Luke Griffiths

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website | linkedin | github

Software engineer with experience developing applications that are scalable, maintainable, and efficiently ingest large amounts of data. Big fan of containerization, great documentation, and learning about the latest tools.

Education

Master of Engineering - Computer Science **Jan 2023 - Dec 2023**
Cornell University | 3.7/4.0 *Ithaca, NY*

Bachelor of Science - Electrical & Computer Engineering **Aug 2019 - May 2023**
Cornell University | 3.5/4.0 *Ithaca, NY*

Skills

Programming Languages Python | Go | Java | C++ | C | SQL | OCaml | MATLAB | Verilog
Technologies AWS S3/EC2/Lambda | Docker | DuckDB | Polars/Pandas/Arrow | Flink | Kafka | Git | Linux | ROS

Experience

Blue Origin **Feb 2024 - Present**
Software Development Engineer *Seattle, WA*

- Reduced data analysis time by 65% and cloud computing costs by $4k/month. Migrated software stack from legacy row-oriented SQLite databases with Pandas tooling to a more efficient columnar-oriented stack using DuckDB, Polars, and Apache Arrow.
- Developed a containerized monitoring application (similar to Grafana) that analyzes streams of data from switches on the vehicle's network, giving stakeholders a comprehensive tool to visualize networking metrics.
- Prevented data loss and invalid software configurations by requiring authorization from a RESTful API, precluding a resource-contention issue that had caused the simulation platform team to inadvertently overwrite data.
- Proactively discovered and corrected performance issues with our Docker usage, such as using volume mounts in place of bind mounts and reordering layers of multi-stage builds to produce smaller container images.

Cornell Mars Rover **Aug 2020 - May 2023**
Software Engineer, Student Project Team *Ithaca, NY*

- Developed firmware in C for high-precision brushless motor control on custom PCBs, adapting swiftly to integrate off-the-shelf controllers with the existing software stack amid supply-chain issues and tight deadlines.
- Created Python test software to visualize electrical signal and error message data from PCBs and BLDC motors allowing sensors to be easily debugged by non-technical team members.

GE Aerospace **May 2022 - Aug 2022**
Software Engineer Intern *Cincinnati, OH*

- Prototyped software to automate defect detection using ultrasound imaging, surpassing the capabilities of the existing human-supervised vision framework which validates 35k+ engine components annually.
- Resulted in a true positive rate 6% higher than the existing software and lowered false positive rate from 3/100 parts to 1/100 parts, a savings of $1,800 per part.

Notable Projects

Secure Database **Aug 2023 - Dec 2023**
Master's Project *Ithaca, NY*

- Developed a secure key-value store with a custom authorization model for authenticated users and specifically designed to resist Dolev-Yao threats. Worked in a team of 3 and iterated on the design for 5 months.
- Tested all software features via JUnit tests. Functional security testing used a simulated unsecure network, allowing malicious tests to corrupt, replay, inject, and intercept database transmissions.

Computer Vision for Emissions Analysis **Aug 2023 - Dec 2023**
Master's Project *Ithaca, NY*

- Collaborated with a team building an application to monitor vehicle emissions on roadways in NYC. The app would assist the city in its urban planning and sustainability goals.
- Implemented vehicle classification using YOLOv7. Created tooling to convert labeled bounding boxes specified in JSON to YOLO label format and trained model using Google Cloud GPU machines.

Deep Learning: CS 4782 **Aug 2023 - Dec 2023**
Generative Vision Lecture Content Creator *Ithaca, NY*

- Worked closely with Professor Kilian Weinberger and several other graduate students to develop course content for a new undergraduate course on deep learning.
- Researched and vetted content for the generative vision and RNN/LSTM sections of the course.