ROBIN HWANG

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EDUCATION

University of Michigan   Aug. 2022 – May 2026
B.S. Computer Science   *Ann Arbor, MI*
Notable Coursework: Data Structures and Algorithms, Elementary Programming Concepts,
Programming and Data Structures, Discrete Mathematics, Introduction to Computer Organization

RELEVANT EXPERIENCE

Software Engineering Intern   Jun. 2024 – Present
Stanford Linear Accelerator Center (SLAC National Accelerator Laboratory)   *Menlo Park, CA*
- Employed simulation software to refine control strategies for accelerator parameters, significantly reducing experimental redundancies and enhancing system space efficiency by a three-fold factor
- Replaced older simulation software for FACET-II, specifically using Impact-T in place of the General Particle Tracer (GPT) and using Bmad in place of Lucretia
- Ran start-to-end simulations of beam properties and prepared conference proceedings in a professional report (DOI: 10.13140/RG.2.2.15457.72807/1)

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 (DOI: 10.13140/RG.2.2.15339.52008)

PROJECTS

Search485 (tf-idf/PageRank Search Engine)   Sep. 2023 – Oct. 2023
- Developed a search engine to index Wikipedia pages, incorporating user-adjustable TF-IDF and PageRank weights for customizable relevance scoring
- Implemented a MapReduce pipeline to enable parallel data processing of large-scale Wikipedia HTML archives, improving efficiency and scalability
- Created a graphical user interface (GUI) to enhance front-end user interaction and engagement

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 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

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, which is a diversity, equity, and inclusion (DEI) conference for the Asian community
- 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 SASE team members, contributing to professional and personal development of attendees

SKILLS

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