Thomas Kou

Software Engineering Student

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SKILLS

Languages TypeScript, JavaScript, Java, Python, C++, C, HTML, CSS, SQL
Tools Node.js, React (Native), Redux, Sass, Express.js, jQuery, Git, Bash, Adobe Creative Cloud

EXPERIENCE

Prizm Media Inc. Junior Web Developer • Vancouver, BC

Apr. 2019 – Aug. 2019

- Built a web/mobile prescription ordering service within team using a **Node.js/Express** backend and **React/Redux** frontends.
- Revamped legacy web pages by creating responsive, scalable components using **React**, **Redux**, and **Sass**, doubling load speed and cutting frontend development time in half.
- Created functionality for users to find/save discount cards by building **MongoDB** schemas and backend **REST API** endpoints.
- Queried, parsed, and memoized responses from GoGoMeds and ScriptSave APIs, facilitating **greater computational efficiency** in generating price listings.
- Refactored obsolete PHP-based backend to a **Dockerized Node.js monorepo** that adopts an adapter design pattern, allowing for efficient reuse of modular API wrappers.
- Automated cross-browser **continuous integration** testing of user flows using **LambdaTest**, **Nightwatch**, and **CircleCI**, saving over 15 man hours per week.

PROJECTS

React-Snake

Aug. 2019

- Created a web-based Snake game in **TypeScript**, **React**, and **Sass**, with game data stored in a local **Redux** store.
- Saved and fetched high scores to/from a **Firebase** server, allowing scores to be submitted and displayed to all other players.
- Deployed the **Node.js**-based app to an **AWS Amplify** server.

LED Matrix Audio Visualizer

Nov. 2018

- Developed a **Python** program to visualize microphone or music data live on an LED matrix using a **Raspberry Pi**.
- Serialized audio information in real time using Fourier analysis, allowing for parsing of different audio frequencies.
- Used a cloud-based **MQTT** messaging protocol to send decoded audio information to the Raspberry Pi.
- Implemented **multithreading** to simultaneously analyze and transmit data, fixing audio stuttering and latency issues.

Markov Chain Sentence Predictor

Nov. 2018

- Built a **Java** program that predictively generates sentences modeled after user input.
- Devised an algorithm that builds a **Markov-chain** database based on inputted text, then outputs words in succession based on the probability of them appearing.

Gameboy Emulator

Ongoing

- Began development of a **low-level emulator** for the Nintendo Gameboy.
- Created an **interpreter** for the Zilog Z80 CPU's **instruction set** based on opcode tables, schematics, and other documentation.

EDUCATION

University of Waterloo • Candidate for Bachelor of Software Engineering (BSE)

Expected Apr. 2023

- Math & Engineering Dean's Honours Lists – GPA 3.95/4 (90.7%)