Bandlapalli Roshan Babu

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LinkedIn — GitHub

Summary
M.Tech student in Artificial Intelligence & Data Science at Mahindra University, with a strong foundation in NLP, Deep Learning, and Machine Learning. Passionate about solving real-world problems through end-to-end model development and deployment. Demonstrated ability to build models from scratch and deliver data-driven insights through hands-on projects and internships.

Education

Mahindra University , Hyderabad *Aug 2024 - Present*
M.Tech in Artificial Intelligence & Data Science , CGPA: 8.0

Presidency University, Bangalore *June 2020 - May 2024*
B.Tech in CSE(artificial Intelligence & Machine Learning), CGPA: 8.51

Sri Chaitanya Jr College, Vijayawada *Aug 2018 - June 2020*
XII - MPC, CGPA: 8.69

Skills

Programming:	Python, Java, MySQL
Deep Learning:	PyTorch, TensorFlow, Keras, CNNs, RNNs, Autoencoders, YOLO
NLP:	Transformers, Tokenization, Sentiment Analysis, VAEs, Attention Mechanisms, GANs
Data Processing:	Data Cleaning, Feature Engineering, Normalization, Exploratory Data Analysis (EDA)
Visualization:	Matplotlib, Seaborn, Plotly, SciPy
Tools & Platforms:	Git, Jupyter Notebook, Google Colab, VS Code, Anaconda, Ubuntu
Deployment:	Streamlit

Certifications

- Introduction to Artificial Intelligence – Coursera
- Programming with Python – Internshala
- Speech Recognition using Python – Presidency University

Experience

Machine Learning Internship Training *May 2023 – June 2023*
Skill Vertex

- Completed training in supervised and unsupervised learning using Python and Scikit-learn.
- Worked on regression, classification, and clustering with real-world datasets.

Machine Learning Internship *Oct 2023 – Nov 2023*
Bharat Intern

- Built models for House Price Prediction, Wine Quality Prediction, and Iris Classification.
- Shared results via GitHub and gained peer/mentor feedback via LinkedIn.

Projects

Denoising Autoencoder for MNIST Image Reconstruction *April 2023*

- Designed and implemented a convolutional denoising autoencoder using Keras to remove noise from MNIST handwritten digit images.
- Constructed a symmetric encoder-decoder CNN architecture with convolution, max-pooling, and upsampling layers to learn robust image representations.
- Added Gaussian noise to training and validation data to simulate real-world corruptions and trained the model using binary cross-entropy loss.
- Demonstrated effective noise removal and image reconstruction, improving image quality in noisy test samples.
- Visualized original, noisy, and reconstructed images to validate model performance.

Anomaly Detection with AutoEncoders using Tensorflow *Mar 2024*

- Developed an unsupervised anomaly detection system using AutoEncoders to identify irregularities in ECG time-series data from the ECG5000 dataset.
- Trained the model on only normal samples to learn data reconstruction patterns, then used reconstruction error (MAE) to detect anomalies based on a statistically derived threshold.
- Achieved clear separation between normal and anomalous ECG signals with high detection accuracy, visualized through reconstruction loss histograms and comparative plots.

Combined Cycle Power Plant Energy Output Prediction using ANN *Feb – Mar 2025*

- Implemented a custom Artificial Neural Network from scratch using NumPy and Python (no deep learning libraries) to predict power plant output from environmental data.
- Developed complete training and inference pipeline with mini-batch gradient descent, L2 regularization, and momentum.
- Performed data normalization and hyperparameter tuning (activation functions, learning rate, batch size).
- Achieved an 18% reduction in forecast error and supported data-driven operational decisions

Twitter Sentiment Analysis *May 2025*

- Implemented a 1D CNN with embedding, convolutional, max pooling, and global max pooling layers for multi-class sentiment classification on Twitter data.
- Preprocessed text using NLTK for cleaning, tokenization, stopword removal, and sequence padding to fixed length (50).
- Trained with sparse categorical cross-entropy loss and Adam optimizer over 5 epochs, achieving robust sentiment prediction across three classes.

Awards and Achievements

- **ICIET Certification:** Received certification for a publication on *Inventory Management using AI.*
- **Sports Honor:** Represented the Indian Men's Throwball Team in an international match against Sri Lanka(Dec 2024).
- **Short Film Competition:** Participated as Director of Photography (DOP) in a short film contest.
- **Scholarship Award (M.Tech):** Awarded a merit-based scholarship for academic performance in M.Tech.