

Rick Haines

LEAD ENGINEER · SENIOR PROGRAMMER

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Summary

Senior Programmer at Passur Aerospace. I have designed and contributed to the development of many customer critical product components. 25+ years of professional software development experience with specialties in software architecture, backend development, data processing, performance optimization, and system administration. I love to find solutions to problems and implement them to continuously improve the development process.

Skills

DevOps	Docker, Kubernetes (microk8s), Rook/Ceph, Proxmox, Gitlab CI/CD, Ansible
Back-end	PostgreSQL, MySQL, Redis, ActiveMQ, Traefik, Websockets
Programming	C, C++, Python, SQL, Bash, x86 Asm, lex/yacc parsers
AI/ML	Jupyter Lab, folium, scipy, pandas, Random Forest, Clustering
Linux	Debian, Ubuntu, Redhat, ZFS, TCP/IP
Local/Edge Cloud	High Availability, Wordpress, Nextcloud, Gitea, Unifi, PXE boot

Experience

Passur Aerospace Inc.

Orlando, FL

MLAT TEAM LEAD / SENIOR PROGRAMMER

2010 - Present

- Designed and implemented fusing of aircraft flight plan data from many data sources providing unique id's and combined data.
- Team Lead on an 18 month Navy Small Business Innovation Research (SBIR) Contract for ML/AI anomaly detection in flight data.
- Produced quarterly deliverables schedule, quarterly reports, performed research, wrote final 98 page report for SBIR Contract.
- Designed, prototyped, and coded an aircraft surface multilateration system (MLAT) deployed at 7 airports in the US.
- Managed the MLAT development team, product roadmap, and releases after initial prototype.
- Implemented a multithreaded SDR decoder processing 100MB/sec with nanosecond timestamping of signal for MLAT (Ettus USRP UHD API).
- Implemented a load balanced backend for incoming MLAT data including a Redis sentinel failover cluster.
- Implemented a multithreaded MLAT location solver including Kalman filtering to smooth the aircraft tracks.
- Designed and implemented algorithms for detecting aircraft holding patterns and diversions from aircraft tracks.
- Designed and implemented fusing of disparate aircraft radar data into a continuous flight track while excluding incorrect data.
- High performance HTTP and socket programming for real time data updates to web browser (eventually replaced by Websockets).
- Designed a probability based method for correlating aircraft tail and flightid to mitigate incorrect data.
- Designed and maintained PostgreSQL databases of flight data.
- Developed various data analysis and test programs for mapping and analyzing flight data.
- Promoted use of Git source control; migrated company source code to locally hosted Gitlab and CI/CD pipeline.
- Collected disparate software projects into git with a cohesive build system.
- Lead successful migration of software stack to an Orlando Datacenter.

Innovative Routines International Inc.

Melbourne, FL

SENIOR PROGRAMMER

2000 - 2010

- Team Lead on CoSort product; a high performance, high volume sort/merge/join/conversion tool used by large corporations and banks.
- Pushed migration to CVS source code control and autoconf build system to automate multiplatform builds.
- Designed and implemented modern thread-safe multithreaded version.
- Analyzed and implemented performance improvements and multithreaded algorithms.
- Designed and implemented module/dll loading functionality; implemented ODBC DB access module.
- Designed and implemented support for Unicode and double byte character sets.
- Designed and implemented scripting language conversion utilities.
- Performed regular customer support and debugging, often remotely; visited customers on occasion.
- Set up and maintained company internet firewall, ftp, and email servers (Linux).

Education

Florida Institute of Technology

Melbourne, Florida

B.S. IN COMPUTER SCIENCE

Sep. 1997 - May. 2001

- Maintained open source driver for the Creative Labs DXR3 mpeg decoder card; managed contributors and version releases.
- Competed in ACM's International Programming Contest.
- Tutored students on Computer Science assignments.