ALEXANDRA NWIGWE

ABOUT ME

I'm pursuing degrees in electrical engineering and computer science with a minor in architecture.

EDUCATION

2019 - 2023 • Massachusetts Institute of Technology | Cambridge, MA | GPA: 4.9

Relevant Coursework: Fundamentals of Programming, Embedded Systems, Computation Structures, Design & Manufacturing of Autonomous Machines

EXPERIENCE

2021 **Google Software Engineering Intern**
Google Android Pixel Team

- Over the course of 12 weeks, I worked in **Linux kernel** in **C** and:
  - I modified the device tree for the ARM64 processor architecture to ensure specific cores would not be turned on when booting up the phone.
  - To make sure kernel torture stress tests would only be run when called rather than automatically run when the modules were loaded on boot up, I turned the stress tests into platform drivers who could be triggered from userspace in the phone's file system.
  - I added sync_state callback functions for voltage regulators and clock systems in the phone so they would not be able to turn off before they finished supplying all their consumers.
  - Modified the TPU (tensor processing unit) in the system memory management to hide page fault logs when performing speculative fetches.
  - To address the fact that interrupts were not being handled equally between the CPUs on the phone, I added a structure in the phone's interrupt handler chips to support parent and upstream interrupt handlers which will in turn support IRQ affinity.

2021 **Research on Swarm Robotics**
Massachusetts Institute of Technology

- During the first half of the year:
  - I worked on the Roboat project under Wei Wang, a project that dealt with autonomous boats to be deployed in Amsterdam as a form of transportation, waste collection, delivery vessels, etc. ,
  - The project involved me working in **ROS** and writing in **Python** to begin the development and implementation of a simulation and algorithm for swarm shape formation.

2020 **Google STEP Intern**
Google News Team

- Over the course of 12 weeks:
  - I created an individual full-stack web application (acnwigwe-step-20.appspot.com) in **Java** that utilized **Bootstrap**, databases, Java servlets, and the functionality of storing and verifying images.
  - I worked in a team of three, that collaborated using **Git**, to develop a web application (step-peas-in-a-pod.appspot.com) that renders daily trending news topics and articles in a minimalistic and user-friendly format that utilized the **Google Cloud Platform**.
    - To extract information from a RSS feed with unique fields, I worked on the back-end and developed an automated custom XML parser.
    - I ensured that the trending topics would be refreshed twice a day by implementing automated cron jobs.
    - To tailor our web-app to give news most relevant to the user, I added a functionality for locating a user's country to display trending results from that user's region.
    - In the effort to build a more efficient and secure workflow, I contributed to the making of a continuous integration system for our **Github** repository and implemented confidential methods of storing credential and API keys.
    - To make sure these functionalities remained up-to-date and effective, I wrote multiple rounds of unit tests that served to confirm these behaviors in various cases.

2019-2020 **Research on Soft-Robotic Systems**
Massachussetts Institute of Technology

• During my freshman year:

- I worked on the Bubble project under Ali Shtarnabov, a project that aimed to make wearable soft-robotics that could assist in grapping and grasping objects.
- The project involved me working on a Bluetooth app using **Swift** so the grasping device could be controlled from a phone.

SKILLS

Python
C++
Java
Git
Vim
3D Printing/Laser-cutting
Graphic Design

EXTRACURRICULARS

Editor In Chief of MIT's Infinite Magazine, a student fashion and design publication

MIT's Design For America, developing a Google Chrome extension for sustainable fashion

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