Swaraj Khan P

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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*

- Developed an AI-driven internal chatbot for Nokia's ticketing and testing teams, automating the resolution of log issues.
- Leveraged NLP techniques to enhance the chatbot's ability to understand and respond to complex user queries, improving accuracy and relevance.
- Implemented a database integration for real-time retrieval of ticket solutions, boosting operational efficiency and reducing response times.

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

- Developed a Python-based trading bot that analyzes the impact of the Moon's phases on stock performance using 10 years of historical data from Yahoo Finance.
- Identified buy/sell trends and popular stocks correlated with the full moon, integrating these insights into automated trading strategies.

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

- Developed a predictive model for heart strokes using patient data, applying Random Forest, Gradient Boosting, and Logistic Regression, achieving accuracy of 0.945, 0.941, and 0.754, respectively.
- Performed comprehensive data cleaning, feature selection, and visualized key insights using Matplotlib, including correlation matrices and bar graphs, to enhance model performance.

Projects

Auto ML Pipeline **Source code**

- Created a GitHub repo for a project called Auto ML pipeline which automated machine learning tasks including image segmentation, LSTM prediction, and CSV data analysis.
- This pipeline aimed to simplify the process of implementing machine learning models for various tasks, providing a seamless experience for researchers and practitioners alike.

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

- Explored image classification using deep neural networks in the "Cat vs. Dog" project, assessing the performance of 2-Layer (72% accuracy) and L-Layer (80% accuracy) neural network models.
- Detailed architecture, implementation, and performance metrics in a Jupyter notebook.
- The future objectives involved experimenting with different architectures, delving in1 to convolutional neural networks (CNNs), and expanding the model to tackle various image classification tasks.

Autonomous Driving - Car Detection **Source code**

- Developed an object detection model for a car detection dataset, achieving 89% accuracy on the test set through advanced techniques like non-max suppression and intersection over union.
- Managed bounding box annotations to accurately detect and classify cars, optimizing model performance for real-world applications.

Emojify **Source code**

- Built a sentiment classifier in Keras using pre-trained GloVe embeddings, achieving 87% accuracy on the test set and exploring the pros and cons of the GloVe algorithm.
- Developed and trained an advanced LSTM-based classifier, leveraging word embeddings for improved sentiment analysis performance.

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

- Implemented Neural Style Transfer (NST) using transfer learning by leveraging the pre-trained VGG-19 network, a 19-layer convolutional model trained on the extensive ImageNet database.
- Applied the principles from the original NST paper to repurpose the VGG network, trained on one task, for a novel artistic style transfer application.

Publications

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

ICCMLAI *Pune, India*

- Developed a PDF-based Q & A chatbot application that efficiently retrieves answers using predefined content without AI or NLP.
- Implemented PDF parsing techniques to extract and structure Q & A pairs for quick lookup and response.
- Streamlined the system for high accuracy and low latency in response times, making it suitable for real-time applications.
- Presented findings at the International Conference on Computer Science, Machine Learning, and Artificial Intelligence (ICCMLAI) in Pune, highlighting innovative methods for non-AI-based 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*

- Built an interactive user friendly interface where an user can track his expenses and perform budget planning.
- Got selected being in top 5% out of 100 students who applied, got a cash price of Rs 1000/-.

Debate Competition **2023**

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

- Competed against 20 teams with multi disciplinary topics ranging from EV vs Petrol till AI vs Mankind