Yixuan Xu

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Last Update: June 23, 2023

EDUCATION

Tsinghua University, Institute for Interdisciplinary Information Sciences
September 2020 – Now

Special Pilot Class in Computer Science (Yaoclass)
GPA until 2022 Fall: 4.0/4.0. Rank: 1/79

RESEARCH

Non-Excludable Bilateral Trade Between Groups

February 2023 – May 2023

- Submitted to **NeurIPS 2023**, under review.
- Authors: **Yixuan Even Xu**, Hanrui Zhang, Vincent Conitzer.
- We generalize the traditional bilateral trade problem to a non-excludable setting, where we characterize feasible mechanisms, give a mechanism with all desiderata in some cases, and prove hardness results for others.

A One-Size-Fits-All Approach to Improving Randomness in Paper Assignment

September 2022 – May 2023

- Submitted to **NeurIPS 2023**, under review.
- Authors: **Yixuan Even Xu**, Steven Jecmen, Zimeng Song, Fei Fang.
- We identify the importance of randomness in paper assignment and formally formulate the problem, where we propose an algorithm that theoretically and empirically outperforms the currently deployed algorithm for randomized paper assignment.

Bidder Selection Problem in Position Auctions via Poisson Approximation

July 2022 – January 2023

- To be submitted to **SODA 2024**.
- Authors: Nick Gravin*, **Yixuan Even Xu***, Renfei Zhou*.
- We propose a novel Poisson-Chernoff relaxation of the Bidder Selection Problem for Position Auctions and give a PTAS that is useful and efficient in practice.
- ArXiv preprint available at `https://arxiv.org/abs/2306.10648`.

On the Perturbation Function of Ranking and Balance for Weighted Online Bipartite Matching

January 2022 – July 2022

- **Accepted** for presentation at **ESA 2023**.
- Authors: Jingxun Liang*, Zhihao Gavin Tang*, **Yixuan Even Xu***, Yuhao Zhang*, Renfei Zhou*.
- We prove the uniqueness of a function used in the optimal algorithms for the AdWords Problem and the Vertex Weighted Online Bipartite Matching Problem and refute a previous conjecture about a well-known algorithm for AdWords.
- ArXiv preprint available at `https://arxiv.org/abs/2210.10370`.

INTERNSHIP

Carnegie Mellon University — February 2023 – Now
Instructor: Fei Fang, Carnegie Mellon University.
Research on peer review and game theory.

Beijing Academy of Artificial Intelligence — April 2021 – September 2021
Instructor: Yang Yuan, Tsinghua University.
Write an expert system for intelligent medical inquiry with Scala.

HONORS AND AWARDS

Scholarships and Honors

Jiang Nanxiang Scholarship	October 2022
IIIS Comprehensive Excellence Scholarship	October 2021 & 2022
Three Star Zi Jing Volunteer of Tsinghua University	June 2022
China National Scholarship	October 2021
Xue Tang Scholarship of Tsinghua University	October 2020 – Now
Second Rank Freshmen Scholarship of Tsinghua University	October 2020 – Now
Hua Ying Scholarship	September 2020 – Now

Competitive Programming (Selected)

ICPC Asia-East Continent Final Contest, 3rd Place, **Gold Medal**	July 2022
ICPC Asia Kunming Regional Contest, 1st Place, **Champion**	April 2022
China Collegiate Programming Contest Final, 3rd Place, **Gold Medal**	May 2021
ICPC Asia Shanghai Regional Contest, 3rd Place, **Gold Medal**	December 2020
ICPC Beijing Xiaomi Invitational Contest, 1st Place, **Champion**	November 2020
National Olympiad in Informatics 2019, 8th Place, **Gold Medal**	July 2019
Asia-Pacific Informatics Olympiad 2018, 7th Place, **International Gold Medal**	May 2018
China Team Selection Competition 2018, 11th Place, **Gold Medal**	May 2018
CCF NOI Winter Camp, 27th Place, **Gold Medal**	February 2017

SELECTED COURSE PROJECTS

Online Bipartite Matching Survey — December 2022
Course project of Algorithm Analysis and Design, 2023 Fall.
A survey on online bipartite matching.

A New Solution to Priority Gas Auction — June 2022
Course project of Game Theory, 2022 Spring.
A study on Priority Gas Auction problem in blockchain application, results improved.

On Robust Small Models Based on Knowledge Distillation — June 2022
Course project of Numerical Analysis, 2022 Spring.
A survey on adversarial training and knowledge distillation.

SELECTED COURSE GRADES

Algorithm Design	Grade: A+
Algorithm Analysis and Design (**Graduate Course**)	Grade: A+
Theory of Computation	Grade: A+
Game Theory	Grade: A+

Operating System	Grade: A+
Computer Architecture	Grade: A+
Data Structures in the Real World	Grade: A+
Fundamentals of Digital Electronics	Grade: A+
Introduction to Computer Science	Grade: A+
The Physics of Information	Grade: A+
Abstract Algebra	Grade: A+
Linear Algebra	Grade: A+
Machine Learning	Grade: A
Quantum Computer Science	Grade: A
Fundamentals of Cryptography	Grade: A
Calculus	Grade: A

I am generally interested in and good at CS courses, especially at those including algorithm design and coding. In all of my courses, I obtain a grade of at least A-.

SERVICE

Volunteering at Question Answering Workshop of Tsinghua University
March 2022 – Now

Teaching secondary school students competitive programming in Changzhou Senior High School of Jiangsu Province
February 2018 – Now

I have 132.5 hours of offically recorded volunteering work during my undergrad.

OTHERS

Programming Languages: C & C++, LaTeX, Python, Verilog, Matlab, Scala, Octave
Hobbies: Guitar Playing (Level 10 Amateur), Competitive Programming

I used to participate in online competitive programming contests. I have rating 3030 (Legendary Grandmaster) on codeforces.com and rating 3199 (6 Dan) on atcoder.jp.