Achyut Pandey

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Education

Indian Institute of Information Technology — Bhopal
B.Tech Information Technology — (CGPA-8.85) 2022 - 2026

GN National Public School — Gorakhpur
Senior Secondary (92.4%) — 2021-22

Projects

Cart Pole Agent — GitHub

- Trained a neural network agent using **Reinforcement Learning** to play a cart pole game provided by the CartPole-v1 environment of gymnasium, used algorithms like Q-learning and SARSA to train the network
- Combined 4 layers of neural network to improve efficiency, used activation functions like **Sigmoid** and **ReLU**, evaluated model performance through metrics like total reward over episodes
- Engineered a customized training loop with epsilon-greedy exploration policy and Q-network optimization to test model performance for different parameters such as learning rate, reward discounting and number of episodes
- Increased reward of the model by 50% by employing epsilon decay, batch normalization and drop-out

Fraud Detection Model — GitHub

- Applied **Self Organising Map** (unsupervised ML) to find outliers in a credit-card dataset and predict potential fraudulent customers, utilized more than 5 libraries like **Minisom**, **Scikit-learn**, Matplotlib, NumPy and Pandas
- Implemented **feature scaling** to reduce impact of outliers, bringing data to same scale ensuring a minimum accuracy of 90%, also conducted thorough data exploration and cleaning to further optimize and tune model performance
- Evaluated the model's performance using key metrics like **Mean Squared Error** and **Root Mean Squared Error** and provided graphical output for easy interpretation and readability of results through a 10x10 **Confusion matrix**
- Modified the code aiming to minimise manual work by automating the process of entering co-ordinates of outliers from confusion matrix and printing the Id of fraudulent applications mapped to those cells in the matrix

Movie Recommending System — GitHub

- Designed a movie recommending system using machine learning and filtering techniques to suggest movies similar to a input movie, utilised more than 4 libraries such as **Natural Language Toolkit**, **Scikit-learn**, NumPy and Pandas
- Employed similarity metrics such as **Cosine similarity** to train model based on movie data and leveraged 2 functions named **CountVectorizer** and **PorterStemmer** to improve model performance by removing irrelevant words
- Analysed data to understand patterns and performed feature engineering to enhance input data quality, Executed item-based and content-based filtering considering more than 4 parameters such as movie genre, actors and directors

Stock Management Software — GitHub

- Made a stock management software through **python** language and using **MySQL** as Database Management System aimed to digitalize inventory tracking and supply chain to reduce manual work and increase operational efficiency
- Designed **database schemas** and by decomposing main table into 2 tables to efficiently store and manage data, also utilized **SQL queries** for data retrieval, updates and transactions to maintain accurate data after sale of items
- Implemented authentication and authorization mechanisms to ensure data security and access control, performed rigorous testing along with identifying and resolving bugs to deliver a robust, optimized and reliable system

Achievements

- Rated **1865** (**Knight**) at **Leetcode**, **1354** at **Codeforces** and **3 Star** at **CodeChef** (Highest rating **1759**) Achieved Global Rank **59** in Starters 146 conducted on CodeChef
- Solved more than **500 problems** related to Data Structure and Algorithms on various coding platforms like LeetCode, GeeksforGeeks and CodeStudio with approximately **100 easy**, **250 medium** and **80 hard** questions
- Secured $\mathbf{4}^{th}$ rank in Game of Codes, a competitive coding contest organised by the coding club of IIIT Bhopal
- Ranked $\mathbf{4}^{th}$ in a **Hackathon** in IIIT Bhopal, developed a **Tele-Medicine Kiosk** software through Machine Learning solving the problem statement by **Ministry of Health** of Kerala Government
- Completed a 7-week machine learning course and learnt about various machine learning algorithms in detail — Link

Skills

Programming Languages:	C, C++, Python, LaTeX, Matlab, SQL
Devops Tools:	Git, GitHub, VS Code
Database Management Systems:	MySQL
Coursework:	Data Structure and Algorithms, OOPs, Computer Networks, Operating System
Machine Learning:	Regression, Classification, Clustering, Reinforcement Learning
Libraries / Frameworks:	TensorFlow, Keras, ScikitLearn, Seaborn, Matplotlib, NumPy, Pandas