

AHMED ELSABBAN

Senior SDET | Agentic AI & LLM Test Automation Engineer

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PROFILE

Senior SDET and QA lead with 8+ years testing UI, API, microservices, cloud, and data pipelines across regulated financial services and utilities. Builds LLM-powered agentic systems for test automation and QA reporting through Tech Horizon, an independent AI venture. Advancing applied AI engineering through the SuperDataScience AI Engineering program — RAG pipelines, embeddings and vector databases, MCP servers, agent tool calling, multi-agent orchestration, guardrails, and LLM evaluation and tracing. Designs reusable Playwright, Cypress, Selenium, and REST Assured frameworks, with hands-on Karate, GitHub Copilot, and GitHub Actions work at Duke Energy. Strong in requirements and acceptance-criteria analysis, BDD specifications, coverage standards, and CI/CD quality gates, and experienced leading cross-team system integration testing toward reliable releases.

TECHNICAL SKILLS

- **Agentic AI / LLMs:** AI agents (tool calling, multi-step workflows, orchestration), RAG, embeddings and vector databases, MCP servers, prompt engineering, structured JSON outputs, guardrails, LLM evaluation (evals, LLM-as-judge), tracing, AI-assisted QA reporting
- **Languages / Development:** Python, Java, TypeScript/JavaScript, Node.js, SQL, Shell, Next.js, Firebase
- **AI Frameworks & Tools:** LangChain, OpenAI APIs and embeddings, Chroma, LangSmith, Gradio, Model Context Protocol; retrieval, agent tools and memory, LLM security, evaluation, deployment
- **Test Automation:** Playwright (UI, selector strategy, parallel runs, traces and video), Karate (API, data-driven), Cypress, Selenium WebDriver, REST Assured, Postman, Pytest, JMeter; Page Object Model, data-driven design, BDD/Gherkin, Cucumber, Behave, Mocha, TestNG
- **GitHub Platform / CI-CD:** GitHub Copilot, GitHub Actions workflows, Git/GitHub and PR-based review, Jenkins, Azure DevOps, Kubernetes; automated quality gates
- **Data / Backend Quality:** ETL and big-data validation (Databricks, PySpark, Hive), Kafka, PostgreSQL, Oracle, MongoDB; microservices and integration testing; AWS (EC2, S3, Lambda, CloudWatch)
- **Test Strategy / Reporting:** Requirements and acceptance-criteria analysis, risk-based coverage and traceability, reusable test standards and templates, test planning, SIT, Agile/SAFe, PI Planning, qTest, Jira, Kibana, Splunk, Cucumber Reports

PROFESSIONAL EXPERIENCE

Founder & Agentic AI Developer

Jan 2025 - Present

Tech Horizon (Independent AI Venture, Part-Time) | Chantilly, VA

- Build LLM-powered test automation agents and Python/TypeScript workflows that connect business rules to backend services and assist test creation and maintenance.
- Developing an MCP server that exposes Playwright test results to an LLM for automated failure triage and root-cause suggestions.
- Created an AI-agent QA reporting system that prepares daily engineering reports and tracks defects.
- Apply prompt design, retrieval, and structured JSON outputs to keep agent responses consistent and machine-readable for downstream automation.
- Develop guardrails, run LLM evaluations, and inspect traces to assess agent behavior and diagnose workflow failures.
- Apply LangChain, OpenAI APIs and embeddings, Chroma vector store, LangSmith tracing, and agent tools and memory to hands-on agent and retrieval projects.
- Use AI-assisted coding tools to develop and debug Playwright and Selenium WebDriver/Java test automation.
- Build full-stack applications with Next.js, TypeScript, Python, and Firebase; add unit, integration, end-to-end, and SQL data-validation tests.

Automation Engineer | Senior SDET

Aug 2025 - Jun 2026

Duke Energy | Charlotte, NC

- Used GitHub Copilot and internal AI tools for requirements review, test-case drafting, and automation development; contributed to GitHub Actions workflows.
- Contributed to Karate API test automation for service-level validation alongside the UI and end-to-end suites.

- Owned SIT automation with Playwright, Cypress, TypeScript, Selenium WebDriver, Java, and SQL across UI, API, backend, and cross-system flows.
- Built reusable Page Object Model components and maintained automation frameworks as application flows changed.
- Translated business requirements, user stories, and acceptance criteria into functional, integration, and automated coverage, reviewing stories for testability and missing detail before execution.
- Maintained Business Validation Testing suites and qTest dashboards for execution results, defects, and release status.
- Led testers and established common SIT, automation, and test-design practices across Agile delivery cycles.
- Coordinated SIT scope, dependencies, risks, and test readiness through SAFe PI Planning, partnering with development and business teams to surface integration risks before release.

QA Team Lead | Senior SDET

Mar 2022 - Dec 2024

FINRA | Rockville, MD

- Led QA for the CAT, CAIS, and CAT DD projects, covering frontend, backend, API, and data validation in a regulated financial environment.
- Created reusable Cypress and Playwright frameworks in Node.js and introduced coding standards alongside the Selenium/Java framework.
- Maintained UI, API, and data automation with Selenium/Java, Cypress, Playwright, TypeScript, REST Assured, and SQL; gained exposure to Karate for API testing.
- Tested integration and regression flows for AWS-hosted microservices across EC2, S3, Lambda, and CloudWatch, including APIs, data movement, and end-to-end system connections.
- Wrote SQL queries against PostgreSQL and Oracle and validated MongoDB data, API responses, ETL output, and microservice data flows.
- Tested ETL and big-data pipelines with Hive, Databricks, PostgreSQL, Python, and SQL, checking transformations, completeness, and accuracy.
- Ran automated suites through Jenkins CI/CD pipelines using Mocha with Cypress, applied CI/CD quality gates for regression and release testing, and performed API and security testing.
- Coordinated cross-team testing and used Kibana and Splunk to report test results and issues across services.

Senior SDET

Oct 2019 - Mar 2022

S&P Global | Richmond, VA

- Wrote Python/Pytest automation in the Cafe framework for complex application workflows.
- Tested integration, API, regression, and data flows across AWS-hosted microservices and distributed applications.
- Used Postman for API testing and Behave BDD for business-readable scenarios.
- Verified Kafka message processing for applications deployed on Kubernetes; built and tested PySpark jobs, checking data transformations and dataset integrity.
- Ran JMeter tests for load, performance, and high-volume system behavior.
- Used AWS S3 and Azure DevOps for test execution, monitoring, and release support; supported UAT and knowledge transfer.

SDET

Jan 2019 - Dec 2019

FINRA | Rockville, MD

- Built and maintained data-driven and BDD frameworks with Java and Selenium WebDriver.
- Automated API tests with REST Assured and validated response data and system behavior.
- Wrote complex SQL joins to verify data integrity and migrated records; ran regression and smoke suites in Jenkins.
- Ran an Angular automation pilot with Protractor and performed load testing, working with developers on defects and bottlenecks.

CERTIFICATIONS & EDUCATION

Certifications: AWS CDA; Data Science; Database Management

Professional Development: SuperDataScience AI Engineering program — ongoing

Bachelor of Agricultural Production Engineering — Alexandria University

Master of Science in Environment Management — Senghor University

Postgraduate Diploma in English Translation — Alexandria University