SWAPNIL SURDI

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Available to join immediately (visa transfer required)

Professional Summary

Senior Software Engineer with 9+ years of experience in building scalable backend systems, distributed services, and cloud infrastructure. Skilled in designing robust APIs, optimizing microservices, and driving cloud-native deployments. Strong background in secure communication protocols, networked systems, and AI-driven applications with focus on automation and performance optimization.

Core Competencies

- Microservices Architecture, API Design, System Integration, Performance Optimization
- Cloud Infrastructure (AWS), Containerization (Docker), AI-driven Systems
- Secure Communication Protocols, Wireless Connectivity, Network Optimization
- DevOps & CI/CD Implementation, Automation, Infrastructure Monitoring
- Technical Leadership, Code Review, Mentoring

Technical Skills

- **Languages:** Python, Go, JavaScript, TypeScript, Java, SQL
- **Frameworks/Tools:** Django, React, Spring Boot, Node.js, Kafka, RabbitMQ
- **Cloud/Infrastructure:** AWS (ECS, Fargate, Lambda), Docker, GitHub Actions, Bitrise
- **Databases:** PostgreSQL, MongoDB, Redis, MySQL
- **AI/Systems:** Model Context Protocol (MCP), AI Tool Integration, Automation Frameworks
- **Network Technologies:** WiFi, Mesh Networks, Antenna Systems, Communication Protocols

Professional Experience

Treatment Technologies & Insights — Remote
Senior Software Engineer — 09/2021 – 07/2025

- Built microservices for real-time data processing and secure device communication
- Built Patient portal website from scratch using React, creating a comprehensive healthcare platform that serves as the foundation for patient data management and clinical workflows
- Designed responsive React interfaces and Node.js microservices for healthcare provider workflows, handling full-stack development independently with seamless frontend-backend integration
- Delivered custom MRI viewer system, reducing image load times from 8 minutes to 30 seconds through performance optimization
- Designed and implemented RESTful APIs for integration between backend services and client applications, reducing API calls by 30% and optimizing system latency
- Implemented containerization (Docker, AWS Fargate) to improve deployment efficiency and system scalability
- Developed CI/CD pipelines using GitHub Actions and Bitrise, reducing manual deployment overhead
- Engineered event-driven logging and observability tools for automated issue detection and system health monitoring
- Created Model Context Protocol (MCP) implementation for AI-powered health platform, enabling natural language interactions with health data systems
- Built in-house electronic Quality Management System (eQMS) for regulatory document control with automated workflows
- Created Go-based automation framework to streamline backend validation workflows and reduce manual testing effort by 40%
- Contributed to open-source mcp-atlassian project, developing AI integration capabilities for enterprise collaboration tools
- Mentored junior engineers and led internal knowledge-sharing sessions on system design and cloud optimization

Beamlink Inc — Remote
Research & Development Engineer — 05/2020 – 09/2021

- Designed disaster-resilient mesh network architectures using Python and OLSR protocol for bandwidth-constrained, power-sensitive applications
- Conducted extensive testing and optimization of bidirectional vs. directional antenna configurations to maximize signal range while minimizing power consumption
- 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
- Built simulation tools to test network performance and power efficiency
- Contributed to technical research resulting in the patent 'Fixed Base Station Antenna System using MIMO Configuration'

Independent Technical Consultant
Nissan Torso Car Dealership (Apprely Technologies) — 03/2020 – 06/2021

- Built a scalable dealership platform using Django (backend) and React (frontend)
- Led team of 3 engineers during second phase (03/2021 - 06/2021), implementing Agile methodologies
- Integrated advanced analytics dashboards and Monday.com CRM for customer engagement
- Developed secure authentication system for customer portal and dealer services

AI Study - Open Sesame Social Ties'   01/2019 – 12/2019
- Developed an experimental web platform to study human trust in AI recommendations under resource scarcity
- The platform directly contributed to published research on how teams use intelligent assistants under time scarcity, demonstrating that users increasingly rely on AI recommendations when facing environmental constraints.

Web Presence   06/2018 – 07/2018
- Architected and delivered complete web presence for manufacturing business

USC Marshall Center for Global Supply Chain Management   Los Angeles, CA
Technology Specialist   03/2019 – 05/2020
- Managed website infrastructure, security implementations, and hosting environment optimization
- Provided technical support for conferences and events, ensuring seamless technology integration
- Implemented security protocols and disaster recovery procedures for critical web infrastructure

Apprely Technologies   Pune, India
Application Developer   10/2016 – 06/2018
- Developed Android apps and backend services with secure data pipelines using Kafka/RabbitMQ
- Built comprehensive financial automation platform for Entryless, integrating QuickBooks, Zoho Books, Intuit services, and Plaid APIs to enable automated receipt-to-accounting workflows for tax preparation and financial record management

Accenture Services Pvt Ltd   Pune, India
Associate Software Engineer   10/2015 – 10/2016
- Automated testing for Virgin Media UK, contributing to a 2-month manual effort reduction
- Received Accenture's 'Ace Award' for outstanding contributions to automation and process efficiency

Research Experience (USC)

Space Safety Research   2019 – 2020
- Contributed to blockchain research for space situational awareness, resulting in publication in Journal of Space Safety Engineering

USC Space Engineering Research Center   2019
- Contributed to lunar prototype and nanosatellite projects under Prof. David Barnhart

Distributed Systems Research   2019
- Contributed to Prof. Bhaskar Krishnamachari's research on search engine implementation for blockchains using Interplanetary File System

Education

- **University of Southern California** | M.S. in Astronautical Engineering   2018 – 2020
- **MIT, University of Pune** | B.E. in Electronics & Telecommunication Engineering   2011 – 2015

Certifications

- Lean Six Sigma Green Belt
- Monday.com Workflow Certifications

Patents & Publications

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