BISWAJIT SATAPATHY

QA Lead | Automation Engineer | AI-Driven Testing Specialist

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PROFESSIONAL SUMMARY

QA Lead and Automation Engineer with **7+ years of experience** building test automation frameworks from scratch for desktop, mobile, and web platforms. Currently leading a **15-member QA team** at VyaparApp (India's leading SMB accounting software, **15M+ users**). Architected an **AI-native, intent-based Playwright framework** integrating **Gemini** and **Claude API**, cutting test case creation time from 4–5 hours to 30 minutes. Experienced in **Agile/Scrum** delivery, SDLC/STLC, and driving quality across multi-platform products. Actively seeking remote/Hybrid QA Lead or Senior Automation Engineer opportunities.

CORE COMPETENCIES

AI & LLM Integration: Claude API, Gemini API, Prompt Engineering, Agentic AI, RAG, LLM-driven Test Generation, Ollama

Test Frameworks: Playwright (TypeScript), Selenium, Appium, Cucumber (BDD), TestNG, REST Assured

Languages: Java (primary), TypeScript, JavaScript, Python, SQL, HTML/CSS

CI/CD & Cloud: Jenkins Pipelines, GitLab CI, AWS (EC2, Spot, S3, IAM, Secrets Manager, AMI)

QA Practices: Test Strategy, Framework Architecture, Shift-Left Testing, Agile/Scrum, SDLC/STLC, Exploratory Testing, DB Verification

Leadership: Team Mentoring (15 QA Engineers), Code Reviews, Release Management, Stakeholder Communication, QA Hiring

Tools & Infra: Git, Jira, Confluence, Postman, MongoDB

AI/ML QA Tools: Self-healing Selectors, AI-powered Test Generation, Schema Builders, Visual AI Testing

PROFESSIONAL EXPERIENCE

VyaparApp (Vyapar — Accounting & Invoicing App) | Product-Based Startup

India's leading small business software for billing, inventory & accounting | 15M+ SMEs | ~100 engineers

QA Lead | July 2024 – Present

- Lead a team of **15 QA engineers** delivering quality across desktop (Windows/Mac), mobile (Android/**iOS**), and web platforms for 2–3 releases per month.
- Lead, mentor, and coach QA engineers in best testing practices, **Agile/Scrum** workflows, and continuous improvement.
- Serve as **release stakeholder**, coordinating with development, product, and support teams to ensure release readiness and quality standards.
- **Architected and built an AI-native, intent-based Playwright framework** (TypeScript) for Vyapar's Electron desktop app — the first AI-driven automation framework in the organization. Reduced test case creation time from **4–5 hours to 30 minutes** per test flow.
- Built **Multi-Phase AI Agent-Based Execution** where Claude writes raw Playwright JavaScript at runtime with zero predefined actions — handles scrolling, dropdowns, overlays, coordinate clicking, and any UI scenario autonomously. **Self-heals YAML** test files by rewriting flaky steps.
- Participate in **requirements reviews** and design discussions to ensure testability from the start (**Shift-Left**).
- Conducted and managed end-to-end **QA hiring drives**, evaluating technical candidates and growing the QA team.

Senior Quality Engineer | Sep 2022 – Jun 2024

- Built and maintained the **desktop automation framework** (Java + Selenium + WinAppDriver + Cucumber BDD) with **1,600+ test scenarios** covering Vyapar's Windows Electron application.
- Implemented **AWS Spot-based cloud execution pipeline** via Jenkins, reducing desktop regression runtime from **80+ hours to 4 hours** via parallel execution across Spot instances — delivering significant infrastructure cost savings.
- Led the **mobile automation framework** (Java + Appium + Cucumber BDD) for Vyapar Android app with **1,000+ scenarios** running on 3–4 real devices across multiple OS versions.
- Improved mobile test pass rate from **60% to 90–93%** by systematically fixing broken locators, stabilizing flaky tests, and enforcing pre-release regression runs.

- Improved desktop test pass rate from **30% to 60%** overall, with critical modules achieving **95%+ pass rates**. Identified and resolved hundreds of broken element locators.
- Enhanced test reporting (Extent Reports) with screenshots and step-level logging for faster failure investigation.
- Integrated automation into the **CI/CD pipeline**, enabling automated regression gates before every production release.

Quality Engineer 2 | Jan 2022 – Aug 2022

- Collaborated with third-party integration partners to validate feature integrations, test data workflows, and end-to-end data integrity.
- Executed **REST API testing** using REST Assured, Java, and Postman across multiple integrated modules.
- Contributed to SDLC/STLC documentation including test plans, test cases, and defect reports in Jira and Confluence.

Quality Engineer | Nov 2018 – Dec 2021

- Executed manual testing across Vyapar's desktop and Android platforms including **functional, regression, exploratory, and smoke testing** for 2–3 releases monthly.
- Documented test plans, test cases, and defect reports in **Jira** and **Confluence**; participated in sprint ceremonies and Agile release cycles.

KEY PROJECTS

1. AI-Native Playwright Framework for Desktop Automation

Tech: TypeScript, Playwright, Claude API (Anthropic), Gemini 2.5 Flash (Google), SQLite, FFmpeg, Node.js

- Built an end-to-end AI-powered test automation framework for an Electron desktop application where plain English **YAML** test cases are executed by Playwright with AI-driven element location.
- Four-phase engine: selector cache → direct Playwright → **Claude AI** (10 locator strategies from screenshot + DOM) → **AI Agent Mode** (Claude writes unconstrained Playwright code at runtime).
- Intent-based test generation: Gemini processes screen recordings, DB **CSV** schema, Figma screenshots, and PRD edge cases + one-line intent → structured JSON + step-by-step YAML, reducing manual test writing by **~90%**.
- **Self-healing YAML:** when AI Agent Mode solves a step, it rewrites the test file so future runs use Phase 0/1 directly — zero AI cost. Framework gets cheaper with every successful run.
- AI-powered corrections loop: Gemini analyzes QA edits with 1-to-many mapping, feeding top 50 corrections back to generation prompts for continuous accuracy improvement.

2. AWS Spot + Jenkins Parallel Cloud Execution Pipeline

Tech: AWS (EC2, Spot, AMI, S3, IAM, VPC, SG), Jenkins Pipeline, Java, Selenium, WinAppDriver, Cucumber

- Designed and implemented a Jenkins pipeline that launches Windows EC2 Spot instances from a pre-configured AMI, fetches the Vyapar installer from S3, runs **1,600+ Cucumber scenarios** in parallel, and tears down infrastructure after completion.
- Reduced desktop regression from **80+ hours to 4 hours** with significant cloud cost savings via Spot pricing.
- Automated artifact publishing (JUnit/HTML reports) to Slack for immediate team visibility.

3. Hackathon 2025 — Vyapar Knowledge Center (RAG Assistant)

Tech: Ollama (local LLM), ChromaDB, SentenceTransformers, Streamlit, Python, PyAutoGUI

- Built an on-premises, privacy-preserving knowledge assistant for contextual Q&A and guided desktop demos using RAG architecture (SentenceTransformers + ChromaDB + Ollama LLM).
- Integrated PyAutoGUI for live desktop demonstration capability triggered by natural language queries.

4. Release Sanity Automation Tool

Tech: Python, PyWinAuto, OpenCV, Selenium, NSIS

- Built an internal Python tool for automated post-release sanity and version checks, eliminating repetitive manual validation steps in the release process.

IMPACT & METRICS

- **Team efficiency:** Standardized QA onboarding, reducing new hire ramp-up time by 40%.
- **Desktop regression time:** 80+ hours → 4 hours (AWS Spot parallel cloud execution)
- **Test case creation time:** 4–5 hours → 30 minutes (AI intent-based pipeline)
- **Automated test suite:** 2,600+ scenarios (Desktop: 1,600 | Mobile: 1,000)

- **Mobile test pass rate:** 60% → 90–93%
- **Desktop test pass rate:** 30% → 60% overall; 95%+ for critical modules
- **Manual test writing:** Reduced by ~90% via AI intent pipeline
- **AI framework efficiency:** ~85% Phase 0 cache hit rate — AI cost near-zero on repeat runs

EDUCATION & CERTIFICATIONS

B.Tech, Mechanical Engineering | GIET, Gunupur, Odisha | 2009 – 2013 | 7.3 CGPA

Career Transition (2013 – 2015): Worked as a production line engineer in an auto ancillary company, Lokesh Machines Ltd, in Medchal, Hyderabad

Career Transition (2015 – 2017): Intensive full-time study focusing on advanced mathematics, analytical reasoning, and logic (preparing for competitive exams).

Career Transition (2017 – 2018): Transitioned from Mechanical Engineering to IT; completed self-directed training in software testing, test automation frameworks, and programming fundamentals.

Certification: JMeter — Performance and Load Testing

ADDITIONAL

- **Work Preference:** Remote | Hybrid – Bengaluru, India | Available for EST/PST overlap hours (IST time zone)
- **Portfolio:** Built a full-stack client website — pcplodisha.co.in (Firebase Hosting, AI-generated content, Cursor IDE, Google Maps integration)
- **Interests:** AI/ML in QA, Prompt Engineering, Security Testing (OWASP), Open-source Contribution, Mentoring Junior Engineers, staying current with emerging QA tools and frameworks.