Muhammad Raditya Adhirajasa

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SUMMARY

A recent Computer Science graduate from the University of Lampung with experience as a Teaching Assistant and a Data Science Intern at BPS. Experienced in building end-to-end data pipelines, developing unsupervised & supervised learning models, and skilled in SQL, Python, Machine Learning, and model deployment using Streamlit.

EDUCATION

Bachelor of Computer Science, Lampung University **2021 - 2025**

- **GPA:** 3.60 / 4.00
- **Relevant Coursework:** Database, Statistics & Probability, Machine Learning, Artificial Intelligence, Pattern Recognition, Data Warehouse & Big Data

EXPERIENCE

Data Science Intern **June 2024 – August 2024**

Badan Pusat Statistik RI

- Developed a socio-economic data analysis project to provide social assistance recommendations to the community.
- Performed exploratory data analysis (EDA) and data preprocessing.
- Designed and implemented an unsupervised learning pipeline using K-Means clustering for socio-economic data segmentation.
- Quantitatively validated model performance using Silhouette Score, Calinski-Harabasz Index, and Davies-Bouldin Index metrics to ensure optimal cluster cohesion and separation.
- Developed and trained models on labeled data to enhance the social assistance recommendation system.

Teaching Assistant **August 2023 – June 2024**

University of Lampung

- **Artificial Intelligence** (February 2024 - June 2024)
  - Developed and authored Artificial Intelligence lab modules, which were adopted as official teaching material for one semester and served as a reference for subsequent student batches.
  - Taught fundamental AI concepts, including supervised and unsupervised learning, to students in 100-minute weekly sessions
- **Declarative Programming** (February 2024 - June 2024)
  - Led weekly lab sessions, providing technical guidance on implementing programs using Prolog, including debugging and logic rule application.
- **Data Communication & Computer Networks** (August 2023 - December 2023)
  - Instructed a class of 48 students on data communication design, network implementation, and subnetting calculations.

PROJECT

Interactive Sentiment Analysis Pipeline Indonesian Language **October, 2025**

Link: https://github.com/MRadityaAdhirajasa/streamlit-indonesian-sentiment-pipeline

- Developed an end-to-end web application for Indonesian sentiment analysis using Streamlit, encompassing data processing, automatic labeling, visualization, model training, evaluation, and real-time inference.

- Enabled customization of the machine learning pipeline with choices for feature extraction methods and classification models along with their key hyperparameters using Scikit-learn.
- Presented model evaluation results interactively and provided download features for the processed dataset and model artifacts for reproducibility.

Speech Emotion Recognition **June, 2025**

Link: https://speech-emotion-recognition-cnn-bilstm-model.streamlit.app/

- Developed a speech emotion recognition system utilizing a CNN+BiLSTM model.
- Processed the CREMA-D dataset to classify 6 emotions: angry, sad, happy, fearful, neutral, and disgusted.
- Enhanced model robustness through data augmentation techniques including pitch shifting and time stretching.
- Achieved 68% accuracy on the CREMA-D dataset, outperforming baseline CNN models from existing research literature and establishing a foundation for exploring more complex architectures.
- Deployed the model using Streamlit, enabling real-time emotion prediction from MP3/WAV audio inputs.

Book Recommendation System **February, 2025**

Link: https://github.com/MRadityaAdhirajasa/Book_Recommendation_System

- Developed a personalized book recommendation system using Collaborative Filtering (SVD) and Content-Based Filtering (Cosine Similarity).
- Constructed a utility matrix based on user ratings and applied SVD to capture latent user preference patterns.
- Utilized TF-IDF Vectorizer and Cosine Similarity to recommend books based on author content similarity.
- Employed Python, Pandas, NumPy, Scikit-learn, Surprise Library, and Matplotlib for project implementation.

Air Quality Analysis using Python and Streamlit **January, 2025**

Link: https://airqualityanalysis2712.streamlit.app/

- Conducted air quality analysis using data from several stations in China, covering PM2.5, PM10, SO2, NO2, CO, O3, temperature, pressure, precipitation, and wind speed.
- Developed and deployed an interactive dashboard using Streamlit for visualization and presentation of analysis results, hosting it on Streamlit Cloud.
- Concluded that the majority of stations showed moderate PM2.5 pollution levels in summer (2013-2015), with Changping, Dingling, and Huairou stations exhibiting the best air quality.
- Found that during 2016 peak hours, 75% of stations had high NO2 and CO emissions, with Dingling and Huairou recording the lowest emissions.

Predicting Loan Repayment Using Machine Learning Models **April, 2024**

Link: https://colab.research.google.com/drive/12gCyjisSX-PCf1VXJw3bSldQaIrG0D0N?usp=sharing

- Performed exploratory data analysis and cleaning on more than 300,000 data and preprocessing to handle missing values, outliers, and inconsistencies.
- Created visualizations using Seaborn and Matplotlib to illustrate key insights, data distributions, and highlighted relationships between variables and their impact on loan repayment outcomes.
- Analyzed model performance using ROC-AUC scores and used Random Forest model and Linear Regression in predicting loan repayment timeliness.

Visualization US Flight Delay **November, 2023**

Link: https://public.tableau.com/app/profile/bejo.subejo/viz/FlightDelay_17006300929420/USFlightDelay

- Preprocessed and cleaned over 1,000 data entries using Microsoft Excel to ensure high data quality.
- Designed an informative dashboard for airport delay analysis using Tableau.
- Developed a geographical visualization on a map to display cities and airports experiencing delays, calculating total delays to provide insights into overall delay patterns in the dataset.

SKILL

Programming Languages: Python, SQL
Libraries & Frameworks: Scikit-learn, Pandas, NumPy, TensorFlow, Matplotlib, Seaborn, Streamlit
Tools: Git, Google Colab, Tableau, Power BI
Expertise & Concepts:

- **Machine Learning :** Classification, Regression, Clustering, Natural Language Processing, Computer Vision
- **Data :** Exploratory Data Analysis (EDA), Data Preprocessing, Data Visualization