

# Joseph Zhang

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## EDUCATION

### Stanford University

Mathematics and Computer Science

Stanford, CA

September 2025 - Present

### Westlake High School

Class of 2025 Salutatorian, Mu Alpha Theta & Latin Club President, Executive Board Member

Austin, TX

August 2021 - May 2025

## EXPERIENCE

### Austin Capital Bank

AI/ML Intern

June 2025 - September 2025

Austin, TX

- Developed and implemented time series forecasting models to project revenue and user growth for credit builder products, leveraging financial transaction data with 20M+ data samples
- Collaborated with data & analytics team in porting models from Hex to Snowflake data cloud
- Briefed senior management on forecasting model findings, driving revenue optimization and user growth projections

### Texas State University Mathworks

Junior Camp Counselor

May 2024 - June 2024

San Marcos, TX

- Mentored a study group of 4 middle school JSMC campers, covering number theory, combinatorics, geometry, etc.
- Utilized peer teaching to foster an inclusive environment for campers with diverse backgrounds and varying math knowledge

## RESEARCH

### Balloon Entropic Elasticity and Bifurcation | MATLAB

March 2024 - May 2025

- Explored elastomer behaviors under Prof. Rui Huang from UT Austin and Prof. Zhigang Suo from Harvard University
- Analyzed entropy within balloon-air systems, utilizing MATLAB to model inflation and bifurcation of balloon systems and evaluate Gent and Neo-Hookean material behavior models
- Presented at the 2025 Canadian Society of Mechanical Engineering (CSME) research conference with 600+ attendees

### Cyclic Base Ordering | C++

May 2022 - December 2022

- Conducted a comprehensive study on cyclic base orderings (CBOs) in graph theory under Professor Xiaofeng Gu from UWG
- Developed a C++ program to validate triangular grid graphs, series composition, and generalized theta graphs, reducing test time by over 90%
- Co-authored and pre-published a technical, peer-reviewed paper titled "A Project on Cyclic Ordering of Some Families of Graphs" on arXiv, receiving citation

## LEADERSHIP

### Stanford Math Tournament (SMT)

Problem Writer

January 2026 - Present

Stanford, CA

- Authored 5+ novel math problems for a global tournament of 3,000+ competitors from 20+ countries
- Verified multi-step proofs through ultra-rigorous test-solving to eliminate test ambiguities

### Honors Summer Math Camp (HSMC)

Camper | Researcher

May 2022 - July 2024

San Marcos, TX

- Explored number theory, real analysis, combinatorics, abstract algebra, and topology
- Evaluated fairness in clustering algorithms under Dr. Young-Ju Lee and Dr. Ivan Ojeda Ruiz
- Leveraged the Texas State LEAP2 HPC cluster to engineer and benchmark CNN, RNN, and DanQ models on 1M+ SNP genomic data samples for trait prediction under Dr. Xiaoxi Shen

## HONORS & AWARDS

AIME Qualifier	2021-2025	USACO Gold	2024
National Merit Semifinalist	2025	Top 5 HMMT Team Round	2023
Top 5 CMIMC Theoretical CS Round	2024	ARML Texas Titanium High Score	2023
Top 10 TAMU Math Contest	2019-2024	PVSA Gold	2022-2023

## TECHNICAL COMPETENCIES

**Tools:** Python, Java, C++, SQL, HTML/CSS, React, NodeJS, Supabase, Bash, MATLAB,  $\LaTeX$ , PyTorch, Pandas, TensorFlow, Keras, Qiskit

**Interests:** Rugby, Barbering, Quantum Computing, Gastronomy, Startups