Albert Cao

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EDUCATION

UNIVERSITY OF MICHIGAN - 3.65 GPA — Ann Arbor, MI
B.S.E in Computer Science and Engineering — *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

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

Google MapReduce Replica — Ann Arbor, MI
University of Michigan — *March 2024*

- Designed and developed a MapReduce program replica using distributed systems and concurrent multithreaded programming
- Implemented communication between manager/workers threads using sockets and TCP/UDP packets

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