

# SANJAY DESHMUKH

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## OBJECTIVE

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AI/ML Enthusiast and Engineering student seeking internship or entry-level roles in software development, AI/ML to apply technical and analytical skills.

## EDUCATION

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### B.Tech EnTC – Vishwakarma Institute of Technology (VIT), Pune

Aug 2023 - May 2027

- Solid foundation in operating system principles, data structures & algorithms, object-oriented programming, databases, networking protocols, concurrent programming, digital electronics, analog electronics, microprocessors & microcontrollers, computer networks, signal processing, embedded systems, and communication systems.
- Current CGPA : 8.76/10

## SKILLS

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- **Languages:** C, C++, Java, Python, R, JavaScript
- **Web Development:** HTML, CSS, ReactJS, Spring Boot, Flask, TypeScript, Express.js, Node.js
- **Databases:** MySQL, PostgreSQL, MongoDB, Neo4J, Chroma, Qdrant, Pinecone
- **Systems & Computing:** Docker, Kubernetes, AWS, TensorRT, PyTorch, TensorFlow, REST, SOAP APIs, Agentic AI, Multi-Threading, OOP, Distributed Systems

## PROJECTS

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### 1. Wheat Grain Quality Classification System

Built an AI-powered web application using Flask + ResNet50 for automated wheat grain quality grading.

- Extracted 2048-D deep features and classified grains into A–F quality grades using ML models.
- Developed automated PDF reporting with grade distribution, image analysis, and performance statistics.
- Published a custom wheat dataset on Kaggle and Hugging Face for agricultural AI research.

### 2. Candlelytics – Demand Forecasting Dashboard

Built an AI-powered forecasting system using Prophet, LSTM, and XGBoost for candle demand prediction.

- Developed an ensemble time-series model to improve forecast accuracy.
- Created an interactive Flask dashboard with KPIs, sales heatmaps, and production recommendations.
- Enabled next-month and long-term production planning with downloadable forecast reports.

### 3. Concrete Crack Detection & Segmentation

Built a deep learning–based crack detection system using U-Net architecture.

- Performed image segmentation to highlight damaged concrete regions.
- Applied the model for structural inspection and infrastructure health monitoring.

### 4. AirCursor – Hand Gesture Controlled Mouse

Built a webcam-based virtual mouse using MediaPipe hand tracking.

- Enabled cursor movement, clicking, and scrolling using finger gestures.
- Implemented real-time gesture recognition with OpenCV and PyAutoGUI.

## **5. Voting Anomaly Detection using Reinforcement Learning**

Built a real-time anomaly detection dashboard using Flask and reinforcement learning–based online learning.

- Detected voting irregularities using ensemble ML models with an adaptive RL agent.
- Designed an interactive dashboard with live charts, alerts, and anomaly logs.

## **EXTRA-CURRICULAR ACTIVITIES**

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- Published 3 Research papers (2 in IEEE and 1 in Taylor and Francis)
- Got the Best Paper Award at the IEEE International Conference on Data, Energy and Communication Networks (IC-DECoN 2025), for my paper on "UAV-Assisted AI-Powered Crack Detection in High-Rise Buildings"

## **LEADERSHIP**

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- Campus Connect Secretary of ICON Club of VIT Pune.
- AI/ML Head of International Society of Automation, Pune section
- Research Analyst at The Investment Forum, VIT Pune.