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Noah Crouch

EDUCATION

B.S. Electrical Engineering, Embedded Systems Pathway - University of Washington - Seattle
Received: December 2023 - GPA: 3.36 - Dean's List: Fall 2022, Spring 2023, Fall 2023

SKILLS & Technologies

- **Java** (3+ years), **C/C++** (2+ years), **System Verilog** (1.5 years), **Python** (1.5+ years), **JavaScript/TypeScript** (1.5+ years), **Bash** (1+ years), **Rust** (1+ months)
- Tools: **Git Version Control, Junit, JetBrains IDEs, Gradle, Maven, Spring Boot, Makefile, GoogleTest Suite, GNU, Cargo, Communications Protocols (I2C, SPI, TCP/IP, HTTP, UART), Django, React, Node, Yarn, NPM**

WORK EXPERIENCE

Undergraduate Research Assistant | UW Ubiquitous Computing Lab | March 2023 – December 2023

- Researched, Designed, and implemented new assistive technology for users with musculoskeletal impairments.
- Using **CAD software**, rapidly designed and produced **100**+ prototypes of devices to aid users with multiple compounding disabilities in applying eye drops using **FDM 3D printers** and **Resin 3D printers** in a **clean lab environment**.
- Prepared documents, performed preliminary research, and searched for supporting information in preparation for additional projects related to different musculoskeletal impairments.

Configurable Pacman | Husky Coding Project – Java Game Engine Team | September 2022 – October 2023

- Led a team of 8 engineers using **Java** and **JavaFX** to create a configurable version of Pacman which allows users to create personalized versions of the indie game Pacman.
- Developed **critical game logic** including **Ghost AI**, **map boundary logic**, **Player control logic**, and **Game state logic** in addition to **JavaFX graphical user interface components**.
- Led the team in conducting **consistent stand-up meetings**, encouraging **pair programming sessions**, in addition to **constructing and leading progress reports**.

Undergraduate Front End Software Engineer | UW S.E.A.L Lab | November 2022 – March 2023

- Worked in a team of 3 to develop a website for hosting an in-lab technical writing assistance application that was used by **125+** lab personnel.
- Utilized **Figma** to design the structure of the home and search page.
- Utilized **JavaScript** and **React** to implement the designs and the document search engine.
- Constructed and led 13 progress reports demonstrating to lab personnel including the lab director.

PROJECT EXPERIENCE

Fall Assessment and Safety Tracking F.A.S.T | Capstone Project | September 2022 – December 2023

- Led a team of 4 to create a discrete data safe wearable to ensure safety and wellbeing of elderly people and their families.
- Leveraged 2 publicly available packages to retrieve data over a **serial connection** via the **android phone's USB-C port**, then over a **Bluetooth connection**.
- Utilized **Google Co-lab** and **Python** to plot our negatively and positively associated falling data in 3 dimensions using the **Matplotlib** package to set necessary lower bound thresholds.
- Created a **Java Webserver** to host a **TensorFlow** model using the **TensorFlow Java API**. Additionally wrote a function to send a text message using the **Twilio Developer API** to a stored phone number upon a successful classification.

Arduino Madlib Generator | June 2023

- Developed a Madlib generator using **Arduino**, **C/C++**, **Python**, **ChatGPT**, **FreeRTOS**, and various hardware components.
- With the signals collected over **I2C/SPI** communication protocols and information stored on the system users chose five descriptive adverbs which were sent over a serial connection to a laptop computer with **PySerial**.
- Using the **ChatGPT API** the five descriptive adverbs were then constructed into a prompt and a Madlib string was generated by the **ChatGPT LLM**.
- Using the same **PySerial** connection, the Madlib string was then sent back to the Arduino and displayed to the user over a standard **LCD** screen.

Cinema Back End Service | Personal Project | January 2024

- Developed a web server using **Spring Boot** to manage a local cinema.
- Constructed multiple **models** to organize data such as seats, location of the seats, and movies to manage data.
- Constructed multiple **controllers** to manipulate data such as seats remaining, where those seats are, and revenue collected based on which seats have been purchased.