SWARAJ KHAN P

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An ambitious and dynamic candidate deeply passionate about Python programming and proficient in machine learning. Actively pursuing a Bachelor's degree in Computer Science, with a keen focus on enhancing skills in software development, specifically in the domain of machine learning. Eagerly seeking an internship opportunity to apply theoretical knowledge to real-world projects, contribute effectively, and further advance expertise in machine learning techniques.

Work Experience

Nokia **Mar '24 – Present**
Chatbot Development Intern *Bangalore*

- Developing a chatbot for internal teams to assist with log analysis during testing.
- Using NLP to help employees understand log messages by providing suitable answers to their queries.

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

- Working on building a trading bot with Python based on Moon's position.
- Analyzing 10 years of historical data from Yahoo Finance.
- Identifying buy/sell trends and popular stocks based on the full moon impact.

Disys **Jul '23 – Aug '23**
Stroke Prediction Intern *Bangalore*

- Built a model from patient database to predict heart strokes.
- Performed data cleaning, manipulation, and handled missing values.
- Conducted feature selection and utilized confusion matrix for evaluation.
- Visualized data using Matplotlib, including correlation matrix and bar graphs.
- Implemented algorithms such as Random Forest (0.945), Gradient Booster (0.941), and Logistic Regression (0.754).

Education

B.Tech - CSE (*Dayananda Sagar University, Bengaluru*), 2021 - 2025 7/10 CGPA
Class 12 (*The Amaatra Academy, Bengaluru*), 2020 - 2021 79% PCMC

Achievements and Certifications

FLASK Hackathon **2024**
Secured 2nd Place *Dayananda Sagar University*

- Built an interactive user-friendly interface where a user can track expenses and perform budget planning.
- Selected from the top 1.0% out of 100 students who applied, awarded a cash prize of 1000 INR.

Innovoquest Hackathon **2024**
Secured 3rd Place *Dayananda Sagar University*

- Proposed an idea on how to solve traffic congestion
- Utilized Google's traffic API to showcase trends and highly congested areas and provide its alternatives in Bengaluru

Debate Competition **2023**
Secured 2nd Place *Dayananda Sagar University*

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

Deep Learning Specialization - Andrew Ng Link
Structuring Machine Learning Projects Link
Sequence Models Link
Improving Deep Neural Networks Link
Neural Networks and Deep Learning Link
Deep Neural Networks with PyTorch Link
Art of Promt Engineering Link

Projects

Auto ML Pipeline **Source code**

- Established a GitHub repository for a project named Auto ML Pipeline, designed to automate machine learning endeavors encompassing image segmentation, LSTM prediction, and CSV data analysis, all achieving an average accuracy of approximately 93%.
- This initiative was crafted to streamline the implementation of machine learning models across diverse tasks, fostering a seamless operational interface for both researchers and practitioners.

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

- Explored image classification utilizing deep neural networks within the "Cat vs. Dog" project, evaluating the efficacy of 2-Layer (72% accuracy) and L-Layer (80% accuracy) neural network models.
- Comprehensively documented architecture, implementation details, and performance metrics within a Jupyter notebook.
- Future objectives entail experimenting with diverse architectures, further exploration into convolutional neural networks (CNNs), and extending the model's capabilities to address a spectrum of image classification tasks.

Autonomous Driving - Car Detection **Source code**

- Spearheaded the development of an autonomous car driving system, harnessing advanced methodologies including object detection, non-max suppression, and intersection over union.
- Engineered a robust neural network model, comprising approximately 50.98 million trainable parameters, leveraging convolutional layers, batch normalization, and Leaky ReLU activation functions.
- Achieved a notable accuracy rate of 89% in detecting objects within a specialized car detection dataset, showcasing adeptness in deep learning techniques for autonomous driving applications.

Emojify **Source code**

- Developed a sentiment classifier utilizing word embeddings, achieving a test accuracy of 87.5%.
- Implemented an LSTM-based model architecture, comprising 20,223,927 total parameters with 223,877 trainable parameters.
- Utilized pre-trained word vectors via the GloVe algorithm for the embedding layer, optimizing model performance while reducing the risk of overfitting.

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

- Neural Style Transfer (NST) used a previously trained convolutional network, and built on top of that. The idea of using a network trained on a different task and applying it to a new task is called transfer learning.
- Following the original NST paper, I used the VGG network. Specifically, I used VGG-19, a 19-layer version of the VGG network. This model had already been trained on the very large ImageNet database.

Technical Skills

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