DEVENDRA DHAKAD | 24AG63R33

FOOD PROCESS ENGINEERING

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	M.TECH	IIT Kharagpur	8.10 / 10
2024	B.TECH	JNKVV Jabalpur	8.06 / 10
2019	High School Certificate	Shakti Vidhyapeeth School (M.P Board)	72.8%
2017	Senior School Certificate	Kashyap Vidhyapeeth School (CBSE)	8.0 / 10

INTERNSHIPS

Artificial Intelligence Intern | CodSoft **[Jul 2025 - Aug 2025]**
Project : Mushroom Species Identification
CNN | OpenCV | Jupyter Notebook | Pretrained Model | Flask | GPT-2
- Developed a web app to classify **7** mushroom species and assess edibility. Scraped and processed **11,000** images to ensure accuracy.
- Implemented **CNN** models for image classification and integrated **GPT-2** for generating detailed, real-time descriptions, enhancing user experience.
- Achieved **82%, 80%,** and **80%** accuracy with **InceptionV3, DenseNet121,** and **Xception.** Deployed a Flask app for real-time classification.
- Delivered a user-friendly tool that enhanced mushroom identification and decision-making through AI-driven insights.

PROJECTS

Multimodal Knowledge Retrieval System | Course Project | Dr. Kanishka Bhunia, IIT Kharagpur [Mar 2025 - Apr 2025]
Python | LangChain | CLIP | FAISS | PyMuPDF | Google Gemini API | Streamlit
- Architected a multimodal **RAG** system capable of extracting and reasoning over text, images, and graphs from complex PDF documents.
- Applied **CLIP embeddings with FAISS** vector indexing to enable efficient cross-modal retrieval and semantic search across large documents.
- Integrated **LangChain with Google Gemini API** to generate precise, context-aware answers through advanced multimodal reasoning.
- Developed an interactive **Streamlit** interface on a modular, scalable architecture, enabling real-time queries and seamless document exploration.

Intelligent Nutritional Analysis AI Tool | Term Project | Dr. Ronit Mandal, IIT Kharagpur [Nov 2024 - Dec 2024]
EDA | PySpark | Random Forest | k-Fold | Flask | Streamlit | FAISS | CrewAI | LangChain
- Processed and analyzed **3.7M+** food records from OpenFood Facts using **PySpark**, ensuring scalable data handling for nutritional modeling.
- Built and fine-tuned **Random Forest** (Gini criterion, 5-fold CV), achieving **85%** accuracy, with feature importance analysis for interpretable results.
- Deployed a model through a **Flask** backend **(REST APIs**) and a **Streamlit** interface, enabling real-time nutrient scoring, visualization & user interaction.
- Enhanced the system with multi-agent orchestration **(CrewAI, LangChain, FAISS)** to recommend healthier alternatives & deliver context-aware insights.

Agentic RAG–Based Drug Compatibility System | Term Project | Dr.Ronit Mandal [May 2025 - Jun 2025]
LangGraph | LangChain | Ollama LLM | ChromaDB | Streamlit | Python.
- Built an Agentic **RAG** framework with **LangGraph**, **Ollama**, and **ChromaDB** to analyze drug–drug and drug–condition interactions.
- Designed a planner–tool workflow enabling **multi-step retrieval**, validation, and synthesis of knowledge before producing compatibility reports.
- Developed a **Streamlit** interface for real-time medication safety checks, generating structured outputs with risk levels and alternatives.
- Enhanced reliability and robustness of healthcare AI by integrating reasoning steps and context-backed answers for safer clinical support.

Deep Learning for Starch Adulteration Detection in Milk Powder | MTech Project | Dr. Ronit Mandal [Jul 2025 - Present]
CNN | Transfer Learning | OpenCV | Python | Tensorflow | Raspberry Pi &Camera Module
- Designing a Convolutional Neural Network **(CNN)** in **TensorFlow** to classify sessile drop evaporation patterns for detecting starch adulteration in milk.
- Developing an image acquisition system using **Raspberry P**i and **Camera** with controlled lighting, automated capture, and preprocessing via **OpenCV**.
- Exploring transfer learning approaches to build efficient, lightweight models suitable for edge deployment on Raspberry Pi devices.
- Implementing a pipeline for **real-time prediction** by converting models into **TensorFlow Lite** for embedded AI applications in food analysis.

SKILLS AND EXPERTISE

Areas of Interest: Agentic AI | LLMs &Transformers | NLP | Machine Learning | Time Series Forecasting | Deep Learning | RAG Systems and Data Engineering | Probability and Statistics | Computer Vision and Multimodal AI
Languages/Software: Python | SQL | Microsoft SQL Server | MySQL | PySpark | Excel | Power BI | Tableau | FastAPI
Libraries/Frameworks: LangChain | LangGraph | LangSmith | LlamaIndex | CrewAI | NumPy | Pandas | Plotly | Matplotlib | Seaborn | Statsmodels | Scikit-Learn | NLTK | SciPy | OpenCV | TensorFlow | Keras | SQLite3 | Streamlit | Hugging Face Transformers
DevOps/Tools: HTML | CSS | Microsoft Azure | Docker | Git | GitHub

CERTIFICATIONS

- Supervised Machine Learning: Regression and Classification | DeepLearning.AI | Coursera
- RAG using LangChain, LangGraph &LangSmith | Udemy
- Excel Basics for Data Analysis | IBM | Coursera
- SQL for Data Science | UC Davis | Coursera
- Power BI Workshop | Office Master

AWARDS AND ACHIEVEMENTS

- Secured All India Rank **- 53** in Graduate Aptitude Test in Engineering **(GATE)** 2024.

POSITIONS OF RESPONSIBILITY

- Working as **Teaching Assistant** in AGFE Department at IIT Kharagpur, contributing to effective instruction and academic assistance

EXTRA CURRICULAR ACTIVITIES

- Actively participated in various activities as a volunteer at the National Service Scheme**(NSS)** unit including health camps and awareness campaigns.
- Attended an Art of Living workshop **Yes +** and learned powerful breathing techniques, yoga, meditation & practical wisdom for our modern world.
- Actively participated in Illumination at IIT Kharagpur and represented hostel through active involvement in volleyball.

!Self declared by the student, CDC could not verify the relevant documents