

# Ray Tsai

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## EDUCATION

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### 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

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### 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

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### Micro-star International

Taipei, Taiwan

*Software Engineer*

*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%.

### Kook

San Diego, CA

*Co-founder, Lead Software Engineer*

*Dec 2021 – Dec 2022*

- 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

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**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

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

## HOBBIES

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