Muhammad Iqbal Hilmy Izzulhaq

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LinkedIn | GitHub | Portfolio

Summary

Data science enthusiast with hands-on experience in machine learning, NLP, and Retrieval-Augmented Generation (RAG) systems. Skilled in developing agentic AI workflows using LangGraph, LangChain, and OpenAI Assistants, with practical deployment using both code-first and no-code tools like Dify.AI. Currently interning at DPR RI, where I build autonomous systems that streamline legal document search and summarization to support legislative decision-making. Passionate about creating AI solutions that are both intelligent and actionable

Working Experiences

The House of Representatives, Republic of Indonesia (DPR RI) | Jakarta, Indonesia | *April 2025 – Present*
Data Scientist Intern

- Conducted socioeconomic analysis on SUSENAS data to support policy recommendations through Python-based data wrangling, visualization, and dashboard reporting.
- Performed NLP on Mahkamah Konstitusi verdicts to extract key constitutional issues and identify trends in judicial review cases.
- Built a Retrieval-Augmented Generation (RAG) prototype to enhance legal document search and summarization for legislative insight.
- Leveraged Dify.AI to build no-code RAG workflows, enabling efficient legal content retrieval and autonomous document summarization with a user-friendly UI.

Mega Persada Group | Bogor, Indonesia | *August 2022 – November 2022*
Manufacture Support Intern

- Assisted in identifying and addressing challenges within the production plant's business processes
- Developed business processes and identified opportunities for improvement
- Created detailed engineering designs, analyzed drawings, and produced shop drawings and management reports
- Reviewed work instructions and procedures, produced management graphs, and presented analysis results.

Projects

1. **Badminton Court Reservation System**: > Explore
   This project developed a Python-based badminton court reservation system to manage scheduling and payments. Key features included schedule validation, feedback handling, and operational hour checks, ensuring smooth user interaction and minimizing conflicts. The result is a user-friendly, fully functional system that streamlines the booking process.
2. **Airbnb Data Analysis Link >** Explore
   Analyzed Airbnb listings in Bangkok to identify peak-season revenue opportunities for December. Implemented dynamic pricing, extended-stay discounts, and last-minute deals. These optimizations increased total December revenue by **7.6%**, generating an additional **฿3.9 million** in high-demand areas like Khlong Toei and Vadhana.
3. **Telco Churn Analysis** > Explore
   Developed a churn prediction model using AllKNN with hyperparameter tuning, focused on minimizing false negatives. Achieved **93.7% recall**, reducing potential high-risk churn losses by **$18.8K** and cutting total misclassification costs by **$48.5K**, outperforming benchmark models like XGBoost and Random Forest.

Education

Purwadhika Digital Technology School | BSD, Tangerang, Indonesia | *October 2024 – February 2025*
Modules Taken: Python Fundamentals, Data Analysis, and Machine Learning

University of Brawijaya | Malang, East Java, Indonesia | *August 2019 – December 2023*
Bachelor of Science in Physics (Material Science)
GPA: 3.39 / 4.00

Article Published

1. ***Common Python Mistakes That Quietly Frustrate Beginners (And How to Fix Them)***
   Explored frequent errors made by Python beginners and provided practical solutions to enhance coding efficiency.> Read here
2. **Unleashing Hidden Gems: Advanced Data Visualization Techniques in Python**
   Introduced advanced and creative visualization methods using Python libraries to present data insights effectively. > Read here
3. **When Machines Meet the Cosmos: How AI is Helping Physicists Unlock the Secrets of the Universe**
   This article discusses how AI is revolutionizing physics by handling vast amounts of data, solving complex cosmic mysteries, and impacting various aspects of life. > Read here

Certificate: Explore all of my credentials

Artificial Intelligence | Kominfo's Digital Talent Scholarship | *Issued September 2023*
This program covers essential Artificial Intelligence (AI) aspects, including concepts, trends, and practical development. Participants will learn about traditional machine learning, deep learning, and development frameworks.
Check the credentials

Metaverse Engineering | Kominfo's Digital Talent Scholarship | *Issued April 2023*
This program provides fundamental information about the metaverse's principles and technical pillars. Participants will gain hands-on experience using the metaverse, learn how to administer it and design metaverse solutions according to specific needs. The training covers the use of Unity 3D and the creation of Augmented Reality (AR).
Check the credentials

Data Science & AI | DQLab (Python, R, Data Wrangling, Visualization) | *Issued 2020 – 2022*
DQLab is an online learning platform focused on introducing Data Science and Artificial Intelligence (AI). It provides a comprehensive learning experience using Python and SQL programming languages.
Check the credentials

Hard Skills

- Predictive Analytics
- Recommender Systems
- Data Preparation
- Data Analytics
- Statistical Data Analysis
- Large Language Models (LLMs)
- Dashboard Development
- Retrieval-Augmented Generation (RAG)
- Machine Learning
- Unsupervised Learning
- Predictive Modeling
- Feature Engineering
- Metrics Evaluation
- Deep Learning
- Time Series Analysis
- Prompt Engineering
- OpenAI Platform & Tools
- Supervised Learning
- Hyperparameter Tuning
- Data Visualization
- Data Preprocessing
- Statistical Analysis
- Natural Language Processing (NLP)
- Agentic AI Workflow
- LangChain / LangGraph

Programming Languages: Python, SQL, Excel
Data Tools: Tableau, Excel (Advanced), Visual Studio Code, Google Colab, MySQL Workbench, Looker Studio, Microsoft Power BI
Soft Skills:

- Critical Thinking
- Collaborative
- Critical Thinking
- Technical Writing
- Technical Analysis
- Personal Branding
- Communication
- Decision-Making
- Problem Solving
- Growth Mindset
- Analytic Problem Solving
- Creativity and Innovation
- Interpersonal
- Attention to Detail
- Impromptu Speaking
- Networking Skills
- Adaptability/Flexibility
- Time Management
- Teamwork and Collaboration
- Presentation Skills
- Curiosity
- Emotional Intelligence (EQ)
- Conflict Resolution
- Self-Motivation

Languages: Bahasa Indonesia (**Native**), English (**Limited Working Proficiency**)