

# Pratik Fandade

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## SKILLS

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- Programming:** C, C++ (STL), Python, Rust, Go | **Data & Storage:** PostgreSQL, MongoDB, Redis, SQL, BigQuery
- Cloud & DevOps:** AWS, GCP, Docker, CI/CD, Gardener, RabbitMQ, Kubernetes, Terraform
- Backend & Systems:** Distributed Systems, REST APIs, gRPC, cron-jobs, Caching, Threading, Synchronization
- Reliability & Quality:** OpenTelemetry, Grafana, Logging, Metrics, Monitoring

## EXPERIENCE

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### Redprint

Software Engineer

New York, US

Jun 2025 – Present

- Improved API reliability by reducing error rate from 1.2% to **0.2%** by adding **OpenTelemetry** tracing and structured logging, request tracing/correlation IDs, and SLO-based alerting (latency/error rate/saturation) on critical endpoints.
- Cut **MTTR** from 75 min to 20 min by building **Grafana** dashboards latency, queue depth, worker failures, DB health and writing runbooks for top incident patterns.
- Reduced bulk-write time from 45s to **3s** by converting row-by-row updates to **set-based Postgres** operations, batching, and transaction scoping to minimize lock contention
- Scaled from 3k to **15k DAU** by tuning autoscaling, right-sizing compute, and caching hot reads; maintained stable tail latency during peak traffic.
- Reduced production regressions by **60%** by introducing health checks, graceful shutdown, canary rollouts, and automated smoke tests in the deployment pipeline

### Colgate Palmolive

Software Engineer

Mumbai, India

Feb 2022 – Aug 2024

- Shipped a bulk-edit engine that updated **100,000+ rows** in ~1s (previously 30s) by using **set-based postgres updates**, batching, and async recomputation with **RabbitMQ** workers on **Kubernetes**.
- Improved async throughput **3x** and reduced peak backlog **78%** by splitting hot/cold queues, tuning worker concurrency/prefetch, and implementing retries and DLQ with idempotent handlers.
- Reduced p95 API latency from **~800ms to ~150ms** by adding indexes, rewriting expensive queries, and moving recomputation off the request path into async jobs.
- Increased peak worker scalability from **~30 to ~100** concurrent workers during planning windows by tuning kubernetes autoscaling and right-sizing cpu/memory requests/limits.

## PROJECTS

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### TacoDB | C++, SQL, Storage Engine, Buffer Manager

- Built a lightweight relational database similar to **CassandraDB** with a disk-backed storage engine, buffer pool, and write-ahead logging to ensure durability and crash recovery.
- Implemented concurrency and correctness primitives (locking/latches, transactions) and optimized I/O paths via page caching, **eviction policy tuning**, and structured performance profiling.
- Designed query execution and planning with a **cost-based optimizer** and operators (scan/join/aggregate), focusing on predictable latency under large datasets.

### Distributed Raft-based Redis | Go, gRPC, Raft, Docker

- Engineered a fault-tolerant, replicated **Key-Value store using Raft** (leader election, log replication, snapshots) to provide consistency and automated failover under node loss.
- Hardened the system for production-like conditions by adding idempotent request handling, timeouts/retries, backpressure, and metrics for p95 latency, replication lag, and leader churn.
- Containerized and orchestrated multi-node clusters with **Docker** for repeatable deployments; built failure-injection tests (partition/kill/restart) to validate recovery guarantees.

## EDUCATION

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### University at Buffalo, State University of New York (SUNY)

Master of Science in Computer Science and Engineering

Buffalo, NY

Aug 2024 – Dec 2025

### Vishwakarma Institute of Technology, Pune

Bachelor of Technology in Information Technology

Pune, Maharashtra

Aug 2018 – Aug 2022