

Stephen King

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PROFESSIONAL SUMMARY

Security Check (SC) Cleared Senior Python Developer and Software Engineer with 18+ years of expertise in automation, embedded systems, and scalable software design. Embraces AI-assisted development as a force multiplier, leveraging modern tooling to accelerate delivery. Proficient at modernising legacy systems, streamlining workflows, and building efficient, maintainable codebases. Equally effective as an independent problem-solver or collaborative team member, with a proactive, results-focused approach that consistently delivers measurable improvements in performance and reliability.

CORE TECHNICAL SKILLS

- **Python Development** - Architecting scalable, maintainable applications; clean, efficient, testable, and well-documented code.
- **AI & Machine Learning** – LLM integration (LangChain, LlamaIndex, OpenAI API); prompt engineering; RAG pipelines and vector databases; agentic workflows and Model Context Protocol (MCP); fine-tuning and transfer learning (PyTorch, Hugging Face Transformers).
- **DevOps & Cloud** - CI/CD pipeline design (GitHub Actions, GitLab CI, Jenkins); containerisation and deployment (Docker, Amazon ECR, Amazon ECS/Fargate); Infrastructure as Code (Terraform, Pulumi, AWS CDK); configuration management (Ansible); AWS automation and cloud scripting (boto3 SDK).
- **Data & Systems** - ETL and data processing (pandas, NumPy); relational databases (Oracle, PostgreSQL) and NoSQL (CouchDB, Elasticsearch, Redis); ORM frameworks (SQLAlchemy); microservice architecture.
- **Networking & System Administration** - Deep knowledge of network protocols and analytic tooling (Wireshark, tcpdump, IXIA, Spirent); Linux system administration; Bash scripting.
- **IoT & Embedded Systems** - Prototyping and deploying IoT solutions on single-board computers; Zephyr RTOS, FreeRTOS, and embedded Linux.
- **Test Automation** – pytest, Robot Framework, Behave, Playwright, Selenium; CI/CD integration for QA, networking, and DevOps workflows.

CAREER HISTORY

ToFollow | Senior Python Developer in AI | Oct. 2025 –

- Developed end-to-end Retrieval-Augmented Generation (RAG) and retrieval pipelines using LangChain and LlamaIndex, spanning multi-format document ingestion and normalisation, adaptive chunking strategies, embedding generation, vector indexing, and retrieval orchestration with LLM response synthesis.
- Assisted in engineering vector database solutions and semantic search systems using Qdrant and Pinecone, implementing hybrid retrieval combining dense vector similarity with sparse keyword search to improve retrieval precision across large-scale document corpora.
- Designed and deployed scalable, asynchronous REST APIs using FastAPI to expose RAG and LLM capabilities, supporting streaming responses, concurrent multi-user workloads, and clean separation between retrieval and generation layers.
- Applied Hugging Face Transformers and sentence-transformers to evaluate and deploy domain-appropriate embedding models and cross-encoder rerankers, improving contextual relevance and retrieval quality across heterogeneous data sources.
- Implemented end-to-end CI/CD pipelines using GitHub Actions to test, build, and containerise applications with Docker, push images to Amazon ECR, and deploy using ECS to custom EC2 instances.
- Built interactive Streamlit frontends to surface RAG pipeline capabilities, enabling real-time document upload, query input with streaming LLM response rendering, retrieval transparency (source citation and chunk inspection), and configurable pipeline parameters.

Met Office | Senior Scientific Software Engineer | Dec. 2024 – Jul. 2025

- Contributed to the next-generation Forecasting system, replacing the legacy Fortran-based MORST model with a modern Python and Cylc-based post-processing pipeline centred around JULES (Joint UK Land

- Migrated three legacy Fortran datafeeds to Python, improving maintainability and aligning with the Met Office's strategy to separate post-processing from core modelling infrastructure.
- Developed Directed Acyclic/Cyclic Graph (DAG/DCG) workflows using the Cylc workflow scheduling engine, streamlining the extraction and processing of meteorological data from MOGREPS-UK, UKV, and Global weather models.
- Processed and analysed high-resolution, multidimensional meteorological datasets in NetCDF format using Jupyter notebooks and Python libraries including xarray, NumPy, pandas, and SciPy, with Matplotlib and Seaborn for visualisation.
- Managed Python environments with Conda/Mamba and integrated JFrog Artifactory for secure, versioned package distribution across the team.
- Implemented CI/CD pipelines using GitHub Actions to automate testing and deployment of the post-processing pipeline.

Freelance | Python Developer | *Sep. 2023 – Nov. 2024*

- Provided direct independent software development services to several clients, with recent focus on start-up IoT projects, medical diagnostic devices and robotic SDKs.
- Implemented a CI/CD pipeline using GitHub Actions to build, test, and package Python applications, publishing artefacts to Amazon S3 and orchestrating deployment to EC2 instances via Ansible, delivering a fully automated, repeatable release process.
- Operated within a GitOps workflow, leveraging ArgoCD as the continuous delivery tool for declarative, Git-driven application deployment.
- Engineered an end-to-end medical imaging solution using OpenCV, PyTorch, Hugging Face transfer learning, and YOLOv8 object detection to automate bacterial colony identification and antibiotic efficacy scoring, supporting faster and more accurate clinical diagnostics.

AMD | Senior Python Developer | *Jan. 2020 - Jul. 2023*

- Led a team to design and implement a fully automated CI testing framework, exposing results and controls via a FastAPI service hosted on AWS with MongoDB as the data store. Leveraged AWS Lambda functions and boto3 for pipeline orchestration and event-driven automation.
- Automated network infrastructure provisioning and configuration across the test estate using Python network automation libraries (nornir, netmiko, napalm, fabric), Ansible playbooks for configuration management, and Pulumi for Infrastructure as Code.
- Worked with both NoSQL and relational data sources where appropriate, including use of PostgreSQL and SQLAlchemy for service integration.
- Developed comprehensive functional and load tests for web interfaces using Playwright and Locust Python scripts.
- Diagnosed inefficiencies and gaps in existing ecosystems and recommended/implemented remediation through process improvement, automation and tooling.
- Engaged in agile ceremonies including planning, retrospectives, backlog refinement, demonstrations and daily stand-ups.
- Conducted code reviews, provided technical guidance, and mentored junior developers to improve code quality and development practices.

Career Break | *Jan. 2019 – Nov. 2019*

This period was taken to renovate the house and relocate

Qualcomm | Automation Engineer | *Aug. 2016 – Dec. 2018*

- Maintained and extended the Python automation framework, resolving bugs and engineering new features aligned with CI/CD principles.
- Led the migration of the Python 2 codebase to Python 3, developing and implementing the conversion strategy end-to-end.
- Built PyQt5 desktop tools and utilities to support testing and debugging workflows.
- Achieved 100% unit test coverage using pytest.
- Extended automation tooling for Software Configuration Management, release, and code control in a complex engineering environment.
- Managed source code across a distributed Git/Gerrit infrastructure.
- Mentored colleagues in Python development and delivered training for new framework users.
- Streamlined the toolchain by integrating disparate tools, improving team velocity and consistency.

Cisco | Python Developer in Test | *Jul. 2011 – Aug. 2016*

- Built and maintained automated test suites in Python and Selenium to validate software functionality across multiple platforms and environments.

- Designed scalable, maintainable test infrastructure and frameworks integrated into the full development lifecycle.
- Integrated automated tests into CI/CD pipelines using Jenkins, supporting continuous and reliable software delivery.
- Automated deployment and environment consistency using Ansible playbooks and Puppet manifests.
- Performed system integration testing of microservice architectures using CouchDB, Memcached, ActiveMQ, Redis, and Squid.
- Managed virtualised test environments with VMware, VirtualBox, and KVM; adopted Docker for consistent development environments.
- Conducted performance and load testing with JMeter to validate scalability and efficiency.
- Monitored and analysed system metrics using the ELK stack, Grafana, Graphite, and Prometheus.
- Diagnosed complex network issues using Wireshark, tcpdump, and nmap.
- Participated in code reviews, advocated for testing best practices, and tracked issues in Jira.

Solarflare Communications | Python Developer in Test | Mar. 2010 – Jun. 2011

- Built an automated test framework in Python combining open source and commercial tools to validate the performance and protocol functionality of 10Gb network devices.
- Ran comparative performance tests against competitor products, visualising results with Matplotlib to support product positioning decisions.
- Developed test specifications based on IETF RFC and IEEE standards, automating protocol verification using IXIA packet generators.
- Built and maintained reporting dashboards using Django.
- Collaborated with cross-functional product teams to define test strategies, plans, and processes.

ADDITIONAL EXPERIENCE

- Citrix - QA Team Leader
- BT - Network Support Analyst - 3rd line support of ISP Network infrastructure.
- 3Com - QA Analyst - Network protocol verification in switches and routers.
- Nokia – QA Analyst

SECURITY CLEARANCE

- SC (Security Check): Current.
- BPSS (Baseline Personnel Security Standard): Current
- DBS (Disclosure and Barring check): Current

EDUCATION

- MSc. Biochemistry, University of Reading.
- BSc. Biochemistry with Chemistry, University of Reading.
- 'A' Levels: Physics, Chemistry, Pure Mathematics and Biology.

PROFESSIONAL CERTIFICATIONS

- Cisco: CCNA, CCNP, CCDA, CCDP (obtained ~2008–2010, not actively renewed)
- Citrix: CCA, CCEA (obtained ~2006–2008, not actively renewed)