

David Spearman

Python and AI Application Engineer

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Python engineer with AWS and Azure application experience and a personal retrieval-augmented generation project. Builds APIs, event-driven services, and data integrations; troubleshoots production workflows and automates delivery.

Skills

Python and APIs: Python, FastAPI, Flask, REST, GraphQL, SQL, SQLAlchemy

AI project: Retrieval-augmented generation, local embeddings, FAISS, source-aware chunking, LLM integration

Cloud delivery: Azure Functions, Service Bus, AWS Lambda, Docker, Kubernetes, GitHub Actions

Experience

Insight Global | Client CVS Health

May 2026 - Present

Senior Software Engineer (contract)

- Implemented Python Azure Functions and Service Bus components for rebate forecasting, including change processing, rate-generation triggers, status integrations, and error-payload validation.
- Fixed data-join and API status-contract defects blocking forecasting; added runtime traces for QA to verify Service Bus handoffs.
- Diagnosed a 30-minute Azure Functions timeout with Application Insights and MySQL query plans; shipped per-client-version batching while retaining the original SQL.
- Migrated Azure Functions CI/CD from Jenkins to GitHub Actions, integrating automated tests, security scans, and development-to-production deployments; led team knowledge transfer.
- Parameterized a Databricks/Spark load job for multiple request types, skipping irrelevant notebooks and reusing forecasting infrastructure.

Invesco

Dec 2021 - May 2026

Advanced Software Engineer

- Replaced batch investment-data ETL with event-driven processing for 3,000+ portfolios using Python, AWS Lambda, Amazon MQ, and Snowflake.
- Built React/TypeScript monitoring interfaces and Python GraphQL APIs for investment-data pipeline status and troubleshooting.
- Built a Snowflake reporting pipeline integrating MSSQL, Excel, FactSet, and Charles River data; normalized returns by report currency and checked data gaps against global holiday calendars.
- Recovered stalled MSCI risk-data jobs by diagnosing AWS Batch and 10 EKS services, coordinating vendor thread resets, recovering queues, and resubmitting affected jobs.
- Provisioned AWS infrastructure with Terraform for Lambda, DynamoDB, DocumentDB, and ElastiCache.

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Personal Projects

BWA Market Intelligence Application

- Built a FastAPI retrieval service with local embeddings, FAISS, and source-aware document chunking; connected retrieved context and source metadata to LLM responses.
- Built Flask APIs and JavaScript/Jinja interfaces for authenticated dashboards, portfolios, and watchlists, with Firebase-backed Google sign-in, server-side token verification, and SQLAlchemy persistence.
- Configured CircleCI workflows for Docker builds and Kubernetes/K3s deployments; maintained regression tests for authentication, APIs, ingestion, and failure handling.

Hybrid Cloud Infrastructure Lab

- Built a cloud/on-premises k3s environment with WireGuard, firewall rules, TLS, and pull-based deployment to limit public exposure.

Additional Experience

Aaron's Inc

Jan 2021 - Dec 2021

Senior System Administrator

- Managed Bitbucket, Octopus Deploy, and TeamCity pipelines for Azure-hosted checkout software; investigated rollout failures and added rollback steps and integration tests.
- Automated compliance-artifact generation and PowerShell deployment hardening; added security checks and expanded release logging.

Mohawk Industries

Aug 2020 - Jan 2021

Software Developer

- Converted legacy COBOL business logic to Python APIs and event-driven Azure Functions for easier maintenance.
- Built Azure automation for inventory tracking and data validation, plus inventory-allocation test tools.

Earlier Experience

iD Coding and Engineering Academy | Lead and Remote Instructor | Jul 2016 - Jul 2019

- Taught Python and machine learning with TensorFlow/Keras; developed lessons and led instructors supporting 100+ students.

Certifications

AWS Certified Solutions Architect - Associate | 2023

AWS Certified Developer - Associate | 2023