

Thomas Kou

Software Engineering Student

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SKILLS


Languages Java, C++, C, Python, JavaScript, HTML, CSS, VHDL
Tools React, Node.js, Express.js, jQuery, MySQL, Git, Bash, Adobe Creative Cloud, Excel

EDUCATION

University of Waterloo • Candidate for Bachelor of Software Engineering (BSE) Expected Apr. 2023

- Fall Term Dean's Honours List – GPA: 3.93/4 (89.4%)
- Relevant coursework: *Intro to Methods of Software Engineering, Data Abstraction and Implementation, Digital Circuits and Systems*

PROJECTS

Web Forum API/Server  Jan. 2019

- Developed a **RESTful API backend** for an online forum service using **Node.js**, **Express.js**, and a **MySQL** database.
- Built an interface using **JSDOM** for users to create accounts, submit posts, and view posts/profiles in chronological order.
- Implemented accounts and stored passwords securely using SHA-512 hashing.
- Adhered to professional **MVC** development principles to maintain an organized modular project structure.

LED Matrix Audio Visualizer  Nov. 2018

- Created 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.
- Used a cloud-based **MQTT** messaging protocol to send decoded audio information to the Raspberry Pi.
- Implemented **multithreading** to simultaneously analyze and transmit data.

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 **Python** emulator for the Nintendo Gameboy.
- Created an **interpreter** for the Zilog Z80 CPU's **instruction set** based on opcode tables, schematics, and other documentation.

EXPERIENCE

Simon Fraser University Media Intern • Burnaby, BC Aug. 2017

- Designed animated graphics in **HTML**, **CSS**, and Photoshop for use in online course homepages.
- Edited a promotional documentary in Premiere Pro to increase awareness in a new district-wide teaching workshop for elementary-school instructors.

ACTIVITIES

STEM Tutor • Burnaby, BC Oct. 2016 – Apr. 2018

- Devised engaging and accessible lesson plans in science and math for both primary and secondary school students.

Music-Focused YouTube Channel Jan. 2010 – Present

- Managed a channel with nearly 900 subscribers and 500,000 views.
- Actively produced and uploaded arrangements and visualizations of instrumental songs.