Ivan Wei

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Education

University of Michigan Aug 2022 – May 2025
Bachelor of Science in Engineering in Computer Science, Minor in Mathematics *Ann Arbor, MI*
GPA: 3.982/4.0

- Courses:
  - EECS490 - Programming Languages
  - EECS498-003 - Software Formal Verification
  - EECS482 - Operating Systems
  - EECS477 - Intro to Algorithms
  - EECS498-009 - Advanced Data Structures
  - EECS376 - Foundations of Computer Science
  - EECS370 - Computer Organization
  - MATH493 - Honors Algebra I
  - MATH396 - Honors Analysis II
  - MATH296 - Honors Math II (Linear Algebra)
  - MATH525 - Probability Theory
  - MATH526 - Stochastic Processes
  - MATH565 - Graph Theory & Combinatorics
  - MATH566 - Combinatorial Theory
- Extracurriculars: Math Club, Math Walking Club
- Misc. Awards: 84th William Lowell Putnam Math Competition Rank #769 (2023)

Stuyvesant High School Sep 2018 – Jun 2022
High School Diploma *New York, NY*
GPA: 96.81/100.00

- Courses: Cybersecurity, Graphics Programming, Multivariate Calculus, Electricity and Magnetism
- AIME Qualifier (2021, 2022)

Experience

Future of Programming Lab at University of Michigan May 2024 – Present
Student Researcher *Ann Arbor, MI*

- Incrementalized the Hazel programming language to only re-evaluate changed subexpressions
- Built incremental formalization on top of Hazelnut and Total Type Error Localization papers to evaluate expressions with holes, rigorously treat edit actions, and mark errors

Math Tutoring Lab at University of Michigan Aug 2023 – Present
Tutor *Ann Arbor, MI*

- Tutored students in elementary calculus, multivariate calculus, and linear algebra
- Communicated with other tutors to share the most effective strategies for guiding students

University of Michigan Programming Team Sep 2022 – Present
Competitor *Ann Arbor, MI*

- Collaborated with other teams in weekly review for the Intercollegiate Programming Contest, practicing implementation and development of algorithms and optimization for solving novel problems
- Achieved second among University of Michigan teams and #23/83 overall at the Intercollegiate Programming Contest North American East Regional (2023)

Michigan Robotic Submarine Sep 2022 – Jan 2024
Software Engineer *Ann Arbor, MI*

- Implemented all Arduino-side submarine functionality, including depth sensor reading, servo control, and LED control, and integrated it with main submarine Robotics Operating System network using Docker and C++
- Saved prototyping time for new features during competition by writing Arduino code in flexible modular structure, allowing full implementation of LED control within 10 minutes
- Collaborated on thruster control and Python submarine logic to gain familiarity with different subsystems on the submarine

Projects

File Server Feb 2024 – Jun 2024

Private Repository

- Implemented a file server to allow remote file creation, deletion, reads, and writes, with crash consistency, using C++
- Designed to maximize concurrency in request servicing using upgradeable read-write locks and the monitor pattern
- Developed networking component using the GNU sockets library

Crow Islands Feb 2022 – Jun 2022

github.com/iwei20/crow-islands

- Built graphics engine from scratch in Rust capable of drawing images and animations with three-dimensional objects using different lighting and shading models
- Wrote parser using the Pest library to process drawing instructions from a custom scripting language
- Optimized by profiling runtime with flamegraphs and using Rayon multithreading to speed up drawing animations by 8x

Skills

Tools: Git, Docker, Linux, GNU Makefile, Robotics Operating System (ROS), Next.js, React, Tailwind CSS
Languages: LaTeX, Rust, C/C++, Python, Java, HTML/CSS, Typescript, JavaScript, OCaml