Balabhadra Sudhamsh

Warangal,Hanamkonda,Telangana,India || +91 9390661141
Portfolio || LinkedIn || Github || sudhamshbalabhadra@gmail.com

EDUCATION

SRU — *B Tech in CSE* JUNE 2022 -JUNE 2026

CGPA: 8.3 (as of current semester)

Sri Chaitanya Junior College, — *MPC* SEPTEMBER 2020 - MAY 2022

Percentage: 80.8%

SKILLS

Programming Languages: Python, C, HTML, CSS, JavaScript
Machine Learning: Data Preprocessing, Supervised Learning, Neural Networks (ANN), Model Evaluation, Hyperparameter Tuning, SMOTE, Feature Engineering, Optimization Algorithms (I-GWO, COA, MVO, E-WOA)
Tools & Technologies: Jupyter Notebook, VS Code, star UML, Vercel, GitHub, Git
Languages : English (Fluent) ,Telugu (Native), Hindi

PROJECTS

Thyroid Recurrence Prediction using E-WOA Optimized ANN, Crayfish Optimization, and I-GWO Optimized ANN

- Designed and trained deep learning models using TensorFlow to predict thyroid cancer recurrence based on 4,482 clinical and pathological records.
- Preprocessed data with SMOTE, one-hot encoding, and MinMax scaling, improving class balance and reducing false negatives by 18%.
- Leveraged optimization algorithms—**I-GWO (97.4% accuracy, 0.97 F1)**, **COA (96.1%, 0.96 F1)**, and **E-WOA (95%, 0.95 F1)**—achieving up to 6% better accuracy than traditional backpropagation.
- Reduced validation loss from 0.40 to 0.07 through optimized weight tuning, enhancing generalization on unseen test sets.
- GitHub: Crayfish Optimizer, Grey Wolf Optimizer, Whale Optimizer .

Insurance Fraud Detection System

- Engineered a machine learning pipeline on a dataset of 4,482 vehicle insurance claims, **Detected fraud with 92% accuracy and 0.91 F1-score**, improving claim screening by over 30% with Random Forest.
- Preprocessed and structured 33 features, handling missing values, encoding 15 categorical fields, and selecting top 12 predictors.
- Benchmarked Logistic Regression, Decision Tree, and Random Forest models, with Random Forest outperforming others by 7% in accuracy.
- Enabled predictive insights that could help insurers flag over **30% of high-risk claims** with minimal false positives.
- GitHub: Insurance Fraud Detection .

Multiclass Skin Cancer Classification using Ensemble Deep Learning & XAI

- Built a complete deep learning pipeline for skin lesion classification using the ISIC dataset, covering data exploration, preprocessing, augmentation, and model training.
- Developed an ensemble inference system combining EfficientNetV2-S, ConvNeXt-Tiny, and Swin-Tiny backbones for superior predictive stability and robustness.
- Implemented Test-Time Augmentation (TTA) and temperature scaling to improve generalization under varied image conditions.
- Integrated Grad-CAM explainability to highlight lesion regions influencing model predictions, enabling transparent decision-making.
- Created a full Streamlit application for real-time classification, top-3 probabilities, class descriptions, and downloadable Grad-CAM visualizations.

- Designed flexible PyTorch modules with safe checkpoint loading, custom classifier heads, ensemble averaging, and automatic CAM-layer detection.
- Tech Stack: PyTorch, timm, TorchVision, Grad-CAM, Streamlit, PIL, NumPy.
- GitHub: Multiclass Skin Cancer Classification using Ensemble Deep Learning & XAI .

AI-Powered Campus Connect Platform

- Built an AI-powered student–alumni networking platform using 10+ technologies (Next.js, Firebase, Gemini LLM, Tailwind, ShadCN), delivering a 40% increase in accurate student–alumni matches across 5 key profile attributes (skills, interests, goals, academics, experience).
- Implemented 15+ real-time features including chat, authentication, event tracking, job listings, and profile management using Firestore and Cloud Functions, reducing data sync latency by 30% and improving system uptime to 99%.
- Integrated AI-based recommendations for alumni discovery, job insights, and event suggestions, boosting platform engagement by 50% during testing across 2 user roles (Student, Alumni).
- GitHub: AI-Powered Campus Connect Platform .

EXPERIENCE

- Contributed to real-world ML projects during an AI-ML Internship supported by Google for Developers through the India Edu Program, focusing on machine learning model development, data preprocessing, and supervised/unsupervised learning using Python.

ACHIEVEMENTS

- Competed in 12-hour programming hackathon conducted by School of Computer Science and Artificial Intelligence of SR University.
- Represented a team at SRU Idea Conclave and secured 19th place among top 30 participants by presenting a tech solution and contributing to team coordination and execution.