RUSHIKA REDDY PINGILI

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SUMMARY

Detail-oriented and Results Driven Computer Science graduate with a strong foundation in Python programming, data analysis, machine learning, and applied artificial intelligence. Proficient in designing and implementing data-driven solutions using Python, SQL, Pandas, NumPy, Scikit-learn, TensorFlow, and PyTorch. Skilled in data preprocessing, feature engineering, model development, and evaluation for both supervised and unsupervised learning tasks. Hands-on experience in working with large datasets and building interactive dashboards using Tableau and Power BI. Demonstrated and ability to build scalable solutions through academic and independent projects, including real-time conversational AI systems and predictive modeling. Strong understanding of deep learning, natural language processing, and data visualization techniques. Familiar with version control (Git), cloud platforms (Google Colab, basic AWS), and deployment frameworks (Streamlit).

EDUCATION

Master of Science: Computer Science **Jan 2024 - May 2025**

Northwest Missouri State University, Maryville, MO *GPA 3.80/4.00*

SKILLS

- **Programming Languages:** Python, R, SQL, Java (basic)
- **Data Analysis & Manipulation:** Pandas,Numpy,Excel
- **Data Visualization:** Matplotlib, Seaborn, Plotly
- **Machine Learning & Statistics:** Scikit-learn, Regression, Classification, Clustering, Cross-validation, Model Evaluation
- **Deep Learning:** TensorFlow, Keras, PyTorch (basic understanding)
- **Databases:** MySQL, PostgreSQL, SQLite, MongoDB (basics)
- **Tools & Platforms:** Jupyter Notebook, Google Colab, GitHub, VS Code, Anaconda, PostgreSQL
- **NLP & Speech Tools:** Hugging Face, OpenAI GPT, Whisper, Pyannote.Audio

PROJECTS

RAISE: Real-time AI Insights for Sentiment and Engagement

Northwest Missouri State University, Maryville,MO

Tech Stack: Python, Streamlit, Whisper, Pyannote.audio, Hugging Face Transformers, OpenAI GPT 3.5 turbo

- Built an end-to-end AI system to transcribe, diarize, and emotionally analyze live/recorded audio conversations.
- Integrated Whisper for transcription, Pyannote for speaker diarization, Hugging Face for emotion detection, and GPT-3.5 for coaching feedback.
- Enabled ZIP exports, speaker-labeled transcripts, emotional timeline visualization, and real-time latency tracking.
- Developed a Streamlit-based interactive interface for real-time analysis and visualization of multi-speaker emotional flow.
- Logged and optimized each pipeline stage (ASR, diarization, NLP) to support responsive, real-time performance across varying audio lengths.

Hospital Readmission Prediction

Tech Stack: Python (Scikit-learn, Pandas), Excel, Seaborn, Jupyter Notebook

- Processed over 10,000 patient records to predict readmission likelihood using classification models.
- Performed feature engineering, cross-validation, and model evaluation using accuracy, precision, and F1-score metrics.
- Visualized results with Seaborn plots to identify high-risk patterns and trends.
- Engineered domain-specific features such as stay duration, prior visit frequency, and diagnosis grouping to boost predictive accuracy.
- Interpreted model outputs using confusion matrix, ROC curve, and feature importance to explain results to non-technical stakeholders.

Job Application Tracker

Tech Stack: Python, PostgreSQL, SQL

- Developed a personal job application tracker to manage and monitor job applications, companies, statuses, and follow-up actions in one centralized system.
- Designed a robust PostgreSQL database schema with normalized tables for job details, application dates, statuses, and external resources.
- Implemented advanced filtering and query functionalities using SQL to monitor each application’s progress across stages: Applied, Interviewed Rejected, and Offer.
- Integrated Python’s smtplib to automate email reminders for follow-ups and scheduled check-ins.
- Built a command-line interface (CLI) for adding, editing, and querying applications efficiently, with input validation and error handling.
- Added terminal-based summary views for quick insights and application counts by status.
- Designed a Power BI dashboard to visualize trends, status distribution, and company-wise breakdowns with interactive filters and KPIs.

Matrix Operations Visualizer

Tech Stack: Python, NumPy, Matplotlib

- Developed a Python tool to perform and visualize core matrix operations including multiplication, transposition, inversion, and dot product using NumPy.
- Implemented input validation for user-defined matrices and supported matrix size compatibility checks.
- Visualized matrix transformations using Matplotlib to improve interpretability and debugging of linear algebra problems.

WORK EXPERIENCE

Teaching Assistant-Maths (Algebra & Geometry) **Oct 2024 - Dec 2024**

Northwest Missouri State University, Maryville, Missouri

- Attended classroom sessions alongside students to provide in-class academic support and reinforce key Algebra and Geometry concepts.
- Assisted the professor during quizzes and interactive sessions by helping students solve activity-based problems and apply mathematical techniques.
- Conducted one-on-one tutoring sessions to explain problem-solving strategies, clarify doubts, and support students in mastering topics such as linear equations, inequalities, theorems, angles, and coordinate geometry.
- Created a supportive learning environment by adapting explanations to meet diverse student needs and encouraging independent thinking.

RESEARCH EXPERIENCE

Co-Author – RAISE: Real-time AI Insights for Sentiment and Engagement **Apr 2025 - May 2025**

Northwest Missouri State University, Maryville, MO

- Led the development of RAISE, a real-time conversational AI framework designed to transcribe, analyze, and generate coaching feedback from live and recorded audio interactions.
- Engineered an end-to-end pipeline using OpenAI Whisper for transcription, Pyannote.audio for speaker diarization, and Hugging Face Transformers for emotion detection and sentiment classification.
- Designed a user-friendly Streamlit interface for displaying speaker-labeled transcripts and emotional timeline graphs, enhancing user experience.
- Integrated GPT-3.5 to generate personalized, context-aware coaching recommendations based on emotional and dialogue structure.
- Built a latency system for performance optimization and real-time responsiveness; enabled ZIP export of analysis results and session logs.
- Demonstrated impactful applications in customer service feedback, behavioral training.
- Manuscript submitted to Future Internet Journal (under peer review)

CERTIFICATIONS

British Airways Data Science Job Simulation **May 2025**

Forage

- Completed a simulation focussing on how data science is a critical component of British Airway's success.
- Scraped and analysed customer review data to uncover findings.
- Built a predictive model to understand factors that influence buying behaviour.

BCG GenAI Job Simulation **May 2025**

Forage

- Completed a job simulation involving AI-powered financial chatbot development for BCG's GenAI Consulting team.
- Gained experience in Python programming, including the use of libraries such as pandas for data manipulation.
- Integrated and interpreted complex financial data from 10-K and 10-Q reports, employing rule-based logic to create a chatbot that provides user-friendly financial insights and analysis.

Fundamentals of Computer Vision **May 2025**

Microsoft Learn

- Gained foundational knowledge of how computers interpret and analyze images through pixels, color channels, and resolution.
- Explored core concepts in computer vision including image processing, object detection, and real-world applications of visual recognition systems.
- Built a strong conceptual understanding of the role of AI and machine learning in enabling machines to "see" and understand visual data.