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OBJECTIVE

Software engineer with 6+ years of success in aerospace, embedded systems, and automation. Renowned for delivering innovative, time-efficient solutions to complex technical challenges. Seeking to leverage my expertise in Python, C++, and Linux to drive groundbreaking engineering projects, lead technical innovation, and push the boundaries of what's possible.

WORK HISTORY

Embedded Software Engineer | **The Boeing Company** | Excellent performance reviews

April 2022 – Present

- Developed a **Python** application to auto-generate **~1000** telemetry files monthly for **C++** codebase, saving **2** hours of work per testing task and **7** days of work before major releases. Added features to detect and flag inconsistencies in database vs flight software code.
- **Responsible engineer** for design and implementation of Telemetry, Time, Command, and **MIB**-sync modules in **C/C++** codebase.
- In charge of development (**C++**) and testing (**TCL/Linux**) of security-related features in flight software application layer.
- Devised a real-time, configurable non-breakpoint debugging feature for **FPGA** communication, facilitating timely bug identification.
- Created/managed dedicated software tool repository for team including hexadecimal packet parsing app, **Perl** binary parsers, **Python** scripts to batch analyze data or quickly generate config files, **monolith Linux build scripts** calling **Java**/**Python**/**C++.**
- Streamlined developer workflow by heavily refactoring repositories and introducing **CSH** scripts for quick configuration changes.
- Configured and managed **lighttpd** web servers, **SNMP**, and **Linux** processes for team members, ensuring a smooth dev environment.
- Object-oriented **TCL** testing repository, reducing test code by **50%** and enhancing overall test efficiency and developer productivity.
- **Mentored 5** engineers on program's embedded architecture as needed, aiding in their story execution, and resolving blocking issues.
- Team expert on configuring software and using builds given task/hardware availability. Wrote build scripts for **monolith**/**dynamic download**, software **uplink**, and **kernel**. Experience loading into **flash** vs **ram**, imitating/bypassing hardware with **TCP** dev builds.
- Identified and resolved critical bugs in Time, Command, **FPGA, Threading,** and Spacewire services w/ **GreenHills Multi**, **TCL**, etc.
- Wrote **High-Level-Device-Driver (HLDD)** for propulsion system of new communication satellite utilizing **CANOpen** protocol.
- Facilitated transfer of software deliverables between Millenium Space Systems and Boeing, working on both teams simultaneously.
- Conducted all work with **agile** best practices using **Git**/**Linux**/**Jira**/**BitBucket**/**Confluence** in a story-based sprint system.

Simulation Software Engineer, SSBI | **Northrop Grumman Corp.** | Excellent performance reviews

September 2020 – April 2022

NASA James Webb Space Telescope (JWST)

- Wrote **MATLAB** class-based toolkits to read-in/standardize **NASTRAN** mass and inertial tensor data and deployment analysis.
- Proposed, developed, and continually updated a **RedHat Linux** supercomputing cluster guide for dynamics-related workflows.
- Conducted **NASA** task order on solar array deployment anomaly contingency planning and gave tech talk to **50+** engineers.

Various Programs

- Developed **KSH** shell scripting for **NASTRAN**/**MATLAB** processes to automate **100's** of loads analysis simulation runs.
- Modernized a 15-year-old analysis process using internal **PhD** research papers to develop **MATLAB class** for low-level vibration characterization. Involved **~300 GB** data management, signal processing, noise removal, filtering, transformation, and verification.
- **Traveled** to customer facilities **representing company** as a specialist to facilitate accurate data collection during satellite transport.

Computer Vision Software Engineer Intern | **HP Inc.**

June 2020 – September 2020

- Developed/validated an automated **Java**/**Python** pipeline to analyze microfluidic R&D videos **~100x** quicker with improved accuracy.
- Packaged **Python** code into an HP proprietary tool class allowing for easy adaptation and advanced visualization for future engineers.
- Wrote an interactive **Python** tutorial and documentation for the package. Left with codebase running in-lab on microfluidic datasets.

Paid Student Researcher, Computer Vision | **UCSD Medically Advanced Devices Laboratory**

July 2019 – August 2019

- Created **Java**, **ImageJ**, **MATLAB** pipeline to automatically analyze **1000's** of high-speed fluid droplet ejection videos for research.

PROJECT EXPERIENCE

Crypto NFT Gaming Private Marketplace and Scholar Manager Toolkit | **Personal**

November 2021 – Current

- Wrote **Python** class to scrape, quantify, and rank **1000's** of NFTs from private marketplaces, informing blockchain transactions.
- Developed **Python** tools class to manage discord of 'scholars' racing with lent-out racers for NFT Kart Racing League project.

Self-Driving Autonomous Mail Delivery Robot | **UCSD Introduction to Autonomous Vehicles**

October 2019 – December 2019

- Modified **Python** Donkey Car framework with **OpenCV** to design car to autonomously deliver personalized mail by destination.
- Trained **neural network** on data collected from manual driving, designed/built mechanical components of mail delivery system.

EDUCATION

B.S. Mechanical Engineering, 4.0, First-in-class | **University of California, San Diego**

September 2017 - June 2020

SKILLS

Python, C/C++, CSH/KSH/Bash, TCL, Perl, Git, Jira, BitBucket, Confluence, Real-Time Debugging