LIAM GOSS

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EXPERIENCE

Freelance Software Developer

Upwork **May 2024 - Present**

- Developed custom software solutions for diverse clientele, successfully completing all projects within deadlines and enhancing client satisfaction through consistent communication and efficient use of programming languages such as Python, Java, and JavaScript.Instantiated user-centric software employing Python and JavaScript that led to over 95% client satisfaction

Software Engineering Intern

NASA Jet Propulsion Laboratory, Mission Control Systems Test, Integration and Deployment Team **October 2023 - May 2024**

- Engineered a module for an internal application at NASA, leveraging JavaScript and Svelte to decrease manual entry errors and facilitate a 30% improvement in data entry efficiency through automated XML file conversion.
- Designed and implemented user-friendly interfaces using Svelte, integrating with NodeJS back-end to automate conversion of mission network details to standardized XML.

Test Automation Engineering Intern

NASA Jet Propulsion Laboratory, Mission Control Systems Test, Integration and Deployment Team **June 2023 – Aug 2023**

- Constructed and maintained CI/CD pipelines for automated regression tests focused on Deep Space Network components, using Jenkins, Git, and Docker, resulting in a significant enhancement in testing efficiency and dependability.
- Created and maintained automated testing frameworks, reducing manual testing time by 50% and integrating with TestRail for seamless reporting and analytics.

PROJECTS

Automated IoT Hydroponics Engineering Senior Design Project

California State University, Fresno • August 2023 - May 2024

- Engineered a complete IoT hydroponics system for urban agriculture, incorporating sensor integration and remote monitoring capabilities while adhering to a $500 budget limit.
- Developed and integrated automated control algorithms for irrigation and lighting systems, achieving precise environmental management.
- Enhanced user interface and data visualization for real-time monitoring by utilizing Flask and MongoDB, amplifying user experience and plant condition tracking efficiency.

FPGA Game Console with Real-Time Operating System (RTOS)

California State University, Fresno • August 2023 - December 2023

- Developed and implemented a real-time LCD-based two-player game using Micrium RTOS on FPGA, ensuring low-latency interactions through efficient C programming.
- Engineered an FPGA-based game console prototype by programming a Nios II system using Intel Quartus Prime, Qsys, and Eclipse, achieving timely milestones.

MIPS 32-bit FPGA Processor

January 2023 - May 2023

- Optimized Verilog code for the 32-bit processor to include robust hazard detection and forwarding mechanisms, leading to improved data throughput by 20%.
- Validated the MIPS 32-bit FPGA processor by running a suite of benchmark tests, demonstrating a 100% accuracy rate in performance metrics and ensuring reliable computation.

AES Side-Channel Analysis and Electromagnetic Fault Injection

January 2023 - May 2023

- Analyzed power consumption patterns using NewAE ChipWhisperer Pro to uncover side-channel leaks in AES encryption, utilizing advanced statistical methods to enhance attack success rates.
- Designed and implemented targeted fault injection methodologies on AES-256 encryption using NewAE ChipSHOUTER, achieving notable insights in hardware security research.

EDUCATION

Bachelor of Science in Computer Engineering

Minor in Applied Mathematics • California State University, Fresno • Fresno, California • 2024 • 3.82

- Graduated Magna Cum Laude with Presidential Honors Scholarship

SKILLS

Programming Languages: Python, C++, C, ARM/MIPS/x86 ASM, Verilog, NodeJS, Bash, Perl, MATLAB

Hardware Tools: Altera DE2-115 FPGA, NewAE ChipWhisper & ChipSHOUTER, Arduino, Raspberry Pi, Serial Protocols

Software: Docker, Git, Vim, Confluence, XCode, ModelSim, Eclipse, Quartus Prime, MongoDB, VirtualBox, Jenkins, TestRail