

Kumar Shivendu

Distributed Systems, Search, and LLMs

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Skillset

Languages Rust · Python · JavaScript · Java · Bash · C++
Frameworks Actix · Tokio · FastAPI · Express.js · Django · React · Material UI · Bootstrap · Cypress · PyTest
Infra Kubernetes · Grafana · Loki · PostgreSQL · Redis · Elasticsearch ·

Experience

Qdrant: Software Engineer - Core Team

Oct. 2023 - Present

- Qdrant is the **fastest growing vector database with 25k+ stars, 40k+ docker pulls/day, and tens of thousands of deployed instances**.
- Conducted performance experiments to find our bottlenecks and did comparative benchmarks of Qdrant vs other search/db engines
- Built the infrastructure for Chaos testing and Continuous benchmarking** which caught 50+ critical bugs and perf degradations early
- Built and maintaining a cluster manager service in Rust** that dynamically scales and manages nodes/shards of Qdrant clusters inside k8s.
- Cluster manager **powers enterprise features like vertical/horizontal scaling, replication, rebalancing, resharding, inter cluster sync, etc**

SuperTokens (YC 20): Software Engineer

Mar. 2022 - Sep. 2023

- SuperTokens is an authentication devtool with 14k+ Github stars, 2.5M docker pulls, and multiple thousand B2B and B2C SaaS users.
- Architected our most requested enterprise features - multi-factor authentication (MFA) and Time-based OTP (TOTP)
- Implemented authorization (RBAC), multitenancy, MFA, and TOTP features in our Python and Node.js SDKs

FamPay (YC 19): Software Engineer Intern

Sep. 2021 - Mar. 2022

- FamPay is India's first numberless card and payments app for teenagers with 10M+ app downloads.
- Worked on multiple features like UPI payments, KYCs, and asynchronous celery batch jobs.
- Improved CI and infra by introducing mypy, parameterized, diff coverage, traefik, oauth2-proxy, and developed a tool to debug our Redis cache

Software Heritage: Google Summer of Code Student

May. 2021 - Aug. 2021

- Software Heritage (SWH) is an organization under Inria (Paris) to collect and preserve all of the open-source software that has ever existed.
- Developed **advanced metadata search features on top of 250M+ public software repositories containing 16 Billion+ source code files**
- Designed a custom search query language** and wrote a transpiler that **converts the Abstract Syntax Tree (AST) into Elasticsearch queries**.
- Implemented autocompletion for the custom query language in the web interface using WebAssembly, Javascript, CSS, and Django.

Logy.AI: Software Engineer Intern

Feb. 2020 - Jul. 2020

- Developed the appointment booking portal for Colgate MyToothDoc platform using Django. (100k+ users)
- Doubled the speed of the malaria detection APIs by implementing an OpenCV-based blurry microscopic image detector.

IIT Mandi: Machine Learning Intern

May. 2019 - Jul. 2019

- Trained ARIMA and LSTM models using Keras and Tensorflow to forecast network usage time-series data
- Developed the foundation for our **research paper that got accepted by IEEE**.

Side projects

Tech talks

- Chaos testing: Breaking a database on purpose** @ PES, Bangalore [Link](#)
- Improving search relevance using reranking and fusion @ Tensorflow Bangalore Meetup [Link](#)
- Qdrant: Future of search and beyond @ FOSS United Bangalore Meetup [Link](#)

Technical blogs

- Monitoring my life with Grafana, Prometheus, and InfluxDB [Link](#)
- In-depth look at ACID properties of Postgres [Link](#)
- Python Unit testing best practices [Link](#)

Open source contributions @ Software Heritage

- Created crawlers to ingest code from Fedora packages, Gitea, Gogs, and Hex.pm (Erlang package manager).
- Mentored an intern as a GSoC mentor** during Google Summer Of Code 2022
- Received **Open Source Peer Bonus award from Google for my contributions**

Open Source projects and contributions

- smolddb: **Implemented a distributed database from scratch** with persistence, consensus, shards, replication, indexing, wal, etc. [Link](#)
- vscode-advanced-search: VSCode Extension for bulk search/refactor that's more powerful than regex. **Winner in FOSS United Hackathon** [Link](#)
- search-copilot: Chrome extension that scrapes search results on any website for semantic search using GPT embeddings
- ann-benchmarks: **First person to benchmark OpenAI embeddings at 1M scale using Vector databases (Qdrant vs Pgvector)**. Creators of Github Copilot, Yahoo Search, Spotify recommendation engine, and Supabase responded to my work on Twitter!

Education

Indian Institute Of Technology (IIT) Bhilai

Bhilai, India

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING

Jul. 2018 - May. 2022

CGPA : 8.2/10.0