Tony (Guanyu) Zhang

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Education

University of Michigan **Ann Arbor, MI**

Major in Honors Mathematics, Minor in Computer Science GPA 3.96/4, Major GPA 4.0/4.0 *Expected 2026.05*

- **Selected Coursework (*grad level):**
  Algebra II* (A), Analysis II* (A), Data Structures and Algorithms (A+), Honors Analysis I (A), Intro to Computer Organization (A), Foundations of Computer Science (A), Lab of Geometry at Michigan (A), Problem Solving Seminar (A)
- **Extracurricular:**
  Cantor Coding and Trading, Michigan Data Science Team, Lab of Geometry at Michigan

Research Experience

Approximation algorithm for weighted token swapping **2024.05 – Present**

College of Engineering, University of Michigan

- supervised by Prof. Nicole Wein
- developed new lower bound for the approximation ratio for a specific family of algorithms

Statistics of the Character Table of S_n **2024.01 – 2024.05**

Department of Mathematics, University of Michigan

- supervised by Prof. Sarah Peluse
- studied its several number theoretic and combinatorial properties
- proposed new conjecture regarding its equidistribution phenomenon modulo prime numbers

Awards

William Lowell Putnam Math Competition **2023.12**

- Top 550 nationwide

Bronze Medal at Chinese Mathematical Olympiad **2021.12**

- Issued by Chinese Mathematics Society
- approximately equivalent to Bronze Medal at USAMO

First Prize at Chinese High School Math League **2021.10**

- Issued by Chinese Mathematics Society
- Top 20 individual provincewide

Distinction Award at Euclid Contest **2021.05**

- Issued by University of Waterloo, Math Dept.

Experience

Akuna Capital Virtual Trading Challenge Invitee **2024.08**

Citadel Summer Invitational Datathon Participant **2024.07**

- Selected as one of 120 participants from thousands of applicants

Fast algorithm of computing the character value of symmetric groups **2024.04**

- Implemented a combinatorial rule for computing the character values
- Obtained new data on some specific classes of elements of symmetric groups

Kaggle's American Sign Language Fingerspelling Recognition Competition **2023.08**

- Bronze Medal winner, ranked 122 out of 1315, serving as the team leader
- Designed and implemented advanced machine learning models including Transformer and 1-dimensional Convolutional Neural Networks using TensorFlow
- Leveraged machine learning techniques for effective sign language recognition, achieving high accuracy and robustness

Ready Trader Go Competition at Optiver **2023.04**

- Developed and implemented an advanced trading strategy, successfully passing 3 out of 8 competitive rounds
- Utilized several pricing algorithms and market analysis techniques to optimize trading performance
- Demonstrated strong understanding of market dynamics and strategic decision-making in a high-stakes trading environment