XianJun An

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EDUCATION

The University of Chicago Chicago, IL

Bachelor of Science in Computational and Applied Mathematics September 2021 - June 2025

Relevant Courses: Graduate Complexity Theory, Graduate Theory of Algorithms, Honors Discrete Mathematics, Honors Combinatorics, Graduate Stochastic Calculus

Stuyvesant High School New York, NY

Honors

AIME Qualifier - Invite only exam for Top 5% of test takers of AMC 12 and Top 2.5% of the AMC 10 (out of 300,000 students who took the AMC)

EXPERIENCE

The Founder Palace Chicago, IL

Backend Software Engineer Intern June 2024 - Sept 2024

- Implemented the Gale Shapely matching algorithm with two-tower embedding architecture on the Supabase backend by using server-less edge functions, PostgreSQL functions, and vectorized embeddings of text.
- Designed load tests and optimized the backend edge functions to bypass the usage limit on Supabase. Increased recommendation engine capacity at any moment from around 4 to over 20 users.
- Identified gaps in data collection methods for the pairing of founders, and then worked with the frontend engineers and UX designers to come up with the necessary interface.

Charactour Chicago, IL

Data Science Intern June 2022 - Sept 2022

- Compared TF-IDF distributions using a two sided t-test. Then controlled for false discovery rate with Benjamini-Hochberg procedure to make sure high scoring titles for a trait were significant compared to the low scoring titles.
- Removed redundant words from the TF-IDF data on "words vs titles" to ensure the words have low multicollinearity. Measured VIF to determine the words the needed to be removed.
- Automated generation of per-character CSV summaries listing their top-liked statistically significant book-movie IDS by frequency, creating an easily accessible mapping of characters and their top titles.

University of Chicago REU Chicago, IL

Apprentice June 2023 - August 2023

- Explored the transition from affine to projective spaces to construct non-singularity criteria of Weierstrass-cubics.
- Reconstructed a proof of the group properties of elliptic-curves in the reals.
- Deep Exploration of mathematical topics through 9 weeks of lectures covering topics like: Erdős probabilistic method of bounding combinatorial structures, Steiner triple system, Discrete Fourier Transform.

Mercor

Math Expert Contractor March 2025 - June 2025

- Solved and reviewed complex math and computer science problems for OpenAI's STEM model training.
- Worked with other top Math Olympiad competitors to verify solutions for compliance with the ML evaluation.

ACTIVITIES

New York City Math Team & Stuyvesant High School Math Team New York City, NY

Competitor September 2017-2021

- Invited to compete in regional and national math competitions such as AMC, AIME, ARML, NYSML, and IML.
- Collaborated with team members from around NYC for both proof-based and computational mathematics contests. Invite only for top 60 math competition students in NYC.

SKILLS

Academic Interests: Machine Learning, NLP, Operating Systems, Distributed Systems, Networking, Algorithms, Computational Complexity Classes

Technologies: Python, Pandas, NumPy, PyTorch, C/C++, CUDA, Java, Haskell, PostgreSQL, SQL, EC2, S3, DynamoDB, Supabase, Firebase, Lambda, HTML/CSS, Javascript, Node.js, React, Git, Github, VS Code, Jira, Linux