LIAM GOSS

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EDUCATION

California State University, Fresno

B.S., Computer Engineering Graduated 2024

- **Specializations:** Applied Mathematics, Cybersecurity
- **GPA:** 3.82
- **Honors:** Magna Cum Laude, University Honors

WORK EXPERIENCE

Upwork

Freelance Software Developer May 2024 – Present

- Completed various freelance projects through Upwork, providing software development services including web development, automation scripts, and data analysis.
- Successfully delivered multiple projects on time, achieving high client satisfaction ratings and repeat business.
- Technologies: Python, Arduino, JavaScript, Node.js

NASA Jet Propulsion Laboratory, Mission Control Systems Test, Integration and Deployment Team

Software Engineering Intern Oct 2023 – May 2024

- Developed a module for an internal NASA application using JavaScript and Svelte that automates the conversion of user-entered mission network details into XML files compliant with telemetry, tracking, and commanding standards, reducing manual entry errors and improving data entry efficiency by 30%.
- Technologies: Svelte, NodeJS, Express, HTML/CSS, Git, XML, Vim, MongoDB

Test Automation Engineering Intern June 2023 – Aug 2023

- Automated subassembly regression tests for Deep Space Network operations using Python, Bash, Perl, and CI/CD tools, enhancing testing efficiency by 50% and increasing reliability.
- Technologies: Python, Bash, TestRail, Jenkins, Git, Perl, Docker, Vim

PROJECTS

Automated IoT Hydroponics Engineering Senior Design Project

- Developed an IoT-enabled hydroponics system for urban agriculture, managing the project from conceptual circuit design to prototype PCB creation with a $500 budget.
- Designed and implemented a web application using Flask and MongoDB for real-time plant condition monitoring, improving user experience and resulting in a 25% enhancement in plant health.

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

- Designed a two-player LCD-based game in C running on Micrium RTOS, demonstrating real-time capabilities and achieving a seamless gaming experience.
- Developed custom Nios II system using Intel Quartus Prime, Qsys, and Eclipse, resulting in a functional game console prototype.

AES Side-Channel Analysis and Electromagnetic Fault Injection

- Conducted side-channel hardware attacks on AES using NewAE ChipWhisper, identifying potential vulnerabilities in cryptographic implementations.
- Performed Electromagnetic Fault Injection (EMFI) attacks on AES-256 using NewAE ChipSHOUTER, contributing to research in hardware security.

MIPS 32-Bit FPGA Processor

- Developed a Verilog-based 32-bit processor with pipelining, hazard detection, and forwarding, achieving a functional and efficient processor design.
- Simulated using Intel ModelSim and synthesized on Altera DE2-115 FPGA, resulting in a successfully operating processor.

UNDERGRADUATE RESEARCH

California State University, Fresno

Undergraduate Research Team Lead Nov 2022 – May 2024

- Conducted in-vehicle network security research, identifying vulnerabilities in CAN, OBDII, and Automotive Ethernet.
- Led a team of 6 researchers, contributing to two pending publications.

TECHNICAL 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