ROBIN HWANG

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INTRODUCTION

Computer science student with a strong foundation in software development, machine learning, parallel programming, and leadership. Seeking software engineering or product management internships for Summer 2025 and/or Fall 2025.

EDUCATION

University of Michigan Aug. 2022 – May 2026
B.S. Computer Science *Ann Arbor, MI*
Coursework: Applied Parallel Programming with GPUs, Software Engineering, Data Structures and Algorithms, Programming and Data Structures, Discrete Mathematics, Introduction to Computer Organization, Foundations of Computer Science

RELEVANT EXPERIENCE

Software Engineering Intern Jun. 2024 – Jan. 2025
Stanford Linear Accelerator Center (SLAC National Accelerator Laboratory) *Menlo Park, CA*
- Developed and optimized physics simulations for accelerator control using Impact-T and Bmad, improving modeling accuracy and efficiency
- Converted serial programs to parallel programs to accelerate complex simulations, leveraging high-performance computing (HPC) clusters for large-scale data processing and analysis
- Implemented automation scripts to streamline simulation workflows, reducing manual configuration time and improving reproducibility of accelerator experiments

Machine Learning Engineering Intern Jun. 2023 – Aug. 2023
Stanford Linear Accelerator Center (SLAC National Accelerator Laboratory) *Menlo Park, CA*
- Optimized water-cooling systems using Python, PyTorch, and data from FAST particle accelerator injector at Fermilab by implementing a long short-term memory (LSTM) neural network
- Improved speed of normalization of temperature by up to five times using model predictive control rather than traditional proportional-integral-derivative (PID) controller or other feed-forward neural network solutions
- Prepared findings and gave a lecture at the laboratory on the benefits of utilizing machine learning in optimizing particle accelerators and physics

PROJECTS

Search485 (tf-idf/PageRank Search Engine) Nov. 2024 – Dec. 2024
- Developed a search engine to index Wikipedia pages, incorporating user-adjustable TF-IDF and PageRank weights for customizable relevance scoring and demonstrating proficiency in information retrieval
- Implemented a MapReduce pipeline to enable parallel data processing of large-scale Wikipedia HTML archives

Piazza Post Organizer Mar. 2023 – Apr. 2023
- Created a machine learning algorithm using C++ and the STL to categorize posts on the web application Piazza depending on certain patterns in their content
- Implemented a binary search tree (BST) to recursively, for the sake of efficiency, analyze and search for posts

Room Reservation System Jun. 2021 – Jan. 2022
- Developed a room reservation system with a GUI in Java and Swing for faculty to reserve computer labs and multipurpose classrooms and implemented a binary search engine function for administrators to search through faculty database
- Installed application on the district's LAN (local area network) for faculty use and accessibility from campus desktops

LEADERSHIP EXPERIENCE

Conference Chairperson Sep. 2023 – Apr. 2024
Society of Asian Scientists and Engineers (SASE) *Ann Arbor, MI*
- Led and organized the 2024 SASE Midwest Regional Conference, connecting the Midwestern Asian community to professional opportunities
- Coordinated efforts leading to 262 registered attendees, marking a 153% increase from the previous record set in 2018
- Oversaw 11 workshops run by sponsors and team members, contributing to professional development of attendees

SKILLS

Programming Languages	Python, C++, Java, HTML, CSS, JavaScript, SQL, R
Software Tools	Flask, CUDA, PyTorch, PostgreSQL, matplotlib, numPy, Git, pandas, Figma, Netlify, Firebase, AGILE methodology, APIs, React, Distributed Systems
Office Tools	Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft Publisher, Google Suite, Dropbox
Spoken Languages	English, Korean