Satyam SINGH

Curriculum Vitae

Kharagpur, W.B
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satymxd.vercel.app
GitHub · LinkedIn

TECHNICAL SKILLS

Languages: TypeScript, Python, Java, JavaScript, SQL
ML/AI: TensorFlow, PyTorch, Scikit-learn, Keras, CNNs, RNNs, LSTMs, NLP
Frontend: React 18, Next.js 14, Tailwind CSS, Framer Motion, Radix UI
Backend: Spring Boot 3, Node.js, Express.js, Flask, PostgreSQL, MongoDB, Firebase
DevOps: Docker, Kubernetes, Redis, Kafka, WebRTC, WebSocket, Git, AWS, Google Cloud

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PROJECTS

Ride Hailing Backend – Production-Ready Platform | Repo
- Scalable Uber/Lyft-inspired microservices backend with JWT authentication, RBAC, trip lifecycle, and geospatial driver-matching via Redis & H3 grid indexing.
- Surge pricing, Kafka event streaming, real-time notifications. **Tech:** Java 17, Spring Boot 3, PostgreSQL, Redis, Kafka, Docker

RetroPaste – Code Sharing & Analysis Platform | Live
- Serverless code-sharing platform with real-time analysis, collaboration, and in-browser execution; sub-100ms responses and 90% latency reduction.
- Architected cloud-native services with async processing, intelligent polling, and distributed systems principles (CAP trade-offs, graceful degradation).

StudyBuddy – AI-Powered Study Management Platform | Live
- Scalable real-time AI platform with Docker containerization, automated CI/CD, load-balanced infrastructure (AWS EC2-style), and Kubernetes-compatible architecture.
- CDN-backed frontend delivery with responsive user experiences and low-latency interactions.

Quizo - Advanced Quiz Platform | Live   Nov 2024
- Full-featured platform with advanced anti-cheat technology, intuitive interface for quiz creation/management, and seamless participation experience.
- Successfully deployed and scaled serving 150+ active users. **Tech:** React.js, Node.js, MongoDB, Vercel

Sign Language Recognition Using Deep Learning
- Designed CNN model to recognize American Sign Language gestures from image data with data augmentation and model optimization using Adam optimizer.
- Achieved 95% accuracy using TensorFlow/Keras on real-time webcam inputs.

Network Packet Sniffer for TCP Packet Analysis | Repo
- Developed low-level network sniffer using Python and raw sockets to capture and analyze TCP packets in real time for network monitoring and security analysis.

Personalized Learning Path Generator
- Developed ML-based recommendation system that generates personalized study plans based on student's performance, weaknesses, and learning pace.

CroxShare – P2P File Transfer Platform | Live
- Premium P2P file sharing with real-time WebRTC connections, 6-digit code transfers, and CompressionStream API achieving 85% file size reduction.
- Built statistics dashboard, transfer history, retry logic, pause/resume support, and accessibility features. **Tech:** TypeScript, Next.js 14, React 18, WebRTC, Tailwind CSS, Firebase

Experience

Research Intern May 2025 – Aug 2025

Indian Institute of Technology (IIT) Mandi *Mandi, HP*

- Developed FFCA-YOLO model for small object detection in remote sensing with advanced preprocessing and augmentation strategies.
- Deployed GPU-accelerated solutions with PyTorch and CUDA for real-time aerial image inference. **Tech:** PyTorch, CUDA, YOLO, OpenCV

Awards & Achievements

Top 30/2400 – IIT Guwahati Techniche Tech-Expo 2025 | **Rank 76** – IIT Kharagpur Data Science Hackathon 2025

1st Prize – **College Research Paper:** "Fault-Tolerant Task Scheduling for Cloud Computing"

Paper Under Review: "IoT for Sustainable Resource Management"

Education

NIST UNIVERSITY Berhampur, Odisha

*B.Tech. CSE; **CGPA: 8.89/10*** *Aug 2023 – Apr 2027*

Narayana High School Visakhapatnam

*12th Grade; **72%***

ST. Thomas School Jharsuguda, Odisha

*10th Grade; **72%***