

# Jasper Wen

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## EDUCATION

**Purdue University** — *West Lafayette, IN*

Dec.2023

**Bachelor of Science, Major in Computer Engineering**

Relevant Classes: Data Structure & Algorithms, OOP in C++, Software Engineering, Computer Networking & Security, Compiler, Embedded System

## SKILLS

- **Programming Languages:** C/C++, Python, Swift, Assembly, HTML, Bash, Java, JavaScript, MATLAB, Verilog, SQL
- **Tools and Technologies:** Git, Linux/Unix, XCode, AWS, Rest API, OpenCV, OpenGL, MySQL

## PROJECTS & EXPERIENCE

**AWS Based Portable Golf Swing Analyzer Project**

Sep.2023 – Dec.2023

- Developed a device to collect swing metrics including swing speed, face angle, club path and related data real-time.
- Integrated **STM32, Raspberry PI, BLE** Modules with sensors and camera for data collection.
- Designed and implemented a robust system architecture utilizing AWS services, including AWS S3 bucket and Identity Access Management for data storage and security.
- Developed a seamless iOS application using Swift and CocoaPods, enabling users to access swing data instantly. Integrated AWS services such as Amazon Cognito, AWS Core, and AWS S3 for authentication, connectivity and data synchronizations.
- Leveraged AWS EC2 cloud computing services to offload computationally intensive tasks that were not feasible to run on Raspberry Pi module 3.

**Teaching Assistant for Embedded Systems**

Sep. 2023 – Dec. 2023

- Facilitated interactive lab sessions, providing hands-on guidance to students in implementing FSM-based program designs, polled loop systems, and event-driven architectures.
- Collaborated with course instructors to develop grading rubrics, evaluate student assignments. And provide constructive feedback.

**MicroC to RiscV Compiler Project**

Jan. 2023 – Mar. 2023

- Developed a compiler translating Micro C programs into a custom Risc V assembly variant.
- Utilized Context-free grammars and regular expressions for Micro C language parsing.
- Implemented a code generator for Micro C statements using JAVA and Python.
- Engineered **ANTLR**, symbol table and semantic actions to build up Abstract Syntax Tree (AST)
- Constructed a code Generator for Micro C statements with JAVA.

**Wearable Motion Detection system Project**

Nov. 2022 – Dec. 2022

- Designed a real-time motion detection module using Thonny IDE achieving 3 secs response time.
- Integrated sensor module with ThingSpeak IoT platform, enabling speech function through IFTTT web-based service, resulting in improved user interaction and data visualization capabilities.
- Calibrated and conducted extensive testing on motion sensors to optimize system reliability and accuracy.

**Computer Graphics – Solid Shape Tree Simulator Project**

Jan. 2022 – Mar. 2022

- Developed a dynamic 3D tree branch generation system using graphic grammar, implemented OpenGL libraries through Freeglut, GLEW, GLM, and GLAD for optimal performance and rendering capabilities.
- Engineered a graphic generator utilizing **Lindenmayer** System principles and 3D turtle movement algorithms to create intricate and visually realistic solid shape trees.

**HTTP Web Client & Server Project**

Nov. 2021 – Dec. 2021

- Developed a HTTP client (compatible with Windows/Linux) capable of listing, download, and upload multiple files from web server, enhancing user accessibility and file management capabilities.
- Implemented a web server on Linux supporting GET (listing/downloading files) and PUT methods to facilitate seamless file uploads and updates.