

ABHASH BEHERA

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EDUCATION

C V Raman Global University

B.Tech, Computer Science and Engineering - CGPA: 8.06

August 2023 - May 2027

Bhubaneswar, Odisha, India

EXPERIENCE

Srusti TechHack 1.0 Finalist Internship Program

Batoi Systems Pvt Ltd

May 2025 - June 2025

Bhubaneswar, Odisha

- Collaborated with the Batoi engineering team in an Agile, sprint-based development cycle to productionize a hackathon winning prototype, iterating on features based on team requirements and feedback.
- Integrated Batoi Insight into the platform to collect citizen feedback through surveys, generate measurable insights, and support data-driven improvements across development sprints.

TECHNICAL SKILLS

Languages & CS Fundamentals: Python, TypeScript, JavaScript

Backend & Architecture: Node.js, Express.js, REST APIs, Redis, WebSockets, Microservices, LangChain

Cloud & Tools: AWS, GCP, Docker, Kubernetes, Terraform, Git, GitHub Actions (CI/CD), Trivy, Vitest, Linux

Frontend & Databases: React, Next.js, HTML, CSS, Tailwind CSS, MongoDB, PostgreSQL, Prisma ORM

ACHIEVEMENTS

Hackathon Wins: Won Code Relay 4.0 2026 (IIT Bhubaneswar) and Srusti TechHack 2025.

1st Runner-Up: Founder's Renaissance Ideathon 2025 (IIIT Bhubaneswar), Best Coder Award at HackTheStack 2026.

Grand Finalist: Smart India Hackathon (Government of India) 2025 and Google Solution Challenge 2026 (Top 106 of 85000 teams).

Patent: "An Offline-First, AI-Enabled System for Decentralized Issue Reporting, Automated Routing, and Immutable Resolution Tracking," Patent No. **202631019043** (RQ Filed).

PUBLICATIONS

Kubernetes Autoscaling for Stateful WebSocket Workloads github.com/MistaHolmes/ws-k8-controller

- Co-authored **2** manuscripts (under review at *Software: Practice and Experience* and *Concurrency and Computation: Practice and Experience*), detailing Kubernetes HPA failure modes and introducing a novel connection-aware autoscaler.
- Empirically characterized Kubernetes HPA failure modes for stateful WebSocket workloads across **4** controlled experiments, quantifying **87.5%** replica over-provisioning, a **457 conn/s** peak reconnection-storm rate, and **18.8%** permanent session loss.
- Preliminarily validated protocol generalization by deploying the same controller binary across WebSocket and MQTT workloads without code changes, achieving nearly **50%** lower mean scale-up time than CPU HPA, with **0** sessions lost during forced scale-down under a **339-connection** ceiling.

PROJECTS

SwarajDesk: A Civic Governance Platform

gsc-user-fe.abhasbehera.in | GitHub

Tech Stack: Node.js, PostgreSQL, Redis, WebSockets, Docker, Kubernetes, GitHub Actions, Trivy, Grafana Loki, Kuma

- Designed a civic governance platform supporting **20+** languages, featuring offline-first geo-tagged reporting and automated SLA tracking for issue resolution.
- Engineered real-time grievance workflows using WebSockets and Redis job queues, handling asynchronous tasks with atomic database transactions to guarantee **100%** data integrity.
- Deployed containerized microservices on Kubernetes via GitHub Actions CI/CD, maintaining **99.9%** uptime while integrating Trivy and Grafana Loki for security and observability.
- Engineered an autonomous AI microservice using Bun and LangChain, chaining LLM workflows for automated complaint categorization, vision processing, and content moderation with human-in-the-loop validation.

DraftDock: A Collaborative Writing and Development Workspace

draftdocks.in | GitHub

Tech Stack: React, Node.js, PostgreSQL, Redis, Hocuspocus, WebContainers, Docker, GitHub Actions, AWS EC2

- Engineered a low-latency real-time collaborative editor using **Yjs (CRDT)** and WebSockets, supporting up to **10** concurrent users editing simultaneously with near-instant sync via Redis-backed state synchronization.
- Integrated WebContainers for an in-browser development environment with real-time terminal streaming, automating containerized deployments to AWS EC2 via GitHub Actions CI/CD.
- Designed a live co-authoring workflow with real-time cursor presence, implementing automated snapshot versioning to ensure **zero** data loss across concurrent edits.
- Engineered an AI code generation pipeline using Python, LangChain, and FastAPI to translate natural language prompts into structured execution plans, autonomously generating full-stack React applications directly into the browser sandbox.