

# Zhi Wang

**Email:** wangzhi0467@outlook.com. [Personal page](#) and [my GitHub](#).

## Education

[University of Science and Technology of China, Hefei](#)

September 2021 - Expected Graduation: June 2025

**GPA: 3.83**

- Will obtain a bachelor's degree in Mathematics
- Program: School of Gifted Youth

[University of California, Berkeley](#)

January 2023 - December 2023

- Visiting Student

## Academic Interests

- Combinatorics, analysis, optimization.
- computer graphics and machine learning theory.

## Research Experience

- I worked with Dr. Andrés R. Vindas Meléndez on a project about the Ehrhart theory of a special kind of order polytopes, a branch of algebraic combinatorics. We've obtained closed formulas for two extreme cases and a combinatorial formula for general cases, we also made a few conjectures based on computational evidence from a sage program we coded. The preprint will hopefully be out on Arxiv before mid-May 2024.
- I'm currently working with Prof. Difan Zou (HKU) on machine learning theory, specifically understanding the theory of grokking phenomenon.

## Publications

## Projects

- (UC Berkeley Math Department) Directed Reading Program on game theory from a rigorous pure math point of view, with a final presentation to the mentors.
- Deep learning models for movie recommendation systems using Python. I did this as a group project leader for a Python class, we used libraries like Scikit-learn, Surprise, Numpy, Pandas, etc.

- Class final project: Build Your Own World. I designed and implemented a 2D tile-based world exploration game from scratch, with a UI interface.
- Class final project: Ehrhart polynomial of Birkhoff polytopes. I did a deep literature research into the current status of this problem, proposed several conjectures, and summarised connections with other fields.
- A survey for the class *Intro to Differential Equation* at USTC titled *Numerical Methods for Differential Equations*, I investigated various aspects of methods such as Euler, Crank-Nicolson, Runge Kutta with several examples implemented in Python.

## Volunteering and Seminars

- APEC San Francisco 2023 volunteer; Berkeley AI Hackathon volunteer.
- Peking University BICMR, AI for Mathematics: Formalization and Theorem Proving Seminar (Jan 14th - 27th, 2024)

## Skills

▲: familiar; ■: did a few projects; ●: quite experienced

- **Programming Languages:** Java ■, Python ●, C ▲, C++ ●, Matlab ■, Lean ▲.
- **Languages:** Mandarin Chinese, English, French (intermediate)
- **Technical Skills:** LaTeX, git, Tensorflow, Sage.