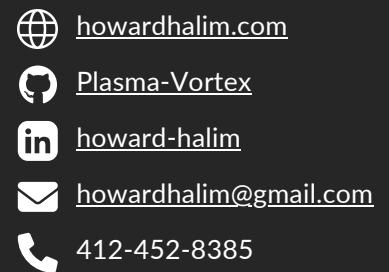


# HOWARD HALIM

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



## WORK EXPERIENCE

### Software Engineer Intern

June 2021 - August 2021

ExpII, Inc.

- Modeled the 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 that NOVID was far more effective than existing contact tracing methods

## LEADERSHIP

### Software Chair, Math Chair, Co-President

May 2020 - Present

Carnegie Mellon Informatics and Math Competition

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

## PROJECTS

### Adversarial 2048

- Created a spinoff of the game 2048, making it as hard as possible. Built with Rust, WebAssembly, and JS
- Implemented minimax algorithm, alpha-beta pruning, memoization, iterative deepening, and best-first search

### Probbase

- Built an online collaborative problem database, for math contest organizers to share math problems
- Added features like problem ratings, comments, sorting, filtering, searching
- Utilized Bootstrap, HTML, CSS, JavaScript for frontend and Python, Django, PostgreSQL for backend

### Spawn

- Developed a mobile arcade game in C# with the Unity game engine. 100+ downloads on Google Play Store

## EDUCATION

### Carnegie Mellon University

August 2019 - May 2023

Pursuing a Bachelor's in Computer Science and a Master's in Math

## SKILLS

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

## LANGUAGES AND TOOLS

- Expert: C++ (40K lines of code written)
- Advanced: Python, Python, Git, Vim, Linux, LaTeX
- Intermediate: C, Go, HTML, CSS, Javascript, Django
- Basic: Java, C#, Tensorflow, 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