Andrew Wang

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EDUCATION

University of California, Santa Barbara - GPA: **3.88/4.00** — **Santa Barbara, CA**
Bachelor of Science in Mechanical Engineering — **Sep 2022 - Jun 2026 (Expected)**

Coursework: Numerical Analysis, Machine Learning, Dynamical Systems, Computer Vision Principles, CAD/Design, Multiphysics Simulation, Finite Element Analysis, Mechatronics, Structural Analysis, Fluid/Thermal Sciences

RESEARCH AND PROFESSIONAL EXPERIENCE

Computational Applied Science Laboratory — **Santa Barbara, CA**
Mechanical/Computational Engineering Research — **Jan 2024 - Present**
Faculty Advisor: Frederic Gibou

- Currently implementing a CUDA-based solver for four-dimensional Hamilton-Jacobi equations which will be used to study the coupled oscillation of families of neurons.
- Wrote documentation for and helped develop CASL-HJX, a library for solving generalized first- and second-order PDEs. Achieved 50x increase in computation speed over existing MATLAB implementation. Manual published online in *Computer Physics Communications* in November 2025.
- Developed fluid simulation paradigms based on Navier-Stokes equations and implemented optimized calculation schemes for Poisson's equation.

Daily Nexus — **Santa Barbara, CA**
Games Developer/Editor — **Apr 2024 - Present**

- Founded the Daily Nexus Games section, designed and built the games webpage from scratch.
- Developing and maintaining website for the Games section of the campus newspaper, making the Nexus one of the first college newspapers to have a dedicated games webpage.
- Programming UI and logic for several online games and automatic generation schemes for various puzzles.
- Assembling and managing a team of writers and maintaining a consistent stream of content.

PUBLICATIONS

Peer-reviewed Publications:

- F. Rajabi, J. Fingerman, **A. Wang**, J. Moehlis, and F. Gibou, "CASL-HJX: A Comprehensive Guide to Solving Deterministic and Stochastic Hamilton-Jacobi Equations", *Computer Physics Communications*, in press (2025).

SELECTED PROJECTS

Cyberphysical Chess Board (Ongoing)

- Working in a team of five engineers to design and build a chess board capable of moving pieces automatically and responding to both physical and voice input.
- Designing and testing gantry and electromagnet systems to manipulate chess pieces.
- Designing and writing code for user interfacing, mechatronic interfacing, and overall device logic.

Real Time Fluid Simulation (Ongoing)

- Porting to Haxe and building upon a real-time two-dimensional fluid solver described in "Real-Time Fluid Dynamics for Games" (Stam, 2003).

The Bespectacled Bot (Jun 2025)

- Worked in a team of four to design and build a voice-controlled robotic arm capable of manipulating objects.
- Used SolidWorks to design and perform FEA simulations on robot parts.
- Designed and wrote Arduino software to handle voice commands and control motors and LEDs.

Double Pendulum Applet (Apr 2025)

- Designed and programmed an interactive applet simulating a double pendulum using OpenFL.
- Implemented real-time interactivity and customization of all physical parameters.
- Used numerical methods to implement a solution to the equations of motion.

UCSB Course Schedule Builder (Jan 2024)

- Worked in a team of four to develop a Flask-based schedule building app for UCSB students.

- Pulled class data from the UCSB and RateMyProfessor APIs to build schedules based on user preferences.
- Handled frontend and UI development, codebase management and frontend/backend integration.

Personal Website (`https://thesquishylab.com`)

- Personal website showcasing various programming projects and writings.
- Built using Express.js and SQLite on the backend.

TECHNICAL SKILLS

Programming Languages: C++, MATLAB, Python, Javascript, Haxe, HTML/CSS, Ruby, PHP, SQL
Tools and Frameworks: COMSOL, SolidWorks, LaTeX, Microsoft Office, OpenFL, Ruby on Rails, Svelte, Node.js
Other Skills: Machining (Lathe/CNC Mill), Japanese Language

LEADERSHIP & INVOLVEMENT

UCSB Japanese Language Café **Santa Barbara, CA**
President **Sep 2023 - Present**

- Leading efforts in planning, organizing and hosting of club meetings/events, management of budget and spending, and translation of announcements and documents.

Isla Vista Elementary School **Santa Barbara, CA**
Elementary School Tutor **January - March 2023**

- Tutored elementary school students in reading and mathematics in an after-school program.

HONORS AND AWARDS

- **UCSB Regents Scholar:** Merit-based scholarship offered to the top two percent of incoming freshmen.
- **College of Engineering Honors:** Honors offered to students maintaining GPA of 3.5 or higher and volunteering at least 10 hours per year.