

 <https://linkedin.com/in/gramliu>

 <https://github.com/gramliu>

 <https://gramliu.com>

# GRAM LIU



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## EDUCATION

### Carnegie Mellon University

Bachelor of Science in Electrical and Computer Engineering, **GPA: 4.0 / 4.0**

Pittsburgh, PA

May 2023

**Programming Coursework:** Computer Systems (Assembly/C), Data Structures and Algorithms (C)

**EE Coursework:** Structure and Design of Digital Systems, Electronic Devices and Analog Circuits

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## SKILLS

### Programming Languages:

(*proficient*): JavaScript, TypeScript, Java, Python, C, C++

(*familiar*): PHP, SQL, Bash

### Hardware:

Arduino, Raspberry Pi, NodeMCU

### Software Frameworks:

Node.JS, Express, React, Redux, Slim, MongoDB, MySQL, Firebase, Android SDK/NDK, Git, Linux, Nginx, TensorFlow, OpenCV, Node-RED

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## EXPERIENCE

### Research Assistant, CMU Human Computer Interaction Institute

May 2020 - Present

Computer-Human Interaction: Mobility Privacy Security Group

- Developed an IoT network hub that integrates sensors across LAN into a modular and secure smart home system.
- Used **Node-RED** and **Node.JS** to develop a modular interface with functional programming principles.
- Used **OpenCV**, **TensorFlow**, and **FFMPEG** to filter or transform outgoing private information collected by microphones and cameras for anonymity.

### Fullstack Engineer (volunteer), Dashboard Philippines (NGO)

March 2020 - Present

<https://dashboardphilippines.com/> | <https://donations.dashboardphilippines.com/>

- Developed a dashboard to centralize information about hospitals, transportation routes, and relief distribution in the Philippines for the COVID-19 pandemic
  - Developed database schema and backend system that streamlined process of donating medical supplies and documenting patient/supply capacity of over 2,000 hospitals using **MongoDB**, **Express**, **React/Redux**, and **Node.JS (TypeScript) (MERN Stack)**
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## SELECTED PROJECTS

### Distributed Air Quality Monitoring System

March 2019

<https://github.com/ph-innovation-network/amihan>

- Designed and created modular air quality monitoring circuit board using **Arduino** and **NodeMCU** (ESP8266). Created server backend for collecting and visualizing information using **PHP (slim)**, **React**, and **MySQL**

### Sign Language, Speech Recognition, and OCR Android App

October 2018

<https://github.com/gramliu/Unawa>

- Developed **Android** app to assist people with communication disabilities
  - Used **OpenCV Mobile** to perform *background subtraction* for gestures and **TensorFlow Lite** to perform *gesture recognition* using a convolutional neural network
  - Implemented OCR and Speech Recognition using **Google Cloud API**
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## ACTIVITIES AND LEADERSHIP

### Director of Technology, ScottyLabs

2019-

Present

- Led weekly meetings with a committee of 25 members, working on various software projects and APIs for the CMU community
- Developed a **RESTful API** for course information and estimated workload per week for different courses using **MERN Stack**
- Developing new registration system for TartanHacks, CMU's largest hackathon, using **MERN Stack**

### Events Coordinator, Society of Asian Scientists and Engineers

2019-Present

- Organized professional and cultural events for 15 active members
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## HONORS

CMU College of Engineering Dean's List

2019-2020

8<sup>th</sup> Place, National Olympiad for Informatics, Philippines

2019

5<sup>th</sup> Place, National Physics Olympiad, Philippines

2018

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