Mathias Ooi

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Education

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)

University of California, Irvine — Irvine, CA
Summer Session — *Summer 2023*

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

Experience

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

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

Languages: C++, Python, C, SQL, Julia, Swift, JavaScript, HTML/CSS
Frameworks: React, Node.js
Libraries: Git, NumPy, Pandas, SciPy, Matplotlib, PyTorch, OpenCV, BeautifulSoup, RegEx