

Alexander James Saites

Senior Software Engineer

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saites.dev

github.com/saites

Skills

Languages Python ▪ Rust ▪ Go ▪ C ▪ SQL ▪ TypeScript ▪ Bash ▪ Java ▪ C#
Tools Docker ▪ TensorFlow ▪ Keras ▪ PostgreSQL ▪ DynamoDB ▪ Consul ▪ Vault ▪ Cython ▪ MQTT ▪ FastAPI
Disciplines Machine Learning ▪ Microservices ▪ CI/CD ▪ Networking ▪ Databases ▪ Pub/Sub ▪ Cloud Services ▪ IoT

Experience

Intel, Network and Edge Group Chandler, Arizona

December 2016–April 2024

Lead Backend Software Engineer

- Integrated TensorFlow with custom FPGA feature extractor, expanding inference pipelines ops to 15 concurrent video streams
- Parallelized test suites with isolated SQLite instances, reducing execution time >75% and eliminating order-dependent failures
- Engineered local dev and build server test options to use containerized MySQL server with ephemeral databases and users, providing quick failure alerts for issues otherwise only reproducible in production
- Refactored API data processing, greatly simplifying codebase and dropping primary routes' response times from 2000ms to 20ms
- Implemented inference visualization feature, managing asynchronous data collection, video manipulation, and color theory to provide an accessible and visually appealing presentation with an easy-to-understand API
- Designed detailed job progress reporting for the system, automated documentation generation, and standardized error messages, leading to a better user experience and fewer support requests

Software Application Engineer

- Designed Go services and PostgreSQL architecture for security platform to record video, annotate it with AI accelerators, publish events via Kafka or MQTT, and search and serve live video and inference data in a user-friendly Angular web app
- Authored Go implementation of the Low-Level Reader Protocol (LLRP) library for distributed edge-to-cloud platform, including tools to generate optimized code, tests, and documentation from a formal specification, featuring a simple-to-use, highly concurrent API that enforces correct and race-free usage at compile time: saites.dev/projects/professional/llrp/
- Architected secure-by-default, low-friction Docker deployment featuring automated Vault setup, dynamic credentials, privilege isolation, and a comprehensive Security Hardening Guide: saites.dev/projects/professional/smart-city/
- Containerized and emulated RFID hardware with Docker and asyncio Python to create a distributed network simulator for visualization and experimentation, increasing development velocity via automated protocol, integration, and stress testing
- Developed graph-theoretic RFID network scheduler that learns about and adapts to RF interference in real-time, maintaining near-optimal utilization at configurable interference tolerances, improving read accuracy while simplifying customer setup
- Containerized and automated the setup, build, and test processes for local development and CI build environments in EdgeX Foundry's UI, reducing developer barriers-to-entry and improving code quality: github.com/edgexfoundry/edgex-ui-go/pull/549
- Mentored summer intern team and increased their productivity with extended support and software development guidance, dropping their Pandas data analysis processing time from hours to seconds
- Created tool to convert huge tree of proprietary files to a compressed JSON file, slashing processing time of downstream tools from hours to seconds, simplifying their development and testing, and reducing data transfer sizes >97%

Intel, Assembly Test Technology Development Chandler, Arizona

September 2014–December 2016

Software Engineer

- Took initiative to develop automated testing environment and equipment simulator, saving weeks of development and testing time per quarter, improving tool reliability, and enforcing vendors' compliance with protocol standards
- Consulted across organization, providing code, research, and guidance on using genetic programming in critical circuit design process, optimizing power delivery and shifting organizational problem solving

Education

Master of Science University of Tennessee

August 2014

Computer Science, focus on Machine Learning & AI 4.0/4.0

Bachelor of Science University of Tennessee

May 2013

Computer Science, minors in Mathematics & Psychology 3.85/4.0