

Pasindu Kalana Maduranga

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PROFESSIONAL SUMMARY

Senior AI Engineer with 4+ years of experience building production-grade agentic AI systems, specializing in AI-driven test automation and multi-tenant LLM governance infrastructure. Expert in designing multi-agent architectures using LangGraph and Google's Agent Development Kit (ADK), and in architecting cost-governed, multi-provider LLM platforms on LiteLLM proxy, delivering up to 60% efficiency improvements across testing and debugging workflows. Currently serving as Acting Tech Lead and Consultant on Agentic AI initiatives, leading a squad of engineers and mentoring 15+ developers while translating complex AI architectures into measurable business value. Expanding expertise into AI security and penetration testing to build secure, self-healing intelligent systems.

TECHNICAL SKILLS

Agentic AI & LLMs: LangGraph, Google Agent Development Kit (ADK), CrewAI, Agent-to-Agent (A2A) Protocol, Retrieval-Augmented Generation (RAG), GraphRAG, Multi-Agent Systems, Local LLM Fine-tuning

LLM Infrastructure & Governance: LiteLLM Proxy, Bring Your Own Key (BYOK) Credential Management, Multi-Provider Routing (OpenAI, Anthropic, Google Gemini/Vertex, AWS Bedrock, Azure OpenAI, Groq), Budget & Guardrail Enforcement, Vendor-Abstraction Layers

Observability & Tracing: Arize Phoenix, Tenant-Based Agentic Tracing, LLM Evaluation, Span Instrumentation, OpenTelemetry

Backend & APIs: Java (Spring Boot), Python (Advanced), Microservices Architecture, REST APIs, Kafka

Testing & Automation: Selenium, JUnit, Test Orchestration, Synthetic Data Generation

CI/CD & Cloud: AWS (EC2, Lambda, S3), Docker, Kubernetes, Jenkins, Continuous Integration/Continuous Deployment (CI/CD) Pipelines, Harness CI/CD Migration, Linux

Databases: Neo4j (Graph DBs), PostgreSQL, MongoDB, Vector Databases (Pinecone, Weaviate)

Security: Metasploit, Penetration Testing, Nmap, Network Security, DevSecOps (Learning)

PROFESSIONAL EXPERIENCE

Software Engineer (Acting Senior AI Engineer / Tech Lead)

Jan 2023 – Present

Virtusa Pvt Ltd, Colombo, Sri Lanka

- Acting as Tech Lead and Consultant on Agentic AI Test Automation initiatives — managing a squad of 10+ engineers, mentoring 15+ developers, conducting technical interviews for onboarding, and securing executive approval for initiatives through architectural blueprints, risk analyses, and return on investment (ROI) projections.
- Architected an autonomous multi-agent test generation pipeline — agents parse technical documentation, map application state transitions in Neo4j knowledge graphs, and generate test scenarios with synthetic data — reducing test planning cycles by 60% and achieving 90% edge-case coverage.
- Architected a multi-tenant LLM cost-governance and Bring Your Own Key (BYOK) platform on LiteLLM proxy: mapped a tenant → project → user hierarchy to LiteLLM teams/users with per-project virtual keys and AES-256 encrypted credential storage across OpenAI, Anthropic, Google Gemini/Vertex, AWS Bedrock, Azure OpenAI, and Groq; added prompt guardrails and budget enforcement at the gateway, and consolidated multi-provider routing into a single vendor-abstraction layer.
- Contributed to an Agent-to-Agent (A2A) protocol-based agent platform — gateway, agent registry, and multiple orchestrators for test-case, test-design, and test-script generation — with authenticated, tenant-scoped routing and live reachability checks.
- Designed and implemented a full-stack observability platform on Arize Phoenix with custom span instrumentation, tenant-scoped trace isolation, and a token-spend dashboard, enabling per-client LLM performance analysis and hallucination detection; improved agent debugging efficiency by 55% and cut mean time to diagnose LLM regressions by 40%.

- Built a suite of LLM-powered test-asset generators: an autonomous browser agent producing Selenium scripts with dynamic locators (70% faster script development), a computer-vision/DOM-based self-healing agent for broken XPath selectors (85% better test stability), and an API test-suite generator from Swagger/OpenAPI specs (setup time cut from weeks to hours).
- Built three GenAI failure-analysis tools: an ML+LLM hybrid classifier for test failures (65% faster root-cause analysis), a Google Agent Development Kit (ADK)-based triage system separating genuine bugs from environmental flakes (80% less investigation time, 45% better mean time to resolution), and a Neo4j-backed GraphRAG debugging assistant (50% faster fixes across 20+ teams).
- Created a context-aware synthetic test-data generator based on schema analysis and business rules, producing 10M+ records across 50+ projects while ensuring compliance with the General Data Protection Regulation (GDPR).
- Built an LLM-assisted CI/CD pipeline migration tool converting Jenkins, Azure DevOps, GitHub Actions, and GitLab pipelines into Harness YAML, with secret masking before LLM calls and automated validation/retry.
- Fine-tuned and deployed local LLMs on internal domain data to power secure, offline coding assistants, maintaining 92% accuracy while eliminating external API dependencies for sensitive code generation.

Software Engineer (Backend & Quality Engineering)

Dec 2021 – Dec 2022

Virtusa Pvt Ltd, Colombo, Sri Lanka

- Ensured 99.9% uptime for critical payment-processing microservices by implementing real-time Kafka monitoring and automated Python alerting pipelines, reducing incident response time from 45 minutes to under 5 minutes.
- Systematically refactored and expanded a 500+ test suite for a core monolithic application, establishing quality patterns that later enabled AI-driven test generation and preventing a costly \$500K+ system rewrite.
- Built custom Retrieval-Augmented Generation tools to automate routine code generation from internal documentation, boosting team productivity by 35% and saving 10 hours per developer weekly.
- Reduced AWS infrastructure costs by 15% by implementing intelligent query routing that directs simple requests to smaller, cost-effective models while reserving premium LLMs for complex tasks.
- Accelerated cross-functional data workflows by 40% by building Python and Groovy automation scripts that eliminated manual data-extraction bottlenecks.

EDUCATION

BSc (Hons) in Software Engineering — First Class Honours

2021 – 2022

Java Institute for Advanced Technology (Birmingham City University)

Professional Certificate in Java Technology

Awarded Dec 2023

Scottish Qualification Authority

Professional Higher Diploma in Software Engineering

2018 – 2019

Scottish Qualification Authority

Professional Diploma in Software Engineering

2017 – 2018

Scottish Qualification Authority

CERTIFICATIONS

- Certificate Programme on Cyber Security and Digital Forensics — SLIIT
- Oracle Certified Associate, Java SE 8 Programmer (Dec 2022)
- Professional Certificate in Java Technology (PCJT) — JIAT (Dec 2023)

TECHNICAL PROJECTS

- **Hierarchical Research Crew (CrewAI)** — Built a hierarchical multi-agent system to automate competitive market research with custom web-scraping tools. Stack: Python, CrewAI, SerperDev, LLMs.

- **Security Exploit Analysis Lab (Metasploit)** — Conducted penetration testing simulations to understand vulnerability exploitation and patch management. Stack: Metasploit, Network Security, Penetration Testing.

AWARDS & ACHIEVEMENTS

- Innovator Award – Winner, Virtusa Delivery and Service Excellence Awards FY26 H2.
- Delivery Enabler Team Award – Merit, Virtusa Delivery and Service Excellence Awards FY26 H2.
- Delivery Enabler Team Award – Winner, Virtusa Delivery and Service Excellence Awards FY26 H1.
- 1st Place — SRE Hackathon, Virtusa Pvt Ltd (2021) — Awarded for excellence in Site Reliability Engineering.
- Conference Speaker — Presented “Building Self-Healing Systems with Agentic AI” at internal tech summit (2024).
- Technical Mentorship — Mentored 15+ junior developers on Agentic AI patterns, LangGraph, and RAG implementation.

REFERENCES

Piruntha Parasuram — Sri Lanka

Associate Tech Lead at Peercore (Pvt) Ltd

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Sahan Sudaraka Wijerathne — Sri Lanka

Senior Consultant – QA Automation at Virtusa (Pvt) Ltd

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