HOWARD HALIM

Multi-talented engineer proficient in many areas, from technical algorithms to interface design. Enthusiastic, innovative, and collaborative. World-class math and problem solving skills. Always eager to learn new things.

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WORK EXPERIENCE

Software Engineer Intern @ Expii, Inc. June 2021 – August 2021

- Modeled spread of COVID-19 by simulating realistic daily interactions of 100,000 people
- Improved speed and memory usage by 5x with precomputation, hashmaps, and cache optimizations
- Proved NOVID was 8x more effective at reducing R_0 than existing contact tracing methods

LEADERSHIP

Co-President, Software Chair, Math Chair @ CMIMC May 2020 – Present

- Led 50-member student club, organizing math and programming competitions for high school students
- Developed online contest platform with 3000+ users to host virtual competitions during COVID pandemic
- Taught software team how to use Django, Git, SQL, Python, Javascript, and Docker

PROJECTS

Operating System Kernel February 2022 – April 2022

- Implemented a Unix-like kernel from scratch, with full support for process management, virtual memory, interrupt handling, syscalls, protection rings, thread scheduling, and device drivers
- Ensured robustness with exception handling and synchronization mechanisms to prevent race conditions

Adversarial 2048 — adversarial2048.com May 2022 – June 2022

- Created a 2048 spinoff with adversarial tile placement. Built with Rust, WebAssembly, and JavaScript
- Implemented minimax algorithm, alpha-beta pruning, memoization, iterative deepening, and best-first search

Probase — github.com/CMU-Math/probase May 2020

- Created an online collaborative problem database for math contest organizers to share math problems
- Utilized Bootstrap, HTML, CSS, JavaScript for frontend and Python, Django, PostgreSQL for backend
- Website used by 100+ people. Features problem ratings, comments, sorting, filtering, and searching

EDUCATION

Carnegie Mellon University August 2019 – May 2023

Bachelor's in Computer Science and Master's in Math. $100,000 scholarship

SKILLS

- Math
- Machine Learning
- Operating Systems
- Theoretical CS
- Distributed Systems
- Computer Graphics
- Web Development
- Functional Programming

LANGUAGES AND TOOLS

Expert:	C++ (40,000 lines written)
Advanced:	Python, Rust, Git, Vim, Linux, LaTeX
Intermediate:	C, Go, HTML, CSS, JavaScript, Django
Basic:	Java, C#, PyTorch, Bash, SQL, React

SELECTED AWARDS

International Math Olympiad

Two-time silver medalist at IMO 2018 and 2019, representing Team Canada

International Collegiate Programming Contest

World Finalist at ICPC 2020, 12th place at North American Championship