

# Brandon Song

512-987-6084 | songbrandon7@gmail.com | www.linkedin.com/in/brandon-song-carl

## EDUCATION

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**The University of Texas at Austin**, Austin, TX

*Bachelor of Science in Computer Science*

**Expected Graduation:** December 2024

**Cumulative GPA:** 3.77

**Relevant Coursework:** IOS Mobile Computing, Object Oriented Programming, Operating Systems, Machine Learning, Data Structures

## PROJECTS

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**Pizza Order App** | *Swift, Firebase*

*June 2023 - July 2023*

- Utilized Firebase to enable Login/Sign-up for data persistency among users
- Built segues between unique view controllers for customers to differentiate pizza topping selection and adding new pizza orders
- Using the Core Data framework, added saving functionality to recall pizza order drafts

**tjdgkt.js** | *Django, Python, GraphQL, Vue.js, CSS*

*May 2023 - present*

- Designed a full-stack CRUD blog web application using Django – drafts, edits, and publishing
- Utilized GraphQL API to load in created and saved blog posts
- Fetched query data to be displayed in Vue.js components

**Memory Manager** | *C*

*August 2022*

- Designed a dynamic memory allocator in C using first-fit allocation, immediate coalescing, and splitting optimization techniques to average 85% memory utilization on stress tests
- Averaged over 2000 operations per millisecond on multiple stress tests

**Compiler** | *C, YACC/GNU Bison, Lex*

*January 2023 - May 2023*

- Implemented a lexical analyzer in Lex to convert characters into tokens categorized by identifiers, keywords, numbers, and operators
- Wrote a context-free parser in YACC to analyze statements and output intermediate code trees
- Built a code generator using intermediate code as input to produce x86-64 assembly code
- Optimized the compiler using constant folding and reduction in strength to generate around 40% less assembly code

**Huffman Encoder** | *Java*

*April 2022*

- Created a Java program based on the Huffman algorithm that parses through files, creating encoding schemes, and compressing files
- Built a decompressor program using Huffman trees as input
- Averaged a file size reduction of 20% from original files

## EXPERIENCE

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**Private Tutor** | Austin, TX

*July 2020 - December 2021*

- Communicated thoroughly with students to ensure understanding on geometric and algebraic concepts
- Led students into solving a problem with needed support
- Organized lesson plans that were based on areas students struggled the most in

## ADDITIONAL SKILLS AND INFORMATION

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**Programming Languages:** Python, Swift, Java, C/C++, GraphQL, Assembly (AArch64, x86), HTML, CSS, JavaScript

**Technical Skills:** Linux, Git, Docker, Jupyter, Django, Firebase, React, Vue.js, QEMU, YACC/GNU Bison, Lex

**Hobbies and Interests:** Reading, Brewing coffee, Baking, Boulderling, Cinema, Photography