Brian Patrick Coffey

brianpcoffey99@gmail.com ◇ *linkedin.com/in/brianpatrickcoffey* ◇ *github.com/brianpcoffey*

Skills

Languages: C, C++, TypeScript, HMTL, CSS, Bash, Python, LaTeX
Technologies: Git/GitHub, MongoDB, Excel, Jupyter Notebook
Coursework: Data Structures and Algorithms, Combinatorial Optimization Algorithms, Graph Theory, Software Construction, Machine Learning and Data Mining, Concurrent Programming and Parallel Systems, Combinatorics

Experience

Nexus — Sep. 2021 – Mar. 2022

Web Application — *TypeScript*

- Developed a well-recognized web application for UC Riverside students to review courses and advertise campus organizations to streamline the student experience in interacting with the university online.
- Collaborated on a **5-month agile scrum methodology-based software development project** via Github with a team of 4 software engineers to meet sprint goals and ensure that development met software deadlines.
- Deployed on Vercel for static site generation, server-side rendering, serverless APIs, static data fetching, and dynamic, protected, and instant routing. Nexus's web infrastructure theoretically supports unlimited traffic.
- Hosted Nexus's backend database on MongoDB with 10 collections totaling **2.37MB** of collected data.
- Scraped **over 2000** UCR courses using Python Requests and JSON libraries which returned a JSON response of university course data that we parsed, formatted, and uploaded to our database.
- Attracted **more than 500** authenticated UCR accounts and collected **over 2000** student-made course reviews.

Monadic Intermediate Language Interpreter — Sep. 2021 – Dec. 2021

Lexical Analyzer, Syntax Analyzer, and Code Generator for a MIL. — *C*

- Used the FLEX tool to generate a lexical analyzer that takes as input a MINI-L program, parses it, and outputs the sequence of lexical tokens associated with the program for a high-level source code language called "MINI-L".
- Created a parser with 12 components defined by a syntax diagram using the Bison tool to check whether the identified sequence of tokens adheres to the specified grammar of MINI-L and emits appropriate error messages.
- Programmed a one-pass code generator that terminates if any lexical or syntax errors are encountered, or else MIL intermediate code is generated and written to stdout.
- Wrote a shell script to automate testing for the code generation of multiple MINI-L programs that contained and excluded semantic errors by comparing real-time and expected outputs of test MINI-L programs.

CarBazaar — Jan. 2020

RoseHack 2020 Hackathon Project — *Python*

- Developed a web application in 24 hours for modern vehicle shopping utilizing trending social media designs.
- Used Flask, Git, HTML/CSS, and Python for the frontend, and integrated the backend using Google Firebase.
- Implemented user authentication, search features, and pages for the car market and user profiles.

UCR Programming Challenge — Feb. 2019

Competitive Programming Contest — *C++*

- Placed **1st** in the undergraduate division and **3rd** overall among 19 teams by **solving complex algorithm problems** in a local competitive programming contest competing against graduate and undergraduate students.

rshell — Sep. 2019 – Dec. 2019

Linux-based Terminal Emulator — *C++*

- Planned, designed, and developed an **extensible software program** using **fundamental software design principles** to emulate a Linux-based terminal.
- Parsed user input and implemented a **tree data structure** by utilizing the **composite design pattern** to properly store user commands for execution.
- Designed functions to handle connectors, redirects, comments, and parenthesis guiding precedence.
- Automated extensive testing for **9** essential features using shell scripts resulting in a **100%** pass rate.

Education

University of California, Riverside — Jun. 2022 – Dec. 2022
M.Ed., Teaching Credential in Mathematics

University of California, Riverside — Sep. 2018 – Jun. 2022
B.S. Computer Science