

Allen Liu US Citizen

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EDUCATION

Carnegie Mellon University

Bachelor of Science in Computer Science · Minor in Robotics · GPA 3.24 · Expected Graduation: May 2022

Relevant Courses: Principles of Software Construction, Principles of Imperative Computation, Computer Vision, and Parallel and Sequential Data Structures and Algorithms

SKILLS

Programming Languages Java, Python, C/C++, SML, Javascript, HTML, CSS

Technologies Android Development, React.js, Node.js, Flask, Linux, Arduino, Raspberry Pi, CAD, 3D Printing

PERSONAL PROJECTS

News Cloud - Chrome extension that overrides the new tab page with a word cloud automatically generated with trending phrases scrapped from various news sites. Submission for PennApps XX 2019.

- A Flask app written in Python (for web scraping and natural language processing) and Javascript (site and word cloud generation).
- Developed the word cloud generation script (written in purely Javascript) to algorithmically generate the cloud which implements various features such as text size normalization (scales all text to an ideal size for display), object collision detection (prevents any words of the cloud from overlapping), and parametric definition of cloud shape (allows for flexibility to handle different display form factors).

Mirror Mirror - Raspberry Pi smart mirror built using Javascript (Node.js and React.js). Features basic metrics such as time in addition to weather information (via OpenWeatherMap API) and calendar integration (via Google Calendar API).

- Worked on the project to teach myself Javascript and general web development (using APIs for example).

The Artist - An automaton that mimics human movements (eye gaze, speech, etc.) and is capable of drawing objects based on specified voice commands. Won 1st place at 2017 NJ TSA State Competition in Animatronics.

- Served as Team Manager and Lead Programmer from 2014 to 2017.
- Coded voice recognition for the automaton using Python and the CMU Sphinx library.
- Scripted animation and audio routines (written in C) to mimic human behavior such as eye gaze and speech.

for more details and projects, please check out [aliuliu121.github.io](https://github.com/aliuliu121)

EXPERIENCE

Visual Intel Studio

Research Assistant · August 2019 - Current

- Lead developer for an ongoing indoor navigation project - an Android app that utilizes the Google Maps API in combination with onboard sensors and existing building floor plans to accurately track location indoors even when GPS is unavailable. An economical solution compared to complex technologies such as SLAM (and potentially more applicable in less ideal environments).

Juni Learning

Computer Science Instructor (remote) · June 2019 - August 2019

- Taught students ages 5-18 to code in Python, HTML/CSS, and Scratch through weekly online classes.
 - Taught basic data structures and sorting/search algorithms in the Python curriculum.
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HONORS & AWARDS

Morris Hills Fencing Team Four Year Varsity Starter, 2018 Morris County Champions, 2018 Top 4 NJ Teams