

# Mathias Ooi

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## EDUCATION

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### University of California, Santa Barbara

Santa Barbara, CA

*Bachelor of Science in Computer Science + Mathematics*

*Sep. 2023 – May 2025*

- Relevant coursework: CS Problem Solving II, Object Oriented Design and Implementation, Differential Equations, Transition to Higher Mathematics, Probability and Statistics (ongoing)
- Planned coursework: Data Structures and Algorithms I & II (winter & spring)

### University of California, Irvine

Irvine, CA

*Summer Session*

*Summer 2023*

- Relevant coursework: Linear Algebra (proof-based), Combinatorics, Multivariable Calculus, Probability I

## EXPERIENCE

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### Gender Biases in Wikipedia

Cupertino, CA

*Oct. 2021 – Dec. 2021*

- Parsed and filtered Wikipedia XML dumps for infoboxes
- Analyzed gender discrepancies (infoboxes for men include relatively more education/career data while females include more family/physical data)

### Connecting Futures Now

Aug. 2021 – Present

*Santa Clara, CA*

- Developed a highly customizable iOS math app in Swift for non-verbal autistic students
- Collaborated with parents and students to iterate on app design

### Competitive Programming

Aug. 2020 – Dec. 2022

- Reached USA Computing Olympiad Gold level
- Competed in other competitions Project Euler (top 1%), Advent of Code

## PROJECTS

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### Scheme Interpreter | C++, Scheme

Jan. 2023 - Present

- Created an MIT Scheme interpreter in C++ with garbage collection and tail-recursion (trampolining)

### Delaunay Triangulation | C++, Python, Matplotlib

Aug. 2023 - Present

- Implemented an incremental Delaunay triangulation program based on the Bowyer–Watson algorithm

### Ray Tracer | C++

May 2021

- Built a simple C++ ray tracer following the *Ray Tracing in One Weekend* series

### Anti Othello Website | JavaScript, HTML, CSS

Oct. 2021

- Deployed an interactive website to play anti-othello against a bot
- Utilized a minimax algorithm with alpha-beta pruning for bot moves

### Cubic Bézier Curve Library | Python

Aug 2021

- Created an open-source Python library for visualizing cubic bézier curves

## TECHNICAL SKILLS

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**Languages:** C++, Python, C, SQL, Julia, Swift, JavaScript, HTML/CSS

**Frameworks:** React, Node.js

**Libraries:** Git, NumPy, Pandas, SciPy, Matplotlib, PyTorch, OpenCV, BeautifulSoup, RegEx