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

 <https://github.com/gramliu>

 <https://gramliu.com>

GRAM LIU

gramliu@cmu.edu

EDUCATION

Carnegie Mellon University

Pittsburgh, PA

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

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

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

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 scalable and secure smart systems
- 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 (nonprofit)

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
 - Designed database schema and backend system to track patient/supply capacity of over 2,000 hospitals with more than 10,000 distinct hierarchical documents 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-

- Lead weekly meetings with over 30 active members, developing and maintaining over 10 different 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**

Present

Events Coordinator, Society of Asian Scientists and Engineers

2019-Present

- Organize professional and cultural events for 15 active members
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HONORS

CMU College of Engineering Dean's List

2019-2020

8th Place, National Olympiad for Informatics, Philippines

2019

5th Place, National Physics Olympiad, Philippines

2018
