MADESHWARAN

Test Automation Architect

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PROFESSIONAL SUMMARY

Test Automation Architect with 18+ years in software quality engineering, including over a decade defining and delivering enterprise-wide automation strategy. Founded and led an Automation Testing Centre of Excellence (ATCOE), establishing frameworks, tooling standards, and best practices adopted across independent product teams — cutting manual testing effort by up to 70% and shortening release cycles by weeks per project. Designed a self-healing automation framework to reduce test maintenance overhead, and a SwaggerHub-based mock testing framework enabling API validation ahead of backend development. Deep hands-on expertise architecting scalable automation across UI, API, and mobile (Selenium/TestNG, Playwright, Cypress, Appium, RestAssured), embedding automated testing into CI/CD pipelines (Jenkins, GitLab CI, Azure DevOps, GitHub Actions), and validating containerized, cloud-based test environments (Docker, Kubernetes, AWS).

CORE SKILLS

- **Automation Strategy & Framework Design:** Enterprise automation strategy, scalable/modular framework architecture (UI, API, Mobile), tool evaluation & selection, test pyramid, risk-based & shift-left testing
- **AI-Assisted Test Resilience:** Designed a self-healing automation framework ("Auto-bdd-selfheal-Architect") to reduce test maintenance overhead and improve execution stability
- **Automation Tooling:** Selenium (with TestNG for execution & reporting), Playwright, Appium, Cypress, RestAssured, Cucumber
- **API & Contract Testing:** REST, SOAP, SwaggerHub-based mock/contract testing, gRPC/contract testing
- **CI/CD Integration:** Jenkins, GitHub Actions, Azure DevOps, GitLab CI
- **Cloud & Containerization:** Docker, Kubernetes, AWS (IAM, EC2, Lambda)
- **Quality Governance & Mentorship:** Coding standards, quality gates, SDET/QA coaching, Communities of Practice
- **Databases:** SQL, Oracle 11g, MongoDB
- **Certifications:** Lead Auditor (ISO 9001:2000), Lean Six Sigma

WORK EXPERIENCE

Sr. Technical Architect (Test Automation) — May 2014 – Present

Redgrape Business Services — Chennai, India

- Define and own the end-to-end automation strategy across multiple concurrent programmes — selecting frameworks and tooling, setting scope, and prioritizing automation investment against risk and business value
- Founded and lead the Automation Testing Centre of Excellence (ATCOE), establishing shared tooling standards and reusable automation patterns adopted across independent product teams; drove a 70% reduction in manual testing hours
- Designed and built a self-healing test automation framework ("Auto-bdd-selfheal-Architect") to reduce flaky-test maintenance and automatically recover from common locator/UI-change failures during test execution
- Architect scalable, modular automation frameworks spanning UI, API, and mobile testing (Selenium, Playwright, Cypress, Appium, RestAssured), cutting manual testing effort by 50% and accelerating release cycles by up to three weeks per project
- Built a SwaggerHub-based mock testing framework enabling REST and SOAP API test coverage before backend development was complete, shifting API validation earlier in the delivery cycle
- Led a Digital Transformation initiative achieving 95% API test coverage and a 30% improvement in AWS cloud test efficiency, including containerized test execution (Docker, Kubernetes)
- Architected CI/CD pipeline integration (Jenkins, GitLab CI, plus Azure DevOps and GitHub Actions), reducing release cycles by 40% and increasing deployment frequency by 30%
- Designed service-virtualization and contract/mock-based testing solutions (SOAP UI, gRPC/contract testing) for global operations, delivering ~$2M in annual cost savings and a 30% reduction in release cycle time
- Provide technical mentorship and coaching to automation testers and SDETs on framework design, coding standards, and automation best practices as part of ATCOE leadership

Tech Lead
Apr 2008 – May 2014

Trane/Ingersoll Rand — Chennai, India/USA

- Embedded Software Testing - Validation of HVAC controller firmware, hardware–software integration, system behaviour and product enhancements.
- Development and maintenance of automated tests, reusable test data, regression suites and defect-validation workflows for embedded applications.
- Embedded Test Automation - Testing embedded controllers in simulated and real hardware environments, including communication, functional, integration and performance validation.
- Hands-on validation of BACnet and LonTalk/LonWorks communication across UC200, UC400, UC800 and Tracer HVAC control systems.
- Embedded Systems Verification and Validation - Test strategy, environment management, defect investigation, requirements-based validation, test estimation and quality-process improvement using Lean Six Sigma principles.

Sr. Software Engineer
Aug 2006 – Apr 2008

Intellisys — Chennai, India

- Authored software testing best practices and detailed test strategies and plans, improving product accuracy and reliability

EDUCATION

Master's in Computer Applications — University of Madras, India (2004)

Bachelor's in Mathematics — University of Madras, India (2001)