

Ray Tsai

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EDUCATION

University of California San Diego

La Jolla, CA

B.Sc. in Mathematics-Computer Science (GPA: 3.9/4.0)

Sep 2021 – Jun 2025

- **Relevant coursework:** Honors Abstract Algebra, Honors Graph Theory, Graduate Level Statistical Learning, Probability Theory, Linear Algebra, Calculus, Data Structure, Game Theory.

RESEARCH EXPERIENCE

Department of Mathematics, University of California San Diego

La Jolla, CA

Undergraduate Research Assistant

Apr 2023 – Present

- Engaging in a rigorous study on extremal graph theory mentored by Prof. Jacques Verstraete.
- Investigating an open problem on long-directed paths in Eulerian-directed graphs.
- Secured the research position based on top performance and highest grade achieved in the Honors Graph Theory course.

WORK EXPERIENCE

Software Engineer

Taipei, Taiwan

MSI

Jul 2023 – Aug 2023, Full-time

- Collaborated with a 5-member team to develop a Windows-based application for local AI image generation and model training.
- Pioneered a custom model using Stable Diffusion, effectively generating images of MSI laptops.
- Architected and implemented an installation process for multiple optimizers, boosting image generation speeds by 80%.

Co-founder & Lead Software Engineer

San Diego, CA

Kook

Dec 2021 – Dec 2022, Start-up

- Led a 5-member team in the creation of an automated surfboard rental station, incubated by UCSD Basement Blackstone LaunchPad and ECE Makerspace.
- Operated as a full-stack engineer, independently learning app development to architect the company's application, facilitating access to the surfboard station, and documenting the rental history.
- Innovated the station's unlock system by leveraging NFC technology, significantly enhancing the user experience.

ADDITIONAL EXPERIENCE

Personal Website A blogging website I built to document my life and refresh my chinese writing skills. (Dec 2022)

UCSD Theory Group Part of the UCSD theory group and attend various seminars and weekly meetings on theoretical computer science.

William Lowell Putnam Mathematical Competition Got 3 out of 120 possible points on the most prestigious undergraduate level math competition.

SKILLS

LaTeX, JavaScript(React Native, Next.js), Python(Flask, Selenium), C/C++, Java, Git

HOBBIES

Swimming, Chess, Electric Guitar, Math, Blogging, Audrey Liang, Mario Kart, Super Smash Bros Ultimate