Nathan Rumsey

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Professional Summary

Software engineer with experience across backend and full-stack development, building data-intensive systems and tooling for high-stakes domains including semiconductor manufacturing and financial services.

Experience

Software Development Engineer I June 2025 – Dec 2025

SAIF Corporation *Salem, OR*

Delivered backend solutions for core financial and insurance systems at Oregon's largest workers' compensation insurer.

- Engineered corrections to the short-rate cancellations in billing engine, implementing transactional logic using Gosu to prevent erroneous refunds and safeguard $100k+ in annual revenue.
- Refactored a legacy VB.NET actuarial regulatory reporting tool into C#, introducing parallel bulk processing and unit test coverage to reduce turnaround time from days to hours.
- Unblocked new customer acquisition by resolving an address validation issue in the issuance workflow that prevented foreign customers from purchasing policies, enabling seamless onboarding and avoiding manual workarounds.
- Developed BDD scenarios with Cucumber/Gherkin to validate core business workflows, eliminating one week of manual validation and ensuring on-time regulatory compliance for high-stakes releases.

Reliability Engineer Intern Apr 2024 – Sept 2024

MKS Instruments, Inc. *Beaverton, OR*

Engineered reliability systems for precision motion and laser systems at a leading semiconductor equipment manufacturer.

- Extended C# .NET test infrastructure for a precision motion control system, leveraging dependency injection to validate against both simulated and physical hardware and improving test result reporting.
- Designed a field failure tracking system and data consolidation pipeline for laser components, processing 10k+ records spanning decades to deliver reliability insights and RCA to leadership, informing warranty projections.
- Engineered Python CLI tool to compress and archive AI computer vision defect detection data from the manufacturing floor, reducing storage needs by 90% and saving $3000+ annually in hardware costs.
- Automated quality metrics reporting across cross-functional teams using Azure dataflows and Power BI backed by Azure Data Lake, eliminating manual entry errors and saving leadership 10+ hours monthly.

Skills

Languages: C#, JavaScript/TypeScript, Python, Gosu (JVM), SQL, HTML/CSS, Bash
Web & Backend: React, Express.js, Django, Node.js, .NET, REST APIs, Docker, Git
Data & Cloud: PostgreSQL, Oracle, NoSQL (MongoDB, LMDB), Redis, AWS (EC2, S3, IAM), Databricks, Snowflake
Practices: Agile/Scrum, CI/CD (Azure DevOps), TDD/BDD, AI-Augmented Development, System Design

Education

Oregon State University Corvallis, OR

B.S. in Computer Science, AI Focus; Minor in Mathematics *Sept 2021 – June 2025*

- **GPA:** 3.94; Graduated *Summa Cum Laude*
- **Activities:** AI Club President, Triathlon Club Vice President, Treasurer, and Race Director

Projects

OpenResponse Sept 2024 – June 2025

Real-time student engagement and analytics platform *React, JavaScript, MySQL, Redis, Docker, AWS*

- Led a 5-developer Agile team building a scalable React/Express application on AWS, directing sprints and technical architecture while implementing accessibility via UX prototypes and automated testing for WCAG compliance.
- Architected a distributed backend system and deployed it to scalable, containerized AWS infrastructure supporting up to 10k+ concurrent users under load testing, and built CI/CD pipelines, strengthening release reliability.

AI-Powered Hybrid Search Engine Feb 2025 – Mar 2025

High-performance file search engine with hybrid document retrieval *Python, Redis, SQLite, FAISS, REST API*

- Engineered a hybrid search engine combining keyword and vector-based semantic retrieval using custom-trained embeddings and FAISS, achieving 0.06s latency and 10x faster results than Windows Search for 100k+ files.
- Designed a modular, event-driven AI indexing pipeline with a Redis worker queue, SQLite metadata store, and enabling incremental updates and near-real-time synchronization of file changes via semantic embeddings.