

Sanidhya Rana

+916261116108 sanidhyarana5@gmail.com Github LinkedIn Portfolio

Education

Year	Degree/Exam	Institute	CGPA/Marks
2025	M.Tech	IIT Kharagpur	8.45 / 10
2023	B.Tech (Agricultural Engineering)	JNKVV, Jabalpur	7.96 / 10
2018	Senior School Certificate Examination	CBSE	72%
2016	High School Certification Examination	MPBSE (Madhya Pradesh)	76.67%

Professional Experience

Business Intelligence Intern — B.N. Agritech Ltd. (New Delhi) Project: End-to-End Quality Control Application for Edible Oil Production <ul style="list-style-type: none">Architected Flask/MySQL/Dash application monitoring 10,000+ production units, elevating quality metrics 30% via real-time analyticsCrafted custom Power BI dashboard delivering interactive actionable insights and performance visualizations across multiple facilitiesOrchestrated enterprise Azure cloud integration ensuring 99.9% uptime with regulatory compliance, enhancing operational visibility Project: Crude Sunflower and Palm Oil Price Prediction Using LSTM and SARIMA <ul style="list-style-type: none">Pioneered advanced LSTM and SARIMA predictive models achieving superior forecast accuracy in volatile agricultural commodity marketsEvaluated comprehensive historical market data implementing LSTM R² 0.85 and SARIMA MAPE 0.09% for precise trend identificationGenerated highly accurate price forecasts slashing estimation errors by 50%, powering strategic procurement and inventory optimization	May 2024 – July 2024
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Projects

Automated Degree of Milling Analysis Using Machine Vision (BIS Project), IIT Kharagpur <ul style="list-style-type: none">Engineered rice milling analysis system for 60+ varieties across 15 states using computer vision and sensor data integration.Implemented multiple assessment methods achieving R² of 0.92 through formula-based, whiteness, and RGB/Lux sensing approaches.Achieved 79% accuracy with CNN model trained on 2000 images across 4 classes, improving upon traditional inspection methods.	Nov 2024 – Apr 2025
IoT-Based Robotic Pizza Automation System (M.Tech Project) Prof. Jayeeta Mitra, IIT Kharagpur <ul style="list-style-type: none">Engineered a complete IoT ecosystem for automated pizza production combining robotic control, web interfaces, and processing nodes.Developed a Python-based interface integrating servo control, trajectory planning and real-time monitoring with web-based ordering system.Implemented anti-wobble algorithms and precise positioning control for the 4DOF robotic arm to achieve consistent food handling.Created a responsive web dashboard with real-time status updates allowing customers to customize orders and monitor system operations.	Aug 2024 – Apr 2025
Medical Interaction Checker: Advanced Drug Compatibility System <ul style="list-style-type: none">Architected comprehensive medication analysis system using RAG and Ollama LLM models, identifying potential drug interactions.Engineered Streamlit/ChromaDB full-stack solution for real-time analysis of complex medication regimens and patient conditions.Implemented sophisticated information retrieval algorithms for analyzing interactions between multiple medications and health conditions.	Nov 2024 – Jan 2025
NutriScore Predictor: AI-Powered Nutritional Analysis Tool (Term Project), IIT Kharagpur <ul style="list-style-type: none">Developed interactive AI web application predicting nutrient scores with 85% accuracy using Random Forest classifier models.Processed extensive dataset of 3.7M OpenFood Facts records using PySpark/Pandas for accurate nutrient-score prediction in Flask app.Deployed highly scalable solution with rigorous 5-fold cross-validation ensuring consistent accurate nutrient composition predictions.	Jan 2024 – Feb 2024

Technical Skills

<ul style="list-style-type: none">Machine Learning & AI: Predictive Modeling, Statistical Analysis, Classification, Regression, Neural Networks, Time Series Forecasting, Computer Vision, Natural Language Processing, Generative AI, Retrieval-Augmented Generation (RAG)Programming & Development: Python, JavaScript, SQL, HTML5, CSS3, Fast APIs, Flask, Django, StreamlitDatabases & Data Engineering: Microsoft SQL Server, MySQL, PostgreSQL, ChromaDB, PySparkLibraries & Frameworks: NumPy, Pandas, Scikit-Learn, TensorFlow, PyTorch, Keras, OpenCV, NLTK, Transformers, LangchainData Visualization: Power BI, Tableau, Matplotlib, Seaborn, Plotly, DashCloud & DevOps: Microsoft Azure, Docker, Git, GitHub, Linux, CI/CD, AWS (basic)

Certifications

<ul style="list-style-type: none">Machine Learning in Production DeepLearning.AI CourseraSupervised Machine Learning: Regression and Classification DeepLearning.AI CourseraMachine Learning with Python IBM CourseraLarge Language Models (LLMs) Concepts Datacamp
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Awards and Achievements

<ul style="list-style-type: none">Secured All India Rank 32 in the Graduate Aptitude Test in Engineering (GATE) 2023.
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Competitions

<ul style="list-style-type: none">Flipkart GRiD 6.0: Demonstrated coding and analytical skills.Amazon ML Challenge: Developed ML models for e-commerce categorization, achieving 82% accuracy.

Extracurricular Activities

<ul style="list-style-type: none">Art of Living Workshop (Yes+): Mastered breathing techniques and meditation, enhancing productivity and collaboration.Personal Interests: Competitive badminton, strategic gaming, and team competitions.
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