CHARLES GAO

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SKILLS

- **Languages**: Ruby, JavaScript, Python, C++, Java, Bash
- **Technologies**: Ruby on Rails, Node.js, AWS, Heroku, PostgreSQL, Linux

EXPERIENCE

Backend Developer   Sept. 2019 — May. 2020
Viafly Technologies, New York
- Created a point-of-sale e-commerce platform with Ruby on Rails, React, and PostgreSQL
- Designed a database schema and implemented a PostgreSQL database for a e-commerce website
- Designed RESTful API specifications using Postman API Documentation for planning
- Automated vendors registration, and products uploading to server database from Shopify, and Square API, and tested using RSpec
- Implemented an efficient tag-based product search infrastructure using Algolia
- Added online payment process on the backend using Stripe API
- Created the landing webpage and profile pages for shops using React/Redux
- Deployed the platform on Heroku for continuous integration/continuous deployment (CI/CD)
- Scraped 50 000+ products using Python for front-end testing during early production stage

ETL Developer   May 2018 — Mar. 2019
Energy Profiles Limited, Toronto
- Built ETL pipelines using Java and Python to efficiently gather, clean and store energy data for analysis
- Created data loaders in Java to obtain temperature data from a network of sensors in a buildings
- Created a Java scraping framework to increase the development efficiency of utility bills loading tools
- Wrote stored procedures on a Microsoft SQL Server database for report generation
- Added unit tests on core functions with JUnit to prove correctness

PROJECTS

Java Compiler (CS 444) — C++   Jan. 2020 — Apr. 2020
- Created a Java to x86 Assembly compiler in C++
- Set-up a cross-platform build system using CMake
- Integrated a unit testing with Catch2 for Test-Driven Development

ARM Microkernel (CS 452) — C   Sept. 2019 — Dec. 2019
- Created an ARM bare-metal real-time operating system (RTOS)
- Implemented context switching, hardware interrupt handler, RS-232 serial port device driver for processes to time-share CPU time

OmnivoxDownloader — Python   Sept. 2019 — Dec. 2019
- Built a file downloader with a GUI to synced class documents from high school website
- Utilized Requests and BeautifulSoup to extract tags from school's online learning management website
- Built a GUI using wxPython featuring a real-time download status frame and a pause/resume option
- Synchronized multiple concurrent threads to improve the smoothness of the GUI

EDUCATION

University of Waterloo   Sept. 2015 — Apr. 2020
Bachelor of Computer Science & Combinatorics and Optimization