

SWAPNIL SURDI

San Jose, CA 95134

(213) 294-8993 | swapnil.surdi@icloud.com | LinkedIn.com/in/surdi | Github.com/swapnilsurdi | surdi.in

Professional Summary

Senior Software Engineer with 8+ years of experience building scalable backend systems, distributed services, and cloud infrastructure. Skilled in designing robust APIs, optimizing microservices, and driving cloud-native deployments with proven technical leadership in mentoring engineers and architectural decision-making. Strong background in distributed systems, microservices architecture, AI-driven applications (MCP), with formal QA specialist training and proven track record in test automation frameworks and performance optimization. Experience spans both development and quality assurance, ensuring system reliability through comprehensive testing strategies.

Technical Skills

- **Languages:** Python, Go, JavaScript, TypeScript, Java, Swift (learning)
- **Frameworks / Message Queues:** Django, React, Spring Boot, Node.js, FastAPI, Kafka, RabbitMQ, SQS
- **Architecture & APIs:** Microservices, RESTful APIs, Event-Driven Systems, GraphQL
- **Cloud/DevOps:** AWS, Docker, Kubernetes, Bitrise, CI/CD (GitHub Actions), Unix/Linux/macOS
- **AI/ML:** Model Context Protocol (MCP) Server Development, AI Tool Integration, LLM Applications
- **Testing & Quality Assurance:** QA Methodologies (Accenture certified), Test Automation Frameworks, White-box Testing, Selenium, Maestro
- **Databases:** PostgreSQL, MongoDB, Redis, MySQL, DynamoDB, SQLite
- **Compliance & Standards:** ISO 13485, IEC 62304, HIPAA, GDPR, ISO 27001, 21 CFR Part 11, SDLC
- **Monitoring:** Observability, Logging, Performance Optimization, System Profiling

Professional Experience

Treatment Technologies & Insights

Sep 2021 - Jul 2025

Senior Software Engineer

Remote

- Architected enterprise AI/MCP ecosystem: Built ISO 13485-compliant Quality Management MCP and HIPAA-compliant Healthcare Data MCP, integrating Slack, GitHub, Jira, and Confluence for regulatory compliance, automated workflows, and AI-powered health insights - reducing onboarding time by 75% and establishing in-house eQMS with automated validation
- Designed scalable microservices architecture handling 100K+ daily API requests, implementing event-driven systems with Kafka/RabbitMQ for real-time data processing, achieving 99.9% uptime through distributed system design and circuit breaker patterns
- Built high-performance data pipelines using Python and Go, processing medical imaging data with optimized algorithms that reduced MRI viewer load times from 8 minutes to 30 seconds through systematic profiling, caching strategies, and parallel processing
- Led backend infrastructure modernization: Migrated monolithic applications to containerized microservices using Docker and AWS Fargate, implementing auto-scaling policies that reduced infrastructure costs by 35% while improving response times by 50%
- Owned product testing strategy: Created Go-based automation framework with comprehensive test coverage (85%), automated testing pipelines using Maestro for iOS/Android, and white-box testing methodologies reducing manual testing by 40%
- Engineered RESTful and GraphQL APIs with comprehensive documentation, implementing OAuth 2.0 authentication, rate limiting, and API versioning strategies serving React frontend applications and third-party integrations
- Implemented containerization and CI/CD pipelines using Docker, AWS Fargate, and GitHub Actions with integrated automated testing and quality gates
- Mentored junior engineers and led knowledge-sharing sessions on system design, cloud optimization, and testing best practices, fostering team growth

Beamlink Inc

May 2020 - Sep 2021

Research & Development Engineer

Remote

- Designed disaster-resilient mesh network architectures using Python and OLSR protocol for bandwidth-constrained, power-sensitive applications
- Built simulation and testing tools using Python for comprehensive network performance analysis and validation
- Debugged and optimized physical tower hardware devices, conducting system-level testing of antenna configurations and power-efficient protocols in bandwidth-constrained environments
- Performed hardware-level debugging on mesh network tower devices, troubleshooting power consumption, signal transmission, and connectivity issues in field deployments
- Developed algorithms for dynamic tower selection and node-hopping to maintain reliable connectivity in low-signal environments
- Developed power-efficient communication protocols for battery-operated devices with optimized sleep and transmission cycles
- Contributed to technical research resulting in the patent 'Fixed Base Station Antenna System using MIMO Configuration'

Apprely Technologies

Dec 2019 - Feb 2021

Senior Application Developer

Remote

- Architected scalable dealership platform for Nissan Torso Car Dealership using Django (backend) and React (frontend), leading team of 3 engineers and implementing Agile methodologies
- Engineered experimental web platform for AI Study - Open Sesame Social Ties research, studying human trust in AI recommendations under resource scarcity, directly contributing to published research on intelligent assistants
- Delivered complete web presence solution for manufacturing business with comprehensive testing and validation, achieving end-to-end digital transformation
- Integrated advanced analytics dashboards and Monday.com CRM for enhanced customer engagement across projects
- Implemented secure authentication systems for customer portals and dealer services with automated testing pipelines

USC Marshall Center for Global Supply Chain Management

Mar 2019 - May 2020

Technology Specialist

Los Angeles, CA

- Managed website infrastructure, security implementations, and hosting environment optimization on Unix/Linux systems
- Ensured seamless technology integration at conferences and events, enhancing attendee experience and minimizing technical disruptions
- Implemented security protocols and disaster recovery procedures for critical web infrastructure, reducing potential downtime

Apprely Technologies

Oct 2016 - Jun 2018

Application Developer

Pune, India

- Developed Android apps and backend services with secure data pipelines using Kafka/RabbitMQ, implementing comprehensive testing strategies
- Built financial automation platform for Entryless, integrating QuickBooks, Zoho Books, Intuit services, and Plaid APIs with automated validation workflows for tax preparation and financial record management

Accenture Services Pvt Ltd

Oct 2015 - Oct 2016

Associate Software Engineer (QA Specialist Training)

Pune, India

- Automated testing for Virgin Media UK using Selenium and Java, contributing to a 2-month manual effort reduction through comprehensive test automation framework
- Received Accenture's 'Ace Award' for outstanding contributions to automation and process efficiency
- Completed Accenture's comprehensive QA Specialist certification program covering functional, regression, performance, and security testing methodologies - applied expertise to reduce Virgin Media's manual testing effort by 2 months

Education

University of Southern California

2018 - 2020

M.S., Astronautical Engineering

Los Angeles, CA, United States

- GPA: 3.5

MIT, University of Pune

2011 - 2015

B.E., Electronics & Telecommunication Engineering

Pune, MH, India

- GPA: 3.5

Certifications

- Lean Six Sigma Green Belt
- Monday.com Workflow Certifications
- Quality Assurance Specialist Training - Accenture

Patents & Publications

- **Patent:** "Fixed Base Station Antenna System using MIMO Configuration" US20240129000A1
- **Publication:** "Space Situational Awareness through Blockchain Technology" - Journal of Space Safety Engineering