Brian M. Chu

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Summary

Full-stack software engineer with early career experience specializing in cloud-based web development. Proficient in natural language processing and academic research methodologies. Seeking positions with the possibilty of high impact and career growth opportunities.

Education

University of California, Irvine BS, Computer Science — Sept. 2018 to June 2022

- Relevant courses: Computational Photography, Graph Algorithms, Deep Learning, Data Mining, Formal Languages, Corpus Linguistics

Experience

Amazon Web Services, Software Development Engineer I, Amazon Connect — Seattle, WA, Sept. 2022 to Nov. 2023

- Ported features from legacy voice-only codebase to new callflow execution engine implemented in Java, enabling customers to use Amazon Connect for multiple modes of communication, including voice, chat, and tasks
- Maintained high public service availability affecting 1000s of call center customers, including public government services, as an on-call engineer responsible for interfacing with customer support and responding to issues
- Utilized various other AWS services (S3, Lambda, Cloudwatch, etc.) to develop new user-facing features

Amazon Web Services, SDE Intern, Amazon Connect — Seattle, WA, June 2021 to Sept. 2021

- Integrated custom callflow module support for Amazon Connect, allowing customers to reuse and simplify elements of their end-user interaction setups
- Full-stack development of internal Java implementation and customer-facing AngularJS UI
- Completed an end-to-end implementation of this project, from initial design proposal and team review through to final demonstration for the organization at large

Northrop Grumman, Software Engineering Intern — Redondo Beach, CA, June 2020 to Sept. 2020

- Developed a satellite hardware control dashboard
- Refined the Angular/Typescript based user experience by implementing graphical improvements to the user interface, adding new controls and exposing more information to the user
- Implemented new hardware API endpoint in C++ for finer control over hardware status reporting

Academic Projects

Computational Linguistics Thesis — June 2021 to June 2022

- Long-term independent research project under the supervision of Dr. Richard Futrell
- Evaluated the strengths of the GPT-Codex language model at comprehending code in order to generate natural language summaries, testing its limits opposite its intended purpose of converting natural language to code
- Automated a complete data retrieval and experimentation pipeline in Python that scraped the Online Encyclopedia of Integer Sequences for code samples, obfuscated code inputs to avoid model regurgitation, prompted GPT-Codex, and computed results

Gregg Shorthand Transcriber — Mar. 2021

- Final project for CS172B: Neural Networks and Deep Learning, taught by professor Pierre Baldi
- Implemented a convolutional neural network architecture to transcribe from images of Gregg shorthand to English language text, using Google Colab/Python
- Improved on a previous paper's results by retraining the model to transcribe to a syllabic representation and then using a syllabic dictionary to translate to English, yielding stronger translations than the original paper

Glaucoma Diagnoser Feb. 2019

- First prize winner for the MedAI Jam hackathon sponsored by the UCI School of Medicine
- Developed an Android app with a team of med students and other software developers to recognize signs of glaucoma
- Trained a computer vision model on a large dataset of retinal images

Personal Projects

Raspberry Pi LLM Mar. 2024 to present

- Experimentation with running language models under constrained computational resources, using the Raspberry Pi 5 AI kit
- Intention to find limits regarding computer power versus model perfomance, and to test viability of running models on-device with limited to no network connection
- Learning about Linux/network administration, Docker/Podman containerization
- Publishing and discussing results on personal blog

Recreational programming

- Completing programming puzzles (Project Euler, Advent of Code) using new programming languages
- Gaining experience in OCaml, F#/Dotnet, Lisp, and related development frameworks

Other Commitments

Linux User Group at UCI 2019 to 2022

- Organized and led workshops on development skills with the Linux family of operating systems
- Advocated for free and open source software usage as an alternative to proprietary code

Association for Computing Machinery, UCI chapter 2018 to 2022

- Competed for programming competitions such as ICPC qualifiers, IEEEXtreme
- Collaborated with other university groups (e.g. UCSD ACM) to organize, advertise, and run competitions hosting 100s of people

AppJam+, Dreams for Schools Sept. 2019 to Dec. 2019

- Mentored a class of 20 middle school students in Santa Ana on the fundamentals of Android app development
- Led workshops with a team of mentors on how to make a game, including graphic design, sound design, and game logic programming
- Guided a small group of 4 students through the entire process of creating a mobile game, from initial conceptualization to a final student showcase

Publications

Generating natural-language descriptions of code with the GPT language model June 2022

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Awards

Eagle Scout 2017

National Merit Scholar 2018

UCI Campuswide Honors Collegium 202

Phi Beta Kappa 2022

Skills

Languages: Python, Java, C/C++, Javascript/Typescript, HTML/CSS

Libraries/Frameworks: Pytorch, Tensorflow, Matplotlib, Angular, Vue

Tools: *nix, Docker/Podman, Git, Google Colab, Jupyter

Cloud: Amazon Web Services, Netlify