Neha Dhirendra Sirur

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Education

BE in Computer Science, KLE Technological University, Hubballi — CGPA : 9.31 — 2025
Pre-University degree, Vidyaniketan PU Science College, Hubballi — Percent : 97.6% — 2021
Class X, Smt. Vimala Kulkarni Memorial School, Hubballi — Percent : 95.2% — 2019

Certifications

- Version Control System using Git
- Networking Basics Certificate by Cisco
- Kubernetes & Docker Course (Kubernetes & Docker) (Infosys Springboard)
- AWS Academy Cloud Foundations

Technical Skills

- Programming languages (C, C++)
- Data Analytics and Visualisation (Python)
- Machine Learning and Artificial Intelligence
- Web development (MERN, SQL)
- Database Management (SQL, No SQL)
- Java (Spring Boot)

Publications

- **An Improved Explainable AI Model for Plant Disease Detection**
  Paper Accepted at 5th ICDSA 2024, MNIT, Jaipur, Rajasthan, and Published in Springer — June 2024
- **Explorative Analysis for Predicting Direct and Indirect Affected Population due to Alcohol Abuse in Karnataka using Machine Learning Techniques**
  Paper Accepted at 5th ICDSA 2024, MNIT, Jaipur, Rajasthan, Published in SBS Proceedings — June 2024
- **An Efficient Multilingual Text Classification using IndicCorp dataset**
  Paper Accepted at IEEE 5th GCAT, 2024, Bangalore, Karnataka — July 2024
- **Musical Alchemy Generative AI for Inter-Instrumental Synthesis**
  Paper Accepted at 3rd ADCIS, 2024, Bits Pilani, Goa — Aug 2024
- **Strategies for Detecting Counterfeit Products in the Global Food Supply Chain**
  Paper Accepted at 4th ICUIS, 2024, Erode, Tamil Nadu — Dec 2024
- **Enhancing Classification with Joint Representation Learning on Multimodal Data**
  Paper Accepted at 5th CVR, 2025, NIT Goa — April 2025

Projects

- **Musical Alchemy: Generative AI for Inter-Instrumental Synthesis (*Team lead*)**
  - Developed a generative AI model using LSTM networks to synthesize harmonium music from piano datasets, advancing AI-driven music generation.
  - Preprocessed over 250 MIDI/WAV files using the Music21 library and employed One-Hot encoding for unbiased learning.
  - Achieved 91.32% training accuracy and demonstrated creative divergence with a Jaccard Similarity score of 0, showcasing the model's novelty.
  - Implemented in Python with TensorFlow/Keras for model training, exploring innovative applications in Indian classical music education and therapy.

- **An Improved Explainable AI Model for Plant Disease Detection (*Team lead*)**
  - Developed an Explainable AI model for plant disease detection using Federated Learning (FedAvg) for decentralized training and data privacy.
  - Achieved 96.6% accuracy with a Federated model and enhanced interpretability through LIME-based explanations.
  - Implemented using PyTorch and the FLOWER framework, ensuring robust, interpretable, and privacy-preserving predictions.
- **Crop Wellness Analyser (*Team lead*)**
  - Developed a Full-Stack web application using React (Frontend), Spring Boot (Backend), MySQL and MongoDB for efficient data storage, optimizing crop productivity and supporting small-scale farmers.
  - Built a Crop Information System with a relational database schema, handling data for plants, diseases, symptoms, solutions, and precautions using MySQL.
  - Integrated a Disease Management System by converting a machine learning disease classification model into an API using Flask, Axios, and CORS, enabling real-time disease detection from user-uploaded images.
  - Implemented a User Query System to store user inquiries in a database, facilitating responses from admins to resolve farmer issues effectively.
- **Explainable AI with Fuzzy C Means for Groundnut Leaf Disease Classification and Severity Estimation (*Team lead*)**
  - Used TensorFlow to implement a pre-trained ResNet50 model for classifying six classes of groundnut leaf diseases.
  - Applied Grad-CAM with OpenCV and Matplotlib to visualize key regions, enhancing model interpretability.
  - Employed Fuzzy C-Means clustering for unsupervised severity estimation based on pixel characteristics.
  - Developed a comprehensive pipeline combining classification, visual insights, and severity analysis for targeted interventions.

Internship

Knit Space Private Limited July - Aug 2023

Managing the Common Identifying Specifications which included design and implementation in Python along with sub-tasks of analysis on the domain of search and processing engines.

- Developed Python tools to analyse and process product data from JSON files.
- Built interactive search functions for identifying common specifications across devices.
- Implemented algorithms to update JSON files with most common device specifications.
- Utilized Pandas and Counter for efficient data analysis and manipulation.

Allstate India Feb 2025 - Present

- Developed a full-stack e-commerce web application using React, Spring Boot, and Oracle Database with responsive UI styled using Tailwind CSS.
- Implemented core features including user authentication, product listing, cart/wishlist management, and order processing with RESTful API integration and Context API for state management.
- Followed TDD and OBD principles; tested APIs using Postman, wrote JUnit test cases, and planned Selenium scripts for end-to-end UI testing.

Strengths

- Teamwork
- Communication
- Problem solving
- Leadership