# Yasharth Singh

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LinkedIn | GitHub | Portfolio



## Education

**Jaypee Institute of Information Technology** — Noida, India
*B.Tech, Computer Science and Engineering* — *2023 – 2027*

- **Relevant Coursework:** Data Structures & Algorithms, DBMS, Operating Systems, OOP, Computer Networks, IoT Analytics

## Experience

**Software Engineering Intern** — Jun 2026 – Jul 2026
*HCL Infosystems Ltd* — *Noida, India*

- Developed **Pragya**, an enterprise document search platform (FastAPI, Next.js 15, PostgreSQL, Qdrant) that answers questions over internal documents with inline source citations
- Designed the document store as a **7-table normalised PostgreSQL schema** and wrote the ingestion pipeline end to end: parsing source files, splitting into 256-token child chunks under 1024-token parents, generating embeddings and loading into Qdrant
- Engineered a hybrid retrieval pipeline: BM25 and dense search fused via reciprocal rank fusion, then reranked with a cross-encoder
- Set up a repeatable evaluation: benchmarked three retrieval configurations with **RAGAS** over **30 fixed questions** and **two independent LLM judges**, best config at **0.91** average faithfulness; reported the gaps between configurations as directional, since n=30 is small
- Implemented **JWT authentication** and **three-tier role-based access control** enforced at the Qdrant query layer, so users only retrieve documents their department is cleared for

**Trainee** — Jun 2025 – Jul 2025
*HCL Infotech Ltd* — *Noida, India*

- Shipped a full-stack **electricity billing system** (Next.js, TypeScript, PostgreSQL) turning a client's multi-tier HT/LT tariff rules into computed, validated bill amounts with automated **PDF generation**
- Structured consumers, meter readings and tariff slabs in a **3NF PostgreSQL** schema and added JWT authentication

## Projects

**SahYatri**, real time crowd intelligence for public transport | *YOLOv5, Ras-Pi 4,Hardware, FullStack*

- Deployed YOLOv5 on a **Raspberry Pi 4** camera to count passengers on a bus, sending the counts to a FastAPI backend
- Five-stage pipeline (capture, detect, count, store, alert) feeding a PostgreSQL time-series store of per-bus occupancy
- Added a Next.js operator dashboard showing live occupancy, 24-hour utilisation trends and peak-hour analytics
- **1st Prize, BITBOX 5.0** hackathon (Rs. 20,000)

**FluxNav**, Delhi Metro route planner | *Next.js, TypeScript, PostgreSQL, Prisma, Gemini API*

- Modelled the 7-line metro network as a weighted graph, using **Dijkstra** for shortest travel time and **BFS** for fewest interchanges
- Stored stations, edges and fare slabs in PostgreSQL through Prisma, cached repeated routes so they skip the database, and used the Gemini API for step-by-step directions
- Computed fares and interchanges from the same graph traversal, with interchange-aware path reconstruction

## Skills

**Languages:** C/C++, SQL, Python, JavaScript, TypeScript, Bash
**Data & SQL:** PostgreSQL, SQL, MongoDB, SQLite, Prisma ORM, Qdrant
**Analytics & ML:** pandas, NumPy, scikit-learn, XGBoost, LightGBM, Matplotlib, Seaborn, YOLO, feature engineering
**Development:** FastAPI, Flask, Node.js, Express, REST APIs, Next.js, React, Tailwind CSS, JWT, Git, Raspberry Pi, Agile

## Courses

- **GCI World 2026** (Matsuo-Iwasawa Laboratory, University of Tokyo): in progress, Sep to Dec 2026
- **GitHub Foundations**

## Leadership

- **Advisor, CICR (Creative and Innovation Cell in Robotics)**, JIIT (2023–present): volunteer to core team to coordinator to advisor; ran **10+ workshops** on robotics, embedded systems and AI with **400+ student engagement**; represented JIIT at IIT Roorkee, LNMIIT Jaipur, and IIT Kanpur
- **Founding Member, Dronotics**: co-founded the UAV club and organised **DRON-O-WAR 1.0**, the college's first national UAV competition with 200+ participants and a Rs. 8,00,000 prize pool
- **Student Ambassador, AICTE IDEA Lab**: created the lab's public-facing website and coordinated Rs. 2,00,000+ equipment procurement with the faculty in-charge