

James Bagshaw

jbagshaw430@gmail.com 847-530-3238

Collaborative software engineer specializing in low-level languages and object oriented design with a passion for tutoring college level Assembly language, Data Structures, Algorithms and OOP principles in my free time.

SKILLS

Software Languages: C++, C, Dart, C#, Swift, Python

Tools/Protocols: OOP, Flutter, Multithreading, IoT, visual GDB, Linux, MIPS, Visual Studio, RTOS, Bash, AWS, Git, SVN, Jira, Confluence, Android Studio, XCode, SQL, Design Patterns, REST, web sockets, scheduling algorithms, rtti, named pipes, TCP

EXPERIENCE

Software Developer, Card Concepts Inc., Chicago, IL (*current employer, please do not contact*) 2023 - current

- Develop and maintain card reader firmware, connecting various machines to our payment/loyalty system via serial communication and Wi-Fi (C)
- Lead UI development and database/hardware driver API integration for a windows based touch kiosk system (*Dart/Flutter, https, web sockets*)
- Efficiently onboard and train new firmware developers, as well as manage our offsite web-development team
- Manage mobile app build and deployment on Android and iOS (*Cordova/HTML/CSS*)
- Develop and maintain trustworthy client relations regarding custom mobile app design, optimization, and troubleshooting

Software Engineer, TinkRworks, Chicago, IL 2021 - 2023

- Optimized runtime performance for our proprietary software language and virtual OS by implementing instruction prioritization and a dynamic scheduler (C++)
- Led software design and assisted hardware prototyping and PCB design for fully a programmable pocket synthesizer that became company's best selling product (C++)
- Developed efficient waveform modulation algorithms in a resource constrained environment for real-time audio processing
- Led software design and implementation of a digital animation project (C++)
- Worked with educators and consultants to translate curriculum, music theory, drawing/painting techniques, and other abstract ideas into algorithms
- Took initiative to reduce our cost per-kit for the TinkRsynth by ~20% by prototyping and developing an in-house PCB to replace the previous 3rd-party audio interface

PROJECTS

Build a cross-platform financial market stock quote generator/simulator app

A .net server app that generates and updates a list of ticker symbols and relevant data + a client app to request info such as quotes in real time

- C#
- Self contained, platform agnostic deployment
- IPC communication between client app and server app with named pipes

A MIPS Assembly simulator and assembler in C

A C program that takes in 32-bit instructions, assembles them, and simulates their execution.

- Implemented a 5-stage 32-bit architecture assembler.
- Implemented with pipelining for greater performance as well as stalls and instruction forwarding to avoid data hazards.

Led design of retrieval arm for a remote controlled nuclear retrieval robot

A remote device capable of safely and efficiently retrieving radioactive material from hazardous areas such as particle accelerator rooms.

- Implemented a task manager dedicated to allocating CPU time to various components on the robot such as the steering assembly, the driving motor and the retrieval arm. (C)
- Designed small signal amplification circuits with transistors to allow high voltage motors to be controlled by a single microcontroller.

EDUCATION

Bachelor's Degree in Computer Engineering, University of Missouri

2021

- Minors in Computer Science and Mathematics