

Aditya Suman

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SUMMARY

Machine Learning Engineer specializing in developing and optimizing machine learning models and deploying Algorithms. Proficient in supervised/unsupervised learning, deep learning, and reinforcement learning. Strong background in model evaluation, data preprocessing, and performance tuning. Experienced with Python, PyTorch, TensorFlow, scikit-learn, cloud platforms, containerization.

WORK EXPERIENCE

IEEE RAS - Junior Coordinator and Core Community 2023 - 2024

- Led hands-on training sessions on Arduino kits for 20+ freshmen, covering embedded C++, circuit design, and IoT basics.
- Simplified core electronics and sensor integration through interactive projects and live demos.
- Engineered a centralized event tracking and task delegation website using GitHub Pages, streamlining coordination across the IEEE RAS team and cutting down task completion time by approximately 2 days.

KEY PROJECTS

Lunar Lander Simulation with Reinforcement Learning | [Github](#)

- Trained agents using Deep Q-Learning, Vanilla DQN, Rainbow DQN, and Monte Carlo methods.
- Reduced convergence time by 35% from 2000 to 1300 episodes using prioritized experience replay in Rainbow DQN.

Heart Disease Prediction Using Genetic Algorithm For Feature selection | [Github](#)

- Developed a heart disease prediction system using Genetic Algorithms for optimal feature selection and evaluated performance across multiple machine learning models.
- Trained and fine-tuned models including Logistic Regression, Decision Tree, Random Forest, SVM, KNN, Gradient Boosting, XGBoost, AdaBoost, Naive Bayes, and MLP Neural Network.
- Applied GridSearchCV for hyperparameter optimization and used evaluation metrics including accuracy, precision, recall, F1 score, and AUC-ROC for comprehensive model comparison. visualized performance and feature importance to aid in model interpretation and clinical insight.
- Random Forest: Accuracy 94.96% , XGBoost: Accuracy 94.80%

BERT Fine-Tuning for Sentiment Analysis | [Github](#)

- Fine-tuned a BERT model using PyTorch, achieving 80% accuracy, 0.82 precision, 0.78 recall, and an F1 score of 0.80 on the test set. Evaluated model using confusion matrix and tracked loss curves to monitor training stability

Neural Networks Built From Scratch in c++ | [Github](#)

- Developed a custom neural network library from scratch in C++ with a focus on performance, modularity, and low-level understanding of deep learning fundamentals.
- Implemented key components including forward / backward propagation, gradient descent, and activation functions

Building an Transformer using Pytorch | [Github](#)

- Built a Transformer model from the ground up using PyTorch, implementing components such as multi-head self-attention, positional encoding, and layer normalization.
- Designed both encoder and decoder stacks for sequence-to-sequence tasks like machine Translation.

Mushroom Binary Classification Using Extreme Gradient Boosting | [Github](#)

- Built a binary classifier using XGBoost to predict whether a mushroom is edible or poisonous based on physical attributes.
- Tuned hyperparameters using GridSearchCV, optimizing for maximum accuracy and minimal overfitting.

EDUCATION

Manipal university Jaipur

Bachelor's of science , Computer Science

2022-2026

cumulative GPA : 7.4 / 10

Delhi Public School BN – Senior Secondary

CBSE – Physics, Chemistry, Math

2020-2022

COURSES

Stanford Machine Learning Specialization (Coursera)

Google Data Analytics Specialization

Introduction to Quantum Computing – NPTEL (IIT Madras)

Completed with an Elite Score in a center-based final exam

Design and Analysis of Algorithms – NPTEL (IIT Madras)

Completed with an Elite Score in a center-based final exam