Vishal Patil

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EDUCATION

University of Michigan-Dearborn, *M.Sc. in Data Science* Expected Graduation: Apr 2024

- **Relevant Coursework**: Pattern Recognition and Neural Network, Artificial Intelligence, Database Systems, Natural Language Processing, Deep Learning

Savitribai Phule Pune University, *B.E. in Computer Engineering* Graduation Date: Apr 2020

- **Relevant Coursework**: Data Analytics, Data Mining and Warehousing, Artificial Intelligence and Robotics, Database Management Systems, Business Intelligence

SKILLS

- **Programming Languages**: Python (advanced), R (proficient)
- **Data Visualization Tools**: Proficient in Tableau, Power BI
- **Clinical Data Handling**: Experience with medical datasets, including MRI scans and healthcare records
- **Statistical Software**: Familiarity with R-Studio and advanced analytics techniques
- **Database Management**: Skilled in SQL, Azure Data Studio
- **Machine Learning Libraries**: TensorFlow, Keras, Scikit-learn

WORK EXPERIENCE

AINE AI (Data Science Intern) - Pune, India Mar 2022 – Apr 2022

- Spearheaded the development of a Market Share Analysis Dashboard using Tableau and Power BI, focusing on data visualization and analytics enhancements. This project directly supported strategic decision-making by providing deep insights into market trends and performance metrics.
- Leveraged T-SQL within Azure Data Studio to conduct in-depth sales performance analytics for Adventure Works Cycles, providing actionable intelligence for business strategy development.
- Compiled and presented comprehensive reports that distilled complex data into key insights, augmenting stakeholder understanding by 35% and informing critical business decisions.

Cognizant Technology Solutions (Programmer Analyst) - Pune, India Nov 2020- Apr 2022

- As a Programmer Analyst for a US-based major healthcare client, led a team initiative that remedied critical Notification Platform issues, resulting in a 15% increase in platform stability and performance.
- Conducted detailed testing and correction of URLs using POSTMAN and SoapUI, achieving a 30% reduction in connectivity errors and improving system reliability.
- Rigorously tested notification workflows using Oracle SQL Server, enhancing notification accuracy by 25% and ensuring 98% system uptime.
- Innovated and deployed a new application within the platform for PUSH notification alerts, leading to a 40% increase in user engagement for event-related features.

PROJECTS

Brain Tumor Segmentation using U-Net based Deep Learning Model

- Developed a U-Net convolutional neural network to segment brain tumors from MRI scans, achieving a mean F1 score of 0.72958 across 612 test images.
- Compiled and analyzed performance metrics post-model evaluation, resulting in detailed statistical insights including mean Jaccard index (0.64265) and precision (0.77568).
- Enhanced model interpretability by integrating matplotlib visualizations of training/validation losses and dice coefficients directly into the Jupyter Notebook workflow.
- Constructed a TensorFlow dataset pipeline for efficient image preprocessing, model training, and validation, contributing to a structured and reproducible machine learning codebase.

Retail Data-Driven Product Recommendation Engine

- Developed a content-based recommendation system for an online retail dataset using Python, TensorFlow, and Keras, achieving a model accuracy of 98.34% in recommending products.
- Employed advanced data preprocessing techniques using scikit-learn, including StandardScaler and OneHotEncoder, and serialized the preprocessor and label encoder using joblib for consistent data transformation.
- Strategically handled unseen labels in dataset, enhancing model's robustness, reliability by 27% during evaluation.
- Deployed the model in a Flask-based web application, designing an intuitive user interface for effective product selection and recommendation, thereby enhancing user experience in e-commerce.

ADAS Performance Metrics: A Power BI Dashboard

- Developed a comprehensive Power BI dashboard to analyze Advanced Driver-Assistance Systems (ADAS) data, featuring key performance indicators like speed, humidity, and temperature.
- Leveraged a variety of data visualization techniques, including gauges, scatter plots, donut charts, and to effectively communicate complex data insights.
- Incorporated a Paytern chart to visualize time-stamped anomalies, enabling predictive analysis and enhancing road safety measures.

Netflix Content Analytics Dashboard using Tableau

- Engineered a Tableau dashboard to dissect and display Netflix’s content distribution, unlocking insights for global strategic initiatives.
- Mined and decoded temporal content data, charting a decade of growth and informing aggressive content acquisition strategies.
- Synthesized viewer ratings data, orchestrating a content diversification plan that maximizes audience engagement.
- Distilled top genre performance metrics, steering data-driven recommendations for content development investments.

HR Dashboard Design using Tableau for Workforce Analysis

- Engineered a robust Tableau dashboard simulating HR analytics, visualizing key metrics such as demographic breakdown, attrition rates, and employee satisfaction, using synthesized data for hypothetical insight generation.
- Applied sophisticated data visualization techniques to reveal attrition trends and disparities, enhancing stakeholder understanding of workforce dynamics by department, education level, and gender distribution.
- Refined interactive dashboard features for on-the-fly data interrogation, empowering hypothetical strategic decision-making in talent retention and organizational development.

Text Summarization of News Articles Using Natural Language Processing (NLP)

- Executed an end-to-end text summarization project on a dataset of 500 news articles, employing NLP techniques such as tokenization, stop words removal, lemmatization, and TF-IDF calculations.
- Applied Luhn's Algorithm to determine sentence significance based on term frequency and IDF, extracting top weighted sentences for concise summarization.
- Developed a Python-based summarization model that reduced articles to 40% of their original length while maintaining core content, using ROUGE metrics for evaluation.
- Visualized performance using a frequency histogram of ROUGE-1 scores to assess the quality of machine-generated summaries against provided news highlights.

CERTIFICATIONS

- Python for Everybody Specialization (5-Course specialization) - Coursera
- Complete Machine Learning and Data Science Bootcamp 2021 - Udemy