Bima Ilyasa Rachmanditya

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SUMMARY

A geophysics engineering graduate transitioning into the field of machine learning and data science, with over 5 months of experience as a Machine Learning Engineer. Proficient in Python and SQL, I have successfully developed and deployed OCR and classification models tailored for complex text recognition challenges. My expertise spans data scraping, data visualization, and building robust, scalable applications using modern technologies such as PyTorch, TensorFlow Lite, NLTK, OpenCV, Algolia, PostgreSQL, and Flutter.

Key achievements include creating a comprehensive restaurant catalog in Singapore using SERP API, developing a wine label scanner with a 2000% increase in processing speed and 65% accuracy, and implementing a dynamic company dashboard in Strapi. I have demonstrated the ability to manage and execute solo projects effectively, consistently leveraging my analytical skills to drive data-driven decision-making and innovative solutions.

EDUCATION

Bandung Institute of Technology | Bandung, Indonesia

B.Eng. *Geophysical Engineering* (August 2017 – August 2023)
- **Relevant Coursework:** Statistics I & II, Linear regression, Forward and inverse modelling (data visualization).
- **Final Research:** *Deep Neural Network Analysis to Determine the Arrival Time of P and S Phase in Java Island*
- Supervised by Dr. rer.nat. David Prambudi Sahara S.T., M.T.

PROFESSIONAL EXPERIENCE

Sole Machine Learning Engineer [Wine Adore] (Jan 2024 - Present)

Developed and deploying OCR and classification models tailored for complex text recognition challenges in diverse environments. implementations. Demonstrated ability to leverage modern technologies like PyTorch, TensorFlow Lite, Natural Language Toolkit (NLTK), OpenCV, Algolia, PostgreSQL, and Flutter to create robust, scalable applications.

- **Key Responsibilities and Achievements:**
  - Data Management and Processing
    - **Restaurant Catalog Creation**: Scraped data of 500 restaurants in Singapore, detailing location, distance, menu links, and dish types using SERP API and geospatial equations.
      - Developed a data pipeline to scrape and categorize Singapore's restaurants, hotels, food courts, and parks using Google's SERP API; automated updates via CI/CD processes on GCP.
  - Machine Learning Model Development
    - **Wine Label Scanner**: Developed a scanner focusing on French and Portuguese wines, processing 11000 data entries with a 65% accuracy and 3-second wait time using GCP.
      - Increased processing speed by 2000%, reducing model scanning time from 1 minute to 3 seconds, while maintaining accuracy, through iterative performance enhancements.
      - Improved wine label identification accuracy from 15% to 65%, significantly raising industry performance benchmarks.
      - Converted the PyTorch model to TensorFlow Lite to optimize for mobile deployment, ensuring robust performance across varied text styles through OCR Model.
    - **Recommendation System using LLM**: Developed and tested various models and parameters, achieving optimal results with Llama 7B.
  - Full-Stack Development
    - **Company Dashboard Development**: Created a dynamic dashboard in Strapi, utilizing JavaScript to automate database updates and display delivery orders.
      - Integrated a multi-step data processing pipeline: OCR results inform Algolia search queries, which then fetch corresponding data from a PostgreSQL database via FastAPI to GCP..
      - Implemented frontend functionality in Flutter for a mobile app, connecting UI elements to backend processes. Employed Google ML Kit and Algolia packages to manage OCR processing and search queries, respectively.

CEO Office IT Analyst Internship (3 weeks) [Pensieve Technology] (Oct 2023 - Nov 2023)

- **Key Responsibilities and Achievements:**
  - Initiated a machine learning project using LLaMA 2, fine-tuning it with Alpaca using Lora weights with Lit-Llama. This project involved understanding and applying advanced techniques in large language models, showcasing a deep technical understanding and the ability to quickly adapt to new technologies.

PROJECTS

Independent-Projects

Document Embedded Large Language Model Project (Jan 2024 – Jan 2024)

- **Key Responsibilities and Achievements:**
    - Developed a cutting-edge document analysis system using OpenHermes-2.5-Mistral-7B-GGUF and UAE-Large-V1, enhancing precision in content interpretation.
    - Developed and fine-tuned algorithms to accurately embed and interpret document content, achieving a breakthrough in document processing capabilities.
    - Led the full project lifecycle—research, algorithm development, and deployment—demonstrating leadership in applying advanced NLP technologies.

Siamese Neural Network for Face Recognition (Aug 2023)

- **Project Description:**
- Initiated and led an in-depth exploration of Siamese Neural Networks for face recognition of my face with the help of research paper and YouTube. Leveraging the Siamese architecture, this project aimed to facilitate accurate face recognition by learning the similarity between my face and other sample faces. The network architecture involved convolutional layers, distance computation, and a dense layer with a sigmoid activation function. The Python libraries used included OpenCV, TensorFlow, Keras, os, NumPy, and Matplotlib.
- Reference: https://www.cs.cmu.edu/~rsalakhu/papers/oneshot1.pdf.
- **Key Responsibilities and Achievements:**
    - Engineered and led the development of a Siamese Neural Network to accurately recognize facial features, utilizing OpenCV, TensorFlow, and Keras.Insights & Reporting:
    - Managed data collection, model training (achieving precision of 0.4674 and recall of 0.4929), and conducted thorough model evaluations to refine face recognition capabilities.

ORGANIZATION

Legislation | **HIMA TG "TERRA" ITB** (Jan 2019 – Dec 2020)

- Creating, evaluating, and revising the rules and regulations of HIMA TG "TERRA" ITB.
- Creating the broad outline of the organization's policy.
- Amend the memorandum of association/articles of association of needed.

CERTIFICATES

Google Business Intelligence Professional (Issued Dec 2023)

- Gained hands-on experience with core BI practices and tools, including Google BigQuery and Tableau.
- Proficient in ETL and data modeling processes.
- Developed knowledge of metrics, KPIs, and business goals.
- Created and maintained dashboards, effectively communicating data insights to stakeholders.
- Completed hands-on projects simulating real-world BI tasks.

Kaggle Certificates

Intermediate Machine Learning | Kaggle (Issued Dec 2021)

- Mastered techniques in data cleaning, model validation, and XGBoost, with a focus on minimizing errors and addressing data leakage.

EF Certificate

EF SET English Certificate 86/100 (C2 Proficient) | EF Standard English Test (EF SET) (Issued Nov 2021)

- Demonstrated advanced proficiency in English, achieving high scores in listening (95/100) and reading (77/100).

SKILLS

- **Programming Languages:**
    - *o* High Experience (Python, SQL)
    - *o* Low Experience (Flutter, JavaScript, CSS)
- **Data visualization** (Matplotlib, Seaborn, Tableau).
- **Data Scraping, Data Mining** (BeautifulSoup)
- **Data cleaning, transformation, and aggregation** (Pandas, BigQuery).
- **Machine learning/Deep Learning libraries** (Scikit-Learn, TensorFlow, Keras, OCR and classification).
- **Statistical analysis** (NumPy, SciPy).
- **Version control** (VSCode Git).
- **Cloud Platforms and APIs** (Google Cloud Platform, Google's SERP API, FASTAPI)

PORTFOLIO

https://bimaterra.notion.site/Data-Analyst-Portfolio-0b34f2e1d6744956a22780616695ef06?pvs=4