

## OTHER EXPERIENCE & LEADERSHIP

### President of USTC Programming Club
June 2021 - June 2022

· The club is rated as a 4-star club and I am awarded as "Outstanding President"
· Lead students to practice in global programming contests like ICPC/CCPC.
· Hold the Programming Contest(USTCPC) for three hundred students in the college.

### Member of The Student Union of School of the Gifted Young
September 2020 - June 2021

· Held the activities for students.
· Broadcast the activities via different ways.

### Member of The Men's football team of School of the Gifted Young
September 2020 -

· Third Place in the "Champions Cup" — 2021
· The Most Valuable Player(MVP) in the "Chuying Cup" — 2020
· Second Place in the "Chuying Cup"(Captain) — 2020

## TECHNICAL STRENGTHS

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|---|---|
| **Computer Languages** | C, C++, LaTeX, SQL, Assembly |
| **Languages** | Chinese(Native), English(CET-6 558, TOEFL 93, GRE 325) |