MUHAMAD JUWANDI

Data Science Student | Python Developer | Machine Learning Enthusiast

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GitHub: github.com/MuhamadJuwandi

Proactive Data Science undergraduate with advanced practical expertise in building end-to-end data systems. Proven ability to move beyond traditional forecasting into Causal Inference and Game Theory for prescriptive decision-making. Skilled in constructing ETL pipelines, engineering synthetic data, and developing interactive Business Intelligence dashboards. Seeking an Internship or Junior role to leverage strong Python, SQL, and analytical skills in a dynamic remote environment.

TECHNICAL SKILLS

- **Languages:** Python (Advanced), R, SQL, Java.
- **Data Science:** Pandas, NumPy, Scikit-Learn, PyTorch (LSTM), Surprise (SVD), Matplotlib, Plotly.
- **Deployment:** Streamlit, FastAPI, Git/GitHub.
- **Spoken Languages:**
  - **English:** Professional Working Proficiency (Strong Listening & Technical Reading).
  - **Japanese:** Conversational (Daily Active Learner - Targeting JLPT N2 by Dec 2026).
- **Soft Skills:** Self-Learning, Problem Solving, Adaptability.

KEY PROJECTS (PORTFOLIO)

1. Equilibrium-X: Autonomous Strategic Pricing Agent (Causal AI & Game Theory)

GitHub: [https://github.com/MuhamadJuwandi/data-science-portfolio/tree/main/Equillibrium-X]

- **Tech Stack:** Python, DoWhy (Causal Inference), Nashpy (Game Theory), Streamlit, SDV (Synthetic Data), Great Expectations.
- **Objective:** Engineered an autonomous decision-making system that shifts from predictive forecasting to prescriptive strategy, optimizing pricing models under simulated high-volatility market conditions.
- **Key Contributions:**
  - Causal Inference Engine: Implemented DoWhy to construct Causal Graphs (DAGs), successfully isolating confounding variables (seasonality) to estimate true price elasticity (Ed) and validated results via Placebo Tests.
  - Strategic Game Theory: Applied Nashpy to solve for Nash Equilibrium in a competitive pricing environment, developing algorithms that avoid "Prisoner's Dilemma" and optimize for profit stability rather than just volume.
  - Synthetic World Building: Utilized SDV (Gaussian Copula) to generate synthetic future datasets, simulating a 30-50% logistics cost surge to test strategy robustness against "Black Swan" economic events.
  - Executive War Room: Built an interactive Streamlit dashboard for "What-If" scenario analysis, featuring an integrated Compliance Check module to automatically detect and flag algorithmic tacit collusion risks.

2. MAL Recommender Hybrid System (Anime Recommendation Engine)

GitHub: [https://github.com/MuhamadJuwandi/data-science-portfolio/tree/main/mal-recommender-hybrid]

- **Tech Stack:** Python, Streamlit, FastAPI, Scikit-learn (SVD, TF-IDF), Pandas.
- **Objective:** Solved the "information overload" problem for anime fans by building a scalable recommendation engine.
- **Key Contributions:**
  - Developed a Hybrid Filtering model combining SVD (Collaborative Filtering) for latent user preferences and TF-IDF (Content-Based) for genre similarity.
  - Achieved a high prediction accuracy with an RMSE of ~1.12 on a 1-10 rating scale.
  - Engineered a "Cold Start" handler to automatically suggest trending anime for new users without history.

3. TEPCO Tokyo Electricity Demand Forecasting

GitHub: [https://github.com/MuhamadJuwandi/data-science-portfolio/tree/main/TEPCO-Demand-Forecasting]

- **Tech Stack:** Python, PyTorch (LSTM), Pandas, Facebook Prophet, Open-Meteo API.
- **Objective:** Built a robust pipeline to predict hourly electricity consumption in the Kanto region to aid grid stability.
- **Key Contributions:**
  - Performed complex ETL using Pandas (merge_asof) to integrate historical usage data with real-time weather data (temperature/humidity).
  - Implemented and compared Facebook Prophet vs. Deep Learning (LSTM) models, achieving a superior MAPE of ~3-5% with the LSTM architecture.
  - Identified critical insights, such as the non-linear "AC Effect" where demand spikes 1.5-2.0 GW for every 1°C increase above 28°C.
  - Created a simulation dashboard in Streamlit for real-time inference and peak shaving analysis.

4. Olist Sales & Customer Analytics Dashboard (End-to-End E-Commerce Analysis)

GitHub: [https://github.com/MuhamadJuwandi/data-science-portfolio/tree/main/olist-dashboard-project]

- **Tech Stack:** Python, Streamlit, Pandas, Scikit-Learn (K-Means), Facebook Prophet.
- **Objective:** Analyzed 100k+ real-world transactions from the Olist E-commerce dataset to optimize business strategy through segmentation and forecasting.
- **Key Contributions:**
  - End-to-End Data Pipeline: Performed ETL processes on 9 relational tables to clean and integrate raw data, uncovering key insights into seasonal sales trends and payment dominance.
  - Customer Segmentation: Implemented RFM Analysis (Recency, Frequency, Monetary) and K-Means Clustering to classify customers into 4 actionable segments (e.g., Champions, Hibernating) for targeted retention strategies.
  - Demand Forecasting: Developed time-series models using Facebook Prophet to predict weekly sales trends, identifying growth in specific categories like "Health & Beauty" to aid inventory planning.
  - Interactive Dashboard: Built a real-time Streamlit dashboard visualizing KPIs, delivery performance, and sentiment analysis to support stakeholder decision-making.

5. Digital App Laboratory (Web Development Prototypes)

GitHub: [https://github.com/MuhamadJuwandi/Creative-works-and-web/tree/main/04_digital-app-laboratory]

- **Tech Stack:** HTML, CSS, JavaScript
- **Description:** A collection of lightweight web applications and digital tools developed to practice frontend logic and user interface design. Demonstrates ability to build functional prototypes beyond data science.

WORK EXPERIENCE

Naeta Digital Consultant | **Bogor, Indonesia** Jan 2025 - Present

Junior Graphic Designer & Content Writer

- Producing visual assets and SEO-friendly articles to support company branding.
- Contributing to website content development and structure to increase online engagement
- Demonstrates ability to work in a professional team environment while maintaining personal coding projects

EDUCATION

Universitas Terbuka | **Bogor, Indonesia** Jul 2024 – Present

Bachelor of Data Science (Sains Data)

- **Current Semester:** 4 (Expected Graduation: July 2028).
- **Focus:** Advanced Statistics, Causal Inference, Strategic Modelling, and Data Analysis.

CERTIFICATIONS & TRAINING

Dicoding Indonesia - ASAH Digital Program Jul 2025 – Oct 2025

Machine Learning & Software Development Scholarship

- Completed intensive 3-month curriculum covering Data Analytics (EDA), Supervised/Unsupervised Learning, and Model Evaluation.
- Gained practical experience in Python programming, Git/GitHub workflows, and Neural Networks.

ORGANIZATIONAL EXPERIENCE

Scout Troop Leader | **Cianjur, Jawa Barat** Jan 2023 - Dec 2024

- Led weekly training sessions and organized mandatory camping events for new students, developing strong leadership and coordination skills.

Vice President of Student Council (OSIS) | **Cianjur, Jawa Barat** Jan 2023 – Dec 2023

- Coordinated activities across 6 different divisions and led execution of Student Leadership Training programs .