

# Harsh Jain

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## SUMMARY

Results-driven third-year Artificial Intelligence and Data Science student with hands-on experience in Python, C++, and full-stack web development. Proven track record of architecting scalable Machine Learning applications, Deep Learning models, and REST APIs through collaborative team projects. Strong problem-solving abilities with expertise in deploying production-ready AI/ML solutions. Passionate about leveraging cutting-edge Artificial Intelligence and Data Science technologies to solve complex problems in scalable software engineering environments.

## EDUCATION

### Savitribai Phule Pune University

Bachelor of Engineering in Artificial Intelligence and Data Science

Pune, India

Aug 2023 – May 2027

- GPA: 8.75/10
- Relevant Coursework: Machine Learning, Deep Learning, Data Structures & Algorithms, Database Management, Software Engineering, Natural Language Processing

## TECHNICAL SKILLS

**Programming Languages:** Python, C++, SQL, JavaScript, TypeScript

**Frameworks & Libraries:** FastAPI, Flask, React, NumPy, Pandas, Matplotlib, Scikit-learn, XGBoost, Optuna, TensorFlow, PyTorch, REST APIs

**Databases & Tools:** MongoDB, MySQL, PostgreSQL, Supabase, Docker, Git, GitHub, Leaflet.js

**AI/ML Technologies:** Machine Learning, Deep Learning, Reinforcement Learning (PPO), Natural Language Processing, RAG Pipelines, Model Optimization, Hyperparameter Tuning

**Core Competencies:** Data Analysis, Algorithm Optimization, CRUD Operations, Web Development, Microservices Architecture, Agile Methodology, Version Control, Performance Optimization, Team Collaboration, Problem Solving

## PROJECT EXPERIENCE

### Self-Evolving Multi-Agent Governance | Python, Ray RLlib, gRPC, Dash, PostgreSQL

Sep 2024 – Dec 2024

- Co-developed a decentralized self-governing multi-agent simulation system for autonomous decision-making using reinforcement learning (PPO algorithm) and distributed computing
- Built scalable backend microservices and real-time monitoring dashboards for agent metrics using FastAPI and Dash, enabling live performance tracking
- Applied reward optimization and policy adaptation techniques achieving 30% higher convergence rate compared to baseline models
- Collaborated with cross-functional team of 4 developers using Agile methodology and Git version control

### FloatChat - AI Oceanographic Data Explorer | React, TypeScript, FastAPI, RAG, Supabase

Jun 2024 – Aug 2024

- Built an AI-driven conversational interface enabling natural-language exploration of global ARGO oceanographic datasets with 10,000+ data points
- Integrated Retrieval-Augmented Generation (RAG) pipeline for context-aware responses and interactive data visualizations using React and Leaflet.js
- Optimized backend query handling and database indexing, improving response time by 35% and enhancing user experience
- Implemented full-stack TypeScript application with RESTful API design and real-time data streaming capabilities

### SO<sub>2</sub> Emission Prediction System | Python, FastAPI, XGBoost, Optuna, Docker

Mar 2024 – May 2024

- Architected end-to-end ML pipeline predicting SO<sub>2</sub> emissions from Indian coal power plants achieving 85% accuracy on test data
- Deployed production-ready Optuna-tuned XGBoost model via containerized FastAPI microservice with Docker, ensuring seamless cloud deployment and scalability
- Enhanced prediction efficiency by 20% through feature engineering, pipeline automation, and model optimization techniques
- Developed comprehensive REST API documentation and implemented error handling for robust production deployment

## CERTIFICATIONS & TRAINING

### Machine Learning Specialization | Andrew Ng, Coursera

Jan 2024

- Completed comprehensive 3-course specialization covering supervised/unsupervised learning, deep learning, model evaluation, neural networks, and real-world ML applications

### Python Zero to Hero | Udemy

Nov 2023

- Mastered advanced Python programming including OOP principles, automation, decorators, and professional development practices

## ADDITIONAL INFORMATION

**Technical Interests:** Artificial Intelligence, Deep Learning, Reinforcement Learning, Natural Language Processing, Computer Vision

**Languages:** English (Fluent), Hindi (Native)

**Soft Skills:** Team Leadership, Cross-functional Collaboration, Technical Documentation, Agile Development, Problem Solving