

# Harsh Sahu

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## EDUCATION

### SRM Institute of Technology

Bachelor of Technology in CSE (Data Science), Current CGPA: 9.50

Chennai, Tamil Nadu

Sept. 2022 – Present

### Bharat Ratan School

Class 12<sup>th</sup>, Percentage: 92.8% (Mathematics, Physics, Chemistry)

Seoni, Madhya Pradesh

April 2020 – May 2021

## EXPERIENCE

### Project Engineer

Kalvium

Remote

May 2025 – Present

- Developing full-stack applications using React.js frontend with Node.js/Express backend, implementing responsive UI components and RESTful API integrations for scalable web solutions.
- Building cloud-native applications on AWS/GCP with containerized deployments, participating in Agile development cycles with focus on clean code practices and automated testing.

### Software Engineer & Data Analyst

Rento (SRM DEI Startup)

Chennai, India

Jan 2025 – May 2025

- Architected full-stack property management platform using React.js, Node.js, and PostgreSQL, implementing real-time chat features and advanced search algorithms that improved user engagement by 35%.
- Developed machine learning recommendation system using Python and TensorFlow, creating automated data pipelines that enhanced property matching accuracy by 25% through collaborative filtering.

### Data Scientist & Backend Developer

Zidio Development

Remote

June 2024 – Sept 2024

- Engineered end-to-end data science solutions using Python, pandas, and scikit-learn, building predictive models and deploying them via Flask APIs with Docker containerization.
- Created interactive data visualizations using D3.js and Plotly, delivering insights through React-based dashboards that reduced decision-making time by 40% for business stakeholders.

### Computer Vision Research Scientist

National Chung Cheng University, Taiwan

Remote

July 2023 – Dec 2023

- Developed real-time computer vision applications using OpenCV, TensorFlow, and PyTorch, creating accident detection systems with 92% accuracy through advanced deep learning architectures.
- Published research findings in international conferences, collaborating with global teams using version control, continuous integration, and agile methodologies for reproducible research outcomes.

### Mobile Developer & Data Analyst

SRM Hospitals

Chennai, India

Jan 2023 – June 2023

- Built cross-platform mobile application using Flutter and Dart, integrating with Firebase backend and implementing secure patient data management systems compliant with healthcare regulations.
- Developed analytics dashboard using Python, SQL, and Tableau, creating automated reporting systems that improved operational efficiency by 30% and reduced manual data processing time.

## KEY PROJECTS

### Blockchain-Secured PII Data Masking Platform

Ethereum, Solidity, Python, React, IPFS, Web3.js

- Architected enterprise-grade document security system using blockchain technology and advanced cryptographic algorithms, achieving 99.99% data integrity with immutable audit trails for sensitive PII information.
- Implemented smart contracts in Solidity for decentralized access control and automated compliance reporting, integrating with IPFS for distributed storage and reducing data breach risks by 85%.

### 6G AI-Native Network Slice Orchestration System

Python, TensorFlow, 5G Core, Kubernetes, gRPC

- Pioneered next-generation 6G network architecture using AI-driven slice allocation algorithms, implementing reinforcement learning models that optimized network resource utilization by 45% compared to traditional methods.

- Built intelligent network orchestration platform using microservices architecture with Kubernetes, integrating with 5G Core networks through gRPC APIs and achieving sub-millisecond latency for critical applications.

#### **AI-Powered Accident Detection System**

Python, TensorFlow, VGG19, InceptionV3, OpenCV

- Published research paper implementing CNN-based accident detection using VGG19 and InceptionV3 architectures, achieving 94% accuracy in real-time video analysis with comprehensive dataset validation.
- Optimized deep learning models for edge deployment, reducing computational requirements by 35% while maintaining high accuracy for resource-constrained environments.

#### **ChromaGenius: Deep Learning Image Colorization**

Python, GANs, PyTorch, Computer Vision

- Developed sophisticated GAN-based image colorization system, achieving 20% performance improvement through iterative refinement and advanced training techniques.
- Optimized neural network architecture and training pipeline, reducing processing time by 25% while maintaining photorealistic colorization quality for historical image restoration.

### **ACHIEVEMENTS & PUBLICATIONS**

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**Winner, ITU 6G Hackathon (2025)** – Developed next-generation wireless communication solutions using AI-native network architectures for intelligent slice allocation and resource optimization.

**First Prize, HackTrax Hackathon** – Created innovative full-stack application with blockchain integration and real-time data processing capabilities for decentralized systems.

**Research Publication:** "Real-Time Accident Detection with Deep Learning" - International Conference on Pattern Recognition, demonstrating practical applications of CNN architectures in safety systems.

**Global Rank 496**, TCS CodeVita International Coding Competition (Top 1% globally) - Advanced algorithmic problem solving and competitive programming excellence.

**Top 2000 Global**, Meta Hacker Cup - Demonstrated expertise in complex algorithm design, data structures, and optimization techniques on global competitive platform.

### **CERTIFICATIONS & TRAINING**

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**Google AI/ML AICTE Virtual Internship** - Advanced Machine Learning, TensorFlow, and practical AI implementation in real-world applications with hands-on project experience.

**NPTEL Python for Data Science** - Elite Grade (Top 2%) - Comprehensive training in Python programming, data analysis, visualization, and statistical modeling techniques.

**AWS Certified Developer Associate** - Cloud computing, serverless architectures, containerization, and modern deployment strategies for scalable applications.

### **TECHNICAL SKILLS**

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**Programming Languages:** Python, JavaScript, Java, C++, TypeScript, SQL, R, Rust, Solidity

**Frontend Development:** React.js, Vue.js, HTML5, CSS3, Bootstrap, Tailwind CSS, WebAssembly

**Backend Development:** Node.js, Express.js, Django, Flask, Spring Boot, FastAPI, gRPC

**Blockchain & Cryptography:** Ethereum, Solidity, Web3.js, IPFS, Smart Contracts, Post-Quantum Crypto

**AI/ML & Deep Learning:** TensorFlow, PyTorch, Scikit-learn, TensorRT, AutoML, NLP (BERT, spaCy)

**Network & Telecommunications:** 5G/6G Core, Network Slicing, SDN/NFV, Kubernetes Orchestration

**Database Technologies:** PostgreSQL, MongoDB, MySQL, Redis, Firebase, Distributed Databases

**Cloud & Edge Computing:** AWS, GCP, Docker, Kubernetes, NVIDIA Jetson, Edge AI, HPC

**Data Science & Analytics:** Pandas, NumPy, Apache Spark, Jupyter, Tableau, Big Data Processing

**Specialized Technologies:** Computer Vision, Quantum Computing, IoT, WebRTC, Federated Learning