

Albert Cao

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EDUCATION

UNIVERSITY OF MICHIGAN - 3.65 GPA

B.S.E in Computer Science and Engineering

Ann Arbor, MI

Aug 2022 – May 2026

- Coursework: Operating Systems, Web Systems, Introduction to Cyber Security, Building Data-Driven Applications, Introduction to Computer Organization, Data Structures and Algorithms, Foundations of Computer Science, Discrete Mathematics

PROFESSIONAL EXPERIENCE

Mad4Chip

Sorrento, IT

Intern *May 2023 – August 2023*

- Created five libraries/drivers for different chips (ADC, DAC, EEPROM, Motor Drivers) for microcontroller classes STM32/ESP32 which were adapted by my supervisor and clients to implement into their own projects
- Developed firmware for microprocessors ESP32/STM32, provided connectivity to the device and enabled transmission of statistical, diagnostic data and remote updates that were also used in projects by supervisor and clients

ACTIVITIES

Michigan Mars Rover

Ann Arbor, MI

University of Michigan

Sept 2024 – Present

- Developed embedded software for the rover using ROS and Cube.IDE to interface with microcontrollers STM32 and I2C
- Wrote and tested 800+ lines of code to control rover functionality and communication protocols
- Collaborated with a multidisciplinary team to integrate tested software for optimal rover performance

Undergraduate Research

Ann Arbor, MI

University of Michigan

Sept 2024 – Present

- Utilized PyTorch and Python programming to develop and refine AI/ML models
- Conducted research and analysis on neural network architectures, contributing to advancements in AI and LLMs

Traders at Michigan

Ann Arbor, MI

University of Michigan

Nov 2023 – Present

- Learned Quantitative Trading problem solving techniques from professionals at notable companies that I used at competitions and interviews
- Led, competed, and collaborated in Quantitative Trading competitions, consistently applied strategies to achieve results
- Taught new members core concepts in Software Development, mentoring them in algorithmic problem solving and interview preparation

PROJECTS

Thread Library

Ann Arbor, MI

University of Michigan

Oct 2024

- Designed CPU, thread, mutex, and condition variable (CV) libraries for both uniprocessor and multiprocessor environments
- Led a team through designing, development and testing phases to ensure complete accuracy, efficiency, and elegance
- Further enhanced understanding of user-level implementations with standard thread libraries for concurrent programming

Multi-Threaded Programs

Ann Arbor, MI

University of Michigan

Sept 2024

- Independently developed concurrent multi-threaded programs using CPU, thread, mutex, CV, and semaphore libraries
- Effectively applied synchronization techniques to ensure both safe multi-threaded execution and efficiency
- Focused on optimizing both thread communication and resource sharing for an enhanced performance

Early Google Search Engine

Ann Arbor, MI

University of Michigan

March 2024

- Implemented a replica of the early Google search engine capable of efficiently retrieving and ranking results
- Acquired proficiency in effectively using MapReduce program to perform complex calculations regarding search query relevance

Client-Side Dynamic Page - Local Instagram Clone

Ann Arbor, MI

University of Michigan

Feb 2024

- Developed a client-side Instagram like interface complete with dynamic rendering and interactive features
- Gained experience in incorporating responsive frontend features with React.js and Flask

For more projects, visit <https://albertcao.dev>

CODING LANGUAGES

C++ / C / Java / Python / JavaScript / HTML / CSS / MATLAB