TADIWANASHE NIGEL NYAMAPFENE

https://github.com/n1gek/ || linkedin.com/in/tadiwa-nyam || tnashe.zw@gmail.com

EDUCATION

Rust College **Holly Springs, MS**
Bachelor of Science in Computer Science: 4.0GPA *Expected December 2026*
Relevant Coursework: Machine Learning, Database Management, Generative AI, Data Analysis, Big Data

SKILLS

Programming Languages: Python, R, SQL, JavaScript, Java(Beginner), C++(Beginner), HTML/CSS
Libraries: TensorFlow, Scikit-learn, Matplotlib, Scipy, Numpy, Pandas, Seaborn
Tools and Technologies: AWS, Jupyter Notebook, GitHub, Excel, Django, Flask, React, Next.js
Data Analysis: A/B Testing, Statistical Modelling, Hypothesis Testing, MATLAB, Tableau, ETL Pipelines, Hadoop

EXPERIENCE

Tufts University **Medford, MA**
Machine Learning Research Assistant June 2024-August 2024

- Conducted research on Image Classification, benchmark for comparative analysis between Traditional Machine Learning (ML) techniques and Optimal Transport methods for classifying images.
- Developed and fine-tuned an Image Classification using **TensorFlow** and **CNN**, achieving an accuracy of **80.14%**. on a dataset of 10,000 images.
- Leveraged **GPU**s, to efficiently train models, improving model accuracy by over **20%**, and training speed by **50%.**

Headstarter AI **Remote**
Software Engineering Fellow August 2024-September 2024

- Built and deployed 4 AI projects in 5 weeks using **React.js**, **Next.js**, **Firebase**, **Clerk**, and **Vercel** with weekly sprints and incorporated **CI/CD** practices for iterative deployment.
- Collaborated with 3 fellows to build an interactive customer support agent using **Next.js**. Implemented **OpenAI** to enable the agent to respond based on the company's knowledge base.
- Developed an educational flashcard application using **React.js** and implemented **OpenAI** to generate adaptive flashcards that adjust difficulty based on user performance, optimizing learning outcomes.

PROJECTS

Credit Card Fraud Detection

- Implemented **Decision Trees** and **Support Vector Machines (SVM)** using **scikit-learn** to classify fraudulent credit card transactions using the credit card fraud detection dataset on **Kaggle**.
- Performed data preprocessing, feature engineering and data imputation to handle missing data.
- Applied **SMOTE** to address class imbalance and enhance model training

Medical Insurance Price Analysis

- Performed **Exploratory Data Analysis (EDA)** to uncover correlations between **age, BMI, and smoker status** with **insurance charges** using **Pandas** and **Seaborn**.
- Developed a **Linear Regression** model to predict **insurance charges**, and enhanced accuracy by applying **Ridge Regression** to reduce overfitting and optimize hyperparameters with **GridSearchCV**.
- Evaluated model performance with metrics like R^2 and Mean Squared Error (MSE), and improved generalization with cross-validation techniques.

Image Classification

- Built a **Convolutional Neural Network(CNN)** model using **TensorFlow** to classify 30 different aircraft variants on a dataset of 10,000 images.
- Built and optimized a data pipeline for efficient preprocessing and visualization, and implemented feature engineering such as image augmentation, and pixel transformations and visualized model performance using Matplotlib and Seaborn.

AI Chatbot

- Developed a retrieval-augmented chatbot using **Streamlit** and **LangChain**, enabling interactive Q&A with custom data by integrating **IBM Watsonx AI** and **Llama-2-70b-chat** for the **NLP**.
- Engineered PDF parsing and vectorized indexing **with LangChain's VectorstoreIndexCreator** and **ChromaDB**, facilitating efficient retrieval and context-aware responses from document data.