HARSH BHANSALI

Software Engineer | Azure Resiliency

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EXPERIENCE

Software Engineer 1 – Azure Resiliency, Microsoft

July 2025 - Present | Hyderabad

- **Cloud Cost & Resource Governance**: Reduced non-production Azure spend by **43% ($20.7K to $11.8K per 30 days)**, saving ∼**$8.9K in the measured 30-day period (∼$106K annualized equivalent)**, through policy-enforced tagging, automated cleanup, and removal of ∼**800 stale resource groups**.
- **Cloud Resilience Platform & API Modernization**: Owned backward-compatible API and data-model changes for an Azure resilience control-plane service; coordinated migrations across **6+ teams** and migrated **98% of** ∼**18,800 production resilience configuration records** in staged batches with **zero throttling**, advancing product-launch readiness.
- **Regional Failover & Disaster-Recovery Validation**: Led an annual regional-outage business continuity and disaster recovery (BCDR) drill across three Azure services in a pre-production (Canary) environment; validated **automatic Azure Front Door failover, write recovery in 44 seconds, uninterrupted reads, and region rejoin in 1.5 minutes after redeploy**. Built a continuous PowerShell prober with **51 Pester tests**, filed **6 root-caused resilience bugs** with proposed fixes, and packaged a reusable Copilot drill skill with annual assessment evidence.
- **AI-Powered On-Call**: Built and shipped a reusable AI agent automating Kusto queries, incident triage, build-verification analysis, and report publishing, cutting weekly on-call work from **4–6 hours to** ∼**30 minutes**; extended shared SRE auto-triage across **5 workloads** and automated ∼**90% of SRE-agent onboarding**.
- **Production Performance & Observability**: Restored worker P99 below its **30-second SLO** by parallelizing metadata-service calls, reducing a 16-resource update from ∼**44s to** ∼**7s** and resolving a Sev-3 incident; fixed concurrency-driven diagnostic-context corruption affecting **86% of log dimensions**.
- **Release Quality & Automation**: Reduced build-verification runtime by ∼**70% (3 hours to 54 minutes)** using MSTest parallel execution; built reusable end-to-end test infrastructure, maintained **80%+ code coverage** on critical resilience-service components, and standardized runner deployments to **10 minutes**.
- **Security & Safe Migrations**: Implemented delegated-token encryption at rest and in transit with Azure Key Vault and ETag-based concurrency; executed **zero-downtime, zero-data-loss migrations** and a flag-gated dual-write schema rollout processing **81.6M events with zero critical errors**.
- **Live-Site & Release Ownership**: Captained a **25-PR production release across 3 services and 9 contributors**, validating canary rollouts and rollback/roll-forward paths; detected cross-service registration drift threatening live API versions and drove coordinated fixes.

Backend Intern, KoinX

December 2024 - June 2025 | Remote (Bhubaneswar, Odisha HQ)

- **Account Automation Module**: Designed and developed a **full automation engine** to categorize transactions into suggested accounts using **user-specific rules and complex logic**. Led end-to-end implementation, including **MongoDB schema design, controller, routing, service layer, worker code, tests and documentation**.
- **Microservices**: Implemented **two microservices**: one for **matching internal transfers** and another for **unarchiving transactions**, enhancing system functionality and scalability.
- **Database Query Optimization**: Optimized database query performance by implementing **MongoDB indexes**, reducing query execution time and improving efficiency.
- **Data Integrity**: Implemented **MongoDB transactions** across the codebase to ensure **data integrity and reliability**, adhering to **ACID properties**.

Software Engineer Intern, Microsoft

June 2024 - July 2024 | Hyderabad

- **Business Case Code Generation Utility**: Developed Python scripts to automate code generation for new partners in the Azure Migrate Business Case, resulting in a **30% reduction in workload**.
- **Test Generation Utility**: Created a Code Generation Utility to efficiently produce comprehensive test cases, incorporating function mocking and synthetic data. **Successfully reduced time to write multiple tests for multiple functions in a file by 50%**
- **Operator Utility**: Engineered a Python script that automated the generation of **80% of the Assessment Operator code**, including the Core Kubernetes Operator and Worker code.

EDUCATION

Manipal Institute of Technology

October 2021 - August 2025 | Udupi, Karnataka, India

Bachelor of Technology - Information Technology; **CGPA: 8.4**

TECHNICAL SKILLS

- **Languages**: C#, Python, PowerShell, Bash, Java, C++, JavaScript
- **Cloud & Backend**: .NET, Microsoft Azure, Azure Cosmos DB, Azure Front Door, Azure Key Vault, Azure Resource Manager (ARM), REST APIs, OpenAPI/Swagger, TypeSpec, Node.js, MongoDB, PostgreSQL
- **DevOps & Reliability**: Azure DevOps, GitHub Actions, CI/CD, Docker, Docker Compose, Kubernetes, Kusto Query Language (KQL), business continuity/disaster recovery (BCDR), site reliability engineering (SRE), incident response, observability, MSTest, Pester
- **Systems & AI**: Ubuntu Linux, container networking, DNS/TCP/IP, Tailscale/WireGuard, systemd, Ollama, Azure OpenAI Foundry, AI agents

PROJECTS

- **Self-Hosted Homeserver & AI-Assisted Operations Platform - Ubuntu, Docker Compose, Azure OpenAI Foundry, Tailscale**:
  - Designed and currently operate an Ubuntu homeserver running **22 containers across 15 Docker Compose projects**, consolidating Jellyfin and media automation, Nextcloud/Immich, Home Assistant with local voice processing, Ollama, and AI-assisted administration.
  - Architected modular deployments with persistent volumes, isolated and shared networks, health checks, restart policies, separated environment files, systemd startup, and **1 TB dedicated data storage** for independent upgrades and state-preserving recovery.
  - Deployed a private, mobile AI operations interface using **Pi, Azure OpenAI Foundry, and Tailscale/WireGuard**; enforced token authentication, server-side secrets, non-root execution, and human approval gates for shell and filesystem operations.
  - Root-caused cross-container DNS failures affecting Home Assistant and qBittorrent; selectively recreated stale containers without data loss, restored APIs and trackers, increased DHT connectivity from **0 to 330+ nodes**, and verified ~**12.7 MiB/s** aggregate throughput.

  Service endpoints (harshbhansali.com): Jellyfin, Seerr, Nextcloud, Home Assistant.

ACHIEVEMENTS

- **1924 (Top 3.98%)** LeetCode Contest Rating
- **Top 10** in BITS Pilani Postman API Hackathon
- **Global Rank 229** in CodeChef Starters 67 Division 2