Ethan M. Chan

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Education

Northwestern University, Evanston, IL — Expected June 2024
B.S in **Computer Science**, Minor in **Data Science** | GPA: 3.62/4.00
Coursework: Operating Systems, Data Structures and Algorithms, Human Computer Interaction, AI, Intro to Systems, and Electronics

Experience

Client Side App, NUDM Tech and Analytics Team — November 2022 - Present
- Developing a mobile app serving thousands of students which allows for creating and updating events, viewing fundraising goals, and competing in fundraising leaderboards
- Working with **React Native** and **Firebase** in an agile environment

Research Assistant, TIILT Lab — October 2022 - Present
- Designing a web application to transform spotify songs into a visualization of musical properties for teaching music theory in a more interactive and accessible way
- Researching rhythm identification with librosa and madmom

DAQ Motion Board, Northwestern Formula Racing — September 2022 - Present
- Writing ESP32 firmware sending dimensionalized GPS and accelerometer data to CAN bus in **C++**

Big Marsh, Design Thinking and Communication (DTC) — March 2022 - June 2022
- Recommended best air quality sensor for Big Marsh's needs by interviewing experts/stakeholders to clarify understanding of project requirements and comparing 7 different sensors through research and user/performance testing
- Ensured weekly objectives were well met by discussing goals, delegating tasks, and leading by example
- Facilitated weekly discussions and initiated one-on-one conversations to fill communication gaps

Shirley Ryan Ability Lab, DTC — March 2021 - June 2021
- Ideated, designed, and prototyped crochet aid to assist people with lower arm disabilities
- Created mockups, presented design reviews, and co-authored a 40 page final report

Projects

Nautilus Kernel Parallel Port and Virtio GPU Driver — November 2022
- Devised request and response fragments to load pixels into a framebuffer for a DMA GPU device
- Developed middle layer bit blitting functions to apply operations from source to destination boxes with enforced clipping regions and tiling; Implemented functions to draw pixels, lines, and polygons
- Interfaced with port mapped IO to develop a parallel port driver and wrote an interrupt handler to signal other requests

OS Schedulers, Operating Systems Class — October 2022
- Implemented Stride, Round Robin, and other preemptive scheduling algorithms in **C** via a discrete event simulator

Kanbooks, Ebook app prototype for language learning — July 2022 - September 2022
- Extended Readium's E-reading framework written in **Swift** by adding a script to automatically highlight unknown words on epub renderings
- Designed a new overlay for highlighted words, allowing users to translate in one less step with Google Translate's API

SETI Lab, Intro to Systems — March 2022
- Leveraged multithreading to increase speed by 200% for a "search for extraterrestrial life" program using **C's** pthread library

Flappy Bird — November 2021
- Programmed Flappy Bird from scratch in **C++** with GE211, a simple 2D game engine

Extracurriculars

- Northwestern Formula Racing, NU Dance Marathon Tech & Analytics Team, and Philharmonia Orchestra

Skills

Proficient: C | **Familiar:** Java, Python, C+, JavaScript, Swift, SQL | **Frameworks:** React, React Native, UIkit, SwiftUI
Tech: Firebase | **Foreign Languages:** Mandarin (intermediate), Spanish (basic)