

# Kripa Sindhu

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## WORK EXPERIENCE

### BeatRoute Innovation

Software Engineer

May 2025 – Present

Gurugram

- Led the **migration of two production SaaS applications from Angular 14 to Angular 19**, modernizing the frontend architecture, improving build performance, and ensuring full backward compatibility with **zero production downtime**.
- Designed and implemented a **real-time chatbot interface** using **Angular and WebSockets**, enabling low-latency bi-directional communication for customers across **15+ countries**.
- Architected the frontend of the **Report Builder module** — the company's flagship feature — enabling dynamic report configuration, visualization, and export workflows that drove core product adoption.
- Co-developed an **internal Angular UI component library** adopted across multiple product teams, reducing feature development effort by **30%** while enforcing consistent design and accessibility standards.
- Built and maintained a robust **unit and integration testing framework** using **Jasmine and Karma**, achieving **90%+ code coverage** and improving release confidence through automated CI pipelines.
- Optimized the performance of a **customer-facing SaaS analytics dashboard** by identifying rendering and data-fetch bottlenecks and improving Angular change detection and API usage patterns, significantly improving responsiveness for large datasets.

## EDUCATION

• Indian Institute of Information Technology, Guwahati

Assam, India

• Bachelor of Technology in Computer Science and Engineering

Dec 2021 – Apr 2025

## ACHIEVEMENTS

- **GATE CSE 2024 & 2025**: Secured rank within the **top 5%** of candidates nationwide, demonstrating strong fundamentals in computer science and problem-solving.
- **Competitive Programming**: Achieved **Knight** rank on LeetCode with 1000+ solved problems across **DSA and algorithms**, attaining a peak rating of **1914**.

## PROJECTS

### Feature Flag Management Platform 🔄

Feb 2026 - Mar 2026

- Architected a **full-stack feature flag platform** with a **Go backend** (Chi router), **Next.js 16 dashboard**, and a **client SDK**, enabling dynamic feature rollouts without redeployment across distributed services.
- Implemented **real-time flag propagation** using **Server-Sent Events (SSE)** with **Redis pub/sub**, achieving sub-second update delivery across multiple horizontally scaled server instances.
- Designed a **deterministic percentage rollout engine** using **FNV-1a hashing**, ensuring consistent feature exposure for the same user across Go and TypeScript runtimes with **O(1) local evaluation**.
- Engineered a **clean layered architecture** (Handler → Service → Repository) with **PostgreSQL** persistence, **Redis caching**, role-based API key auth, and containerized deployment via **Docker Compose**.

### Distributed Task Queue System 🔄

Jan 2026 - Feb 2026

- Built a **distributed task processing system** with a **Go backend**, **Redis-backed** priority queue, and **Next.js 15 real-time dashboard**, visualizing the full task lifecycle: priority scheduling, concurrent execution, retry logic, and dead-letter handling.
- Engineered a **concurrent worker pool** using **goroutines** and **sync.WaitGroup** with **graceful shutdown** via OS signal trapping and context cancellation, ensuring safe in-flight task completion during deployments.
- Designed an **exponential backoff retry engine** ( $\text{delay} = \min(2^{\text{retries}} \times 1s, 60s)$ ) with **dead-letter queue** isolation, leveraging **Redis sorted sets** for  $O(\log N)$  priority dequeue and **atomic hash counters** for thread-safe metrics.
- Containerized the full stack using **multi-stage Docker builds**, orchestrated with **Docker Compose** (health-check dependencies), and automated **CI/CD via GitHub Actions** for Docker Hub image publishing with commit-SHA tagging.

## PUBLICATION

- **EV-GREEN**: Co-authored a journal article proposing a hybrid MILP and graph-based heuristic framework for electric-vehicle eco-routing with GreenZone prioritization and Vehicle-to-Grid (V2G) incentive integration; published in *Computing* (Springer Nature), Vol. 108, Article 27, Feb 2026.

## SKILLS

- **Programming Languages**: Go, Python, JavaScript (ES6+), TypeScript.
- **Frameworks & Libraries**: Angular, React.js, Next.js, Node.js, Express.js.
- **Databases & Caching**: PostgreSQL, MongoDB, Redis, Firebase.
- **Developer Tools & Technologies**: Docker, AWS, GitHub Actions, Linux, Git, GitHub, GitLab.