

# Marvin Jirapongsuwan

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## EDUCATION

**University of Michigan, Ann Arbor:** *Dean's List, University Honors*

B.S.E. in Computer Science

May 2026

GPA: 3.77/4.0

**Relevant Coursework:** Operating Systems, Data Structures & Algorithms, Web Systems, Computer Security, Intro to Computer Organization

## WORK EXPERIENCE

**Nutanix**

*Incoming Member of Technical Staff (Intern)*

**San Jose, CA**

May 2025 - Present

**UM Direct Brain Interface Lab**

*Undergraduate Research Assistant*

**Ann Arbor, MI**

Sep 2024 - Present

- Developed EEG-based BCI applications in C++ individuals with motor impairments to communicate via brain signals
- Implemented error checks and resolved core bugs in AAC-BCI keyboard module, focusing on physical port validation, key selection, and stimulus mapping – reducing flash misalignment, calculation, and hardware failures by 30%
- Enhanced Choice-Making module by adding a stimuli-skipping system, stimulus isolation, and refactoring the image flashing algorithm to improve response time and flexibility

**Delta Dynamics (DDX)**

*Web Engineer Intern*

**Bangkok, Thailand**

Jun - Jul 2022

- Designed prototype website in a team of 3 on Wix with complete UI/UX design and functionality for BMW
- Coordinated and attended client meetings across different divisions to gain insight for enhanced features
- Utilized agile methodology for 2-week sprint workflow to deliver features quickly and efficiently

**Wall's Ice Cream, Unilever**

*Data Analyst Intern*

**Phrae, Thailand**

Apr 2018 - Apr 2021

- Presented and analyzed monthly performance data set of 4 commercial truck routes; compiled orders into 39 graphs and bar charts for optimized route planning, and awareness of external factors
- Shadowed onsite workers' daily delivery through 4 routes containing over 100 stores and \$4k+ orders
- Optimized supply chain delivery, storage, and scheduling for the SAP HANA Resource Planning System through onsite research

## PROJECTS

**Multithreaded Network File Server** | C++, Boost Library, Threads, Sockets

- Built a heavily concurrent, crash consistent network file server supporting multiple users and nested file/folder structure
- Utilized committing writes to enable crash consistency, Boost threads and upgradeable reader-writer locks to optimize for maximum concurrency, and POSIX sockets to enable network communication with clients

**Virtual Memory Pager** | C++, Virtual Memory, Page Faults, Process Lifecycle Management

- Designed a C++ virtual memory pager managing multiple processes, supporting swap-backed and file-backed pages
- Managed process creation/forking/destruction, page faults, MMU bits, and swap disk all while supporting copy-on-write

**Thread Library** | C++, Multi-threading, Mutexes, Condition Variables, Semaphores, Unix

- Developed a kernel C++ thread library on Unix, handling CPU booting, thread management, management of 50+ CPUs, interrupts, atomicity, and FIFO scheduling order
- Designed spin-locks, mutexes, conditional variables utilizing advanced Unix context management

**MapReduce** | Python, Threads, Sockets

- Implemented Hadoop-like MapReduce Distributed System to process large datasets through TCP and UDP communication
- Devised Manager-Worker model with dynamic task assignment, fault tolerance, and support of partitioned clustered data

**Reddit Classifier, Aitah** | React, Python, FastAPI

- Built Reddit-based classifier using a bag-of-words model, achieving 84% accuracy on 3,000+ posts
- Created single-word probability feature, evaluating 24,000+ words to highlight model biases

**Manual EQ Tool, Parrot Producer** | C++, JUCE Library, Digital Signal Processing

- Spearheaded DAW plugin using JUCE that facilitates EQ for music producers, user-friendly functionality for beginners
- Instant audio processing with GUI, allowing manual tuning of Frequency, Gain, Quality and EQ

**Heat Quantity Prediction Website, Feel The Heat** | Python, Flask (Jinja), Folium, Matplotlib, Geopandas

- Led a Team of 3 to develop a website that displays past, present, and future heat map data of all countries
- Created map visualization backend of 20+ dynamic pages and video presentation to enhance user experience

## SKILLS

**Languages** C++, C, Python, JavaScript, SQL, Lua, MATLAB

**Technologies** React, Next.js, FastAPI, Node.js, MongoDB, MapReduce, Pandas, Google Cloud

**Certificates** Google Data Analytics, AI Deep Learning Specialization, Harvard CS50: Intro to Computer Science

**Awards**

Crimson Hackathon Winner, CS Umich Scholarship, Bronze Medal-ASMO