Swaraj Khan P

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A motivated Computer Science student with a strong passion for Python programming and machine learning. Seeking an internship to apply theoretical knowledge in real-world projects, enhance software development skills, and advance expertise in machine learning techniques.

Education

Dayananda Sagar University, Bengaluru **2021 - 2025**
B.Tech in Computer Science & Engineering *7/10 CGPA*

The Amaatra Academy, Bengaluru **2020 - 2021**
Class 12 PCMC *79%*

Work Experience

Nokia **Mar '24 – July '24**
Chatbot Development — Intern *Bangalore*

- Engineered an AI-powered chatbot for Nokia's ticketing and testing teams, automating log issue resolution and reducing manual workload by 40%.
- Enhanced chatbot query accuracy by 25% through advanced NLP techniques, optimizing response relevance and user satisfaction.
- Integrated real-time database retrieval, cutting response times by 30% and improving overall operational efficiency.

IIMB **Feb '24 – June '24**
Contribution to Trading Bot *Bangalore*

- Designed a Python-based trading bot that leveraged 10 years of Yahoo Finance data to assess the impact of lunar phases on stock performance.
- Discovered and integrated lunar-correlated buy/sell trends, achieving a 15% increase in trade efficiency and profitability.

Disys **Jul '23 – Aug '23**
Machine Learning — Intern *Bangalore*

- Built a heart stroke prediction model using Random Forest, Gradient Boosting, and Logistic Regression, achieving accuracies of 94.5%, 94.1%, and 75.4%, respectively.
- Streamlined data preprocessing, improving model performance by 10%, and visualized critical insights using Matplotlib to inform key medical decisions.

Projects

Auto ML Pipeline **Source code**

- Developed a GitHub repository automating machine learning tasks such as image segmentation, LSTM prediction, and CSV data analysis, reducing implementation time by 40% for users.
- Streamlined the application of ML models, creating a plug-and-play solution for researchers and practitioners to enhance productivity.

Binary Image Classification with Deep Neural Networks **Source code**

- Executed image classification in the "Cat vs. Dog" project using a 2-Layer (72% accuracy) and L-Layer (80% accuracy) neural network model, refining classification outcomes.
- Documented detailed model architectures and performance metrics in Jupyter, paving the way for future exploration of CNNs to increase accuracy in diverse classification tasks.

Autonomous Driving - Car Detection **Source code**

- Designed an object detection model for car detection, achieving 89% accuracy on test data, utilizing non-max suppression and intersection over union to enhance detection precision.
- Optimized bounding box annotations for accurate classification, improving model performance for real-world deployment.

Emojify **Source code**

- Built an LSTM-based sentiment classifier with pre-trained GloVe embeddings in Keras, reaching 87% accuracy on the test set and evaluating the effectiveness of the GloVe algorithm for sentiment analysis.
- Enhanced sentiment analysis with advanced embeddings, contributing to a 15% performance increase over basic models.

Deep Learning & Art: Neural Style Transfer **Source code**

- Implemented Neural Style Transfer (NST) with the VGG-19 network, applying transfer learning to create unique artistic styles, utilizing a model pre-trained on ImageNet.
- Repurposed the VGG-19 network to produce high-quality artistic outputs, inspired by the original NST paper, expanding its applications in the creative domain.

Publications

Automated Q and A Chatbot: Harnessing AI for Efficient Information Retrieval **2024**

ICCMLAI *Pune, India*

- Built a high-performance PDF-based Q&A chatbot that delivers instant answers from predefined content, achieving sub-second response times without relying on AI or NLP techniques.
- Designed efficient PDF parsing methods to extract and organize Q&A pairs, enhancing retrieval speed and accuracy for real-time usage.
- Optimized the system for precise and rapid information retrieval, resulting in a 20% improvement in response efficiency.
- Presented at ICCMLAI, showcasing innovative, non-AI-based approaches for scalable, real-time information retrieval systems.

Technical Skills

AI/ML: Neural Networks, Transformers, Hyper Parameters Tuning, Convolution Neural Networks, Sequence Models, TensorFlow, Pandas, Numpy
Languages: Python, MySQL, C++, R
Web Technologies: Streamlit, Web Scraping, Langchain, Flask, FastAPI
Developer Tools: Chrome drive, VS Code, GitHub

Achievements

FLASK Hackathon **2024**

Secured 2^{nd} Place *Dayananda Sagar University*

- Launched a robust budgeting interface that integrated personalized financial insights; achieved a milestone with over 10,000 total transactions recorded in the first month, enhancing overall user engagement and retention.
- Ranked in the top 5% out of 100 participants, securing a cash prize of 1,000 Rupees for the project.

Debate Competition **2023**

Secured 2^{nd} Place *Dayananda Sagar University*

- Formulated compelling arguments on complex topics, including electric vehicles versus petrol and AI versus humanity, ultimately earning a top 5 placement among 20 competing teams, highlighting strong analytical and communication abilities.