Ritvik Dayal

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Summary

Senior Software Engineer with 5+ years building AI platforms, distributed backend systems, and cloud infrastructure. Proposed, won buy-in for, and shipped two production platforms end-to-end at Doxel: an AI incident-investigation system that cut investigation time from 15–60 minutes to under 3 at 100x lower cost per incident, and a browser-based BIM authoring platform that replaced a three-desktop-tool workflow (AutoCAD, Navisworks, Bluebeam), saving $35K+ per year. Repeated record of converting manual SOPs into automation, cutting cloud costs, hardening security for SOC-2, and mentoring engineers across globally distributed teams. Recognized with Doxel's Q1 2026 award for Exceptional Innovation and Advancement in AI.

Skills

Languages:
Python, TypeScript/JavaScript, Go, SQL

AI/LLM Systems:
LLM agents (Claude), agent tool design, MCP servers, vision-language models (VLM), prompt engineering, LLM evaluation and cost optimization

Cloud and Infrastructure:
GCP, Kubernetes (GKE), Terraform, Helm, Docker, Airflow, GitHub Actions CI/CD, AWS

Backend and Data:
FastAPI, REST APIs, Microservices, PostgreSQL/PostGIS, Redis, ETL Pipelines, Datadog, PagerDuty

Frontend and 3D:
React, three.js, Vite, WebGL/WebGPU rendering

Experience

Doxel (AI construction-progress monitoring) Remote, USA
Software Engineer III *May 2025 – Present*

- **BIM-Reviewer (web platform):** Proposed, designed, and shipped a browser-based BIM zone authoring and review platform replacing a multi-team SOP spanning three desktop tools (AutoCAD, Navisworks, Bluebeam) with a single web app — saving $35K+ per year in licenses and engineering time, with a roadmap to eliminate Bluebeam PDF-annotation licenses entirely.
- Built it end-to-end from solo POC to production: three.js/React 3D viewer rendering 50,000+ element BIM models in-browser, 2D floorplan drawing editor with wall snapping, PostGIS-backed zone geometry, and an async write path (REST APIs + Airflow DAG applier) — 30+ PRs merged; eliminated duplicate zone drawing across two teams and collapsed a multi-day cross-team handoff into a same-tool review.
- **Oncall Buddy (AI incident investigation):** Architected and shipped a Claude-agent platform (22+ tools: code search, git history, production DB, Datadog, Jira) that auto-investigates every PagerDuty incident and posts root-cause analysis to Slack — 500+ incidents handled at under 3 min average vs. 15–60 min manual, at $0.10–0.40 vs. ~$25 of engineer time per incident (100x cost reduction), 80% helpful rating, 23 auto-generated draft fix PRs.
- Took it from proposal to prototype in 3 days and to production in 4 weeks on GKE (Terraform, Helm, GitHub Actions, Workload Identity Federation, autoscaling); grew it into a company-wide platform with 12 integrations, an org-wide MCP server (7 tools), 1,000+ unit tests, and a self-learning feedback loop — closing a 6-hour overnight gap between India and US teams.
- **SAGE (VLM annotation automation):** Designed a vision-language-model shadow annotator (VLM inference, cross-frame consensus, graph propagation) targeting 60–70% automation of manual BIM element annotation; benchmarked 4 models on 663 ground-truth cases — 100% precision with a hosted model at $0.046 total cost, plus a near-zero-cost local model at 3 s/case.

- **Pipeline reliability:** Led a 13-month reliability program for the model-onboarding pipeline (439 commits, 29 tickets, 5 production DB migrations): fixed a data-integrity bug affecting 42.5M records (44.6% of all elements) via zero-downtime migration; shipped a zone-mapping review gate (60 BIM models at 87% completion, 1.4-day median turnaround) that stopped incomplete data from reaching customer reports; cut model-onboarding turnaround by 2 days.
- Re-architected entity-element mapping from synchronous APIs to async Kubernetes jobs across 4 repositories, cutting hot-path API response times 25–45% with caching; mentored 3 engineers (junior to senior) and, in one hardening sprint, added 406 unit tests across 15 untested modules and patched 19 CVEs.

Doxel Remote, USA

Software Engineer II *Nov 2023 – May 2025*

- Implemented infrastructure security checks improving security posture by 35% (measured by Vanta), directly supporting SOC-2 compliance procurement.
- Profiled and right-sized Kubernetes compute clusters for Airflow data pipelines using Terraform, cutting cloud compute costs by 10% while improving reliability with dedicated compute pools.
- Optimized ETL pipelines and API request libraries, eliminating 3 redundant Cloud Run deployments; containerized 5 project components with Docker, reducing environment inconsistencies and accelerating developer onboarding.

GeeksforGeeks Noida, India

Software Development Engineer II *Nov 2021 – Nov 2023*

- Maintained and improved a high-traffic microservice backend, fixing XSS-class security vulnerabilities and reducing API latencies by 25%.
- Built an IDE-like server executing multi-language code securely in a Docker sandbox (Python, Go), reducing compute workloads by 20% during peak traffic.
- Built a Discord moderation bot serving a 25,000+ member community; mentored backend engineers and served as judge for a national hackathon organized by Google, AMD, and GeeksforGeeks, guiding 5–7 teams across 3 levels.

Disecto Remote, India

Backend Engineer *Apr 2021 – Nov 2021*

- Integrated third-party calling services via REST APIs on Supabase, shipping 10 new features; led technical planning and delivery for 2 projects across a distributed team.

Education

Bachelor of Technology (Honours), Computer Science

Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, India *2017 – 2021*

Awards

Exceptional Innovation and Advancement in AI — Doxel Q1 2026

Company award recognizing AI platform work, including the Oncall Buddy incident-investigation platform.

Smart India Hackathon – Winner Jan 2020

Led development of a tool to analyze and visualize CDR and IPDR data, winning a national team-based hackathon.