

Gram Liu

📍 Pittsburgh, PA · ✉ gramliu@cmu.edu · ☎ (412) 551-6292 · 🌐 [gramliu](#) · 📺 [gramliu](#) · 🌐 gramliu.com

Education

Carnegie Mellon University

Bachelor of Science

Electrical and Computer Engineering, May 2023

GPA: 3.9/4.0

Dean's List

Relevant Coursework:

- Intro to Computer Systems (Assembly/C)
- Data Structures and Algorithms (C)
- Intro to Machine Learning (Python)
- Software Construction & Design (Java)
- Database Systems (C++)
- API Design & Implementation (Python)
- Functional Programming (SML)

Skills

Programming Languages:

JavaScript · TypeScript · Python · Java · C · C++

Technologies/Frameworks:

Node · React · Next.js · GraphQL · MongoDB · MySQL · Docker · AWS Lambda · AWS DynamoDB · GCP

Activities

ScottyLabs

Director of Technology

Relevant Coursework:

- Managed 13 software engineering teams to produce software projects for the campus community
- Led development and deployment of website, registration system, judging platform, and participant dashboard for TartanHacks 2021 and 2022 with over **300 participants from 18 countries**

Work Experience

Dashlabs.ai (YC W21) · Software Engineering Intern

May 2021 to Aug 2021

- Built management platform for the Philippine Red Cross (PRC) using React.js and Next.js, and was used for the initial mass COVID-19 vaccination roll-out in the Philippines
- Developed Apollo GraphQL and MongoDB schema for management of clients, chapters, and members of the PRC
- Created backend microservice to generate vaccination cards with QR codes, using Express and wkhtmltopdf

CMU Human Computer Interaction Institute · Research Assistant

May 2020 to Present

[Computer-Human Interaction: Mobility Privacy Security \(CHIMPS\) Lab](#)

- Created an IoT Smart home app development framework that enables reusable native privacy features using Node.js, Node-RED, and React
- Developed machine learning microservices with openpose and openface using Docker and Flask to create sample smart applications
- Developing a decentralized app ecosystem for smart cities that enables privacy-first aggregation of smart home sensor data using AWS Lambda and DynamoDB

Dashboard Philippines · Full Stack Engineer

Mar 2020 to Aug 2020

- Developed a dashboard for information on hospitals, transportation routes, and relief distribution in the Philippines for the COVID-19 pandemic
- Designed database schema and backend to track patient and supply capacity of over 2,000 hospitals using MongoDB, Express, and React/Redux (MERN) in TypeScript
- Migrated data for the PRC from a legacy MySQL schema to MongoDB, bringing down COVID-19 test processing time from 2 weeks to 3 days at the height of the pandemic

Selected Projects

TartanHacks Software Suite · 2021

- Designed unified MongoDB schema encompassing registration, scheduling, and project submission for TartanHacks
- Built backend with TypeScript and Express, with CI/CD using Jest, GitHub Actions, and Postman

Parking Finder · HackMIT Fall 2021

- Built a web app that uses computer vision (OpenCV) to identify parking spots from CCTV footage
- This project was awarded Best IoT Hack

Medisure.ai · PennApps Fall 2020

- Created a web platform that uses natural language processing to summarize medical insurance documents and generate insurance claim denial appeal letters using OpenAI GPT-3, GCP, Flask, and React
- This was awarded Top 3, Best Use of Google Cloud

Research and Publications

Peekaboo: A Hub-Based Approach to Enable Transparency in Data Processing within Smart Homes

Co-Author, IEEE Symposium on Security and Privacy 2022

[DOI: 10.1109/SP46214.2022.00142](https://doi.org/10.1109/SP46214.2022.00142)

Awards and Honors

- *8th Place*, Philippine National Olympiad for Informatics 2019