

Keshav Jha

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Education

Delhi Technical Campus (GGSIPU), B.Tech in Computer Science

Nov 2022 – Expected Nov 2026

- **Coursework:** Data Structures & Algorithms, Operating Systems, Computer Networks (TCP/IP), Distributed Systems, Database Management Systems, Information Retrieval, Machine Learning

Experience

Co-founder & Lead Backend Engineer, She&Soul – New Delhi, India

Jan 2024 – Present

- Architected and implemented the platform backend using **FastAPI**, **PostgreSQL**, and **Redis**; designed REST APIs, JWT auth, RBAC, and a multi-tenant data model
- Built workflows for payments, orders, and notifications (FCM/SMS); added rate limiting, request tracing, and a zero-downtime migration strategy for PostgreSQL schema changes
- Containerized services with **Docker** and an Nginx reverse proxy; set up GitHub Actions CI/CD pipelines to run tests and deploy automatically

Creator & Engineer, Ezcatts – Delhi, India

Dec 2023 – Feb 2024

- Built a telephone IVR system automating call routing/lookups, adopted by **50+ vendors** and handling **10k+ calls/mo**
- Implemented retry logic and idempotent call flows to avoid duplicate processing; added structured logging and alerting for failed calls
- Packaged the application with Docker and created runbooks for deployment and day-to-day maintenance

Projects

PyDB-Core — Relational Database Kernel | *Python, Databases, Systems*

June 2025 – Aug 2025

- Engineered a small persistent relational store in pure Python; implemented **B+ tree** indexing and an **LRU** buffer pool for on-disk page management
- Built a basic **SQL parser** (AST construction with simple predicate pushdown) to minimize full-table scans; experimented with snapshot-style reads to keep queries responsive during writes
- Added a simple write-ahead log (WAL) and crash-recovery routine to reduce the risk of data loss during write-heavy workloads

Raft-Cluster — Distributed Consensus System | *Python, asyncio, TCP/IP*

Aug 2025 – Oct 2025

- Developed a fault-tolerant key-value store implementing the **Raft** consensus algorithm (leader election and log replication) to keep replicas in sync across a 3-node cluster
- Constructed a custom **RPC layer over TCP** using asyncio with periodic heartbeats; in failure tests, leader re-election completed within hundreds of milliseconds while keeping writes consistent across nodes

Neuro-Stream — Distributed Parameter Server | *Python, gRPC, ML Infra*

Oct 2025 – Present

- Built a parameter-server prototype in Python/gRPC, coordinating N workers sending asynchronous gradient updates during training
- Experimented with bounded-delay asynchronous updates to study stale-gradient effects on convergence; used simple **Int8** quantization on ResNet50 parameter payloads to cut gradient payload size by about 75% in tests

Achievements

Competitive Programming: LeetCode Knight (Top 3%, Max 1938) • CodeChef 5 Star (Max 2077, India Rank 540) • GeeksForGeeks Global Rank 41 (Max 2180) • Codeforces Top 0.6% (Global Rank 327) • 2000+ DSA Problems Solved

Technologies

Languages: Python, C++, Go, SQL, JavaScript

Systems & Networking: Linux/UNIX, TCP/IP, Sockets (epoll), WebSockets, gRPC, HTTP/REST

Frameworks & Tools: FastAPI, Flask, PostgreSQL, Redis, Docker, Nginx, Git, GitHub Actions, Prometheus, Grafana

ML Libraries: PyTorch, ONNX Runtime, NumPy, scikit-learn