Muhammad Hilmi Asyrofi

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🐙 github.com/mhilmiasyrofi | 🔗 linkedin.com/in/mhilmiasyrofi/ | Portfolio | Google Scholar
💬 Architecting Machine Learning in the Cloud | Kaggle Data Science Expert | Certified Solution Architect

QUALIFICATION SUMMARY

- Over 5 years of experience as a **Machine Learning Engineer**, specializing in transforming complex challenges into business-driven solutions leveraging data science.
- Expert in **software development and cloud-based machine learning**, with a track record of leading cross-functional teams to deliver high-impact & scalable projects.
- Committed to **continuous learning** by staying at the forefront of technology through active engagement in industry events, while balancing my life with passions like tennis and golf.

EXPERIENCES

Machine Learning Engineer   Singapore
PropertyGuru - Data Science Center of Excellence   Jun 2022 - present

- **Regional Dynamic Pricing System**: Architected an automated pricing system, boosting operational efficiency and increasing update frequency from bi-weekly to daily, optimizing market responsiveness. [ref]
- **Enterprise Data Product**: Collaborated with cross-functional teams to commercialize data science projects, including an Automated Valuation Model for banks and real estate consultants. [ref]
- **Address Matching System**: Developed an advanced NLP-based system that matches external client addresses with internal address records, improving matching accuracy by over 70%.
- **Business Metrics Framework**: Spearheaded the integration of online metrics into DS projects, directly aligning pricing algorithms with revenue goals and enhancing reliability by reducing volatility by over 90%.
- **Innovation:** Promoted Generative AI capabilities to internal stakeholders for business adoptions, including RAG for chatbot use cases and multi-modal Gen AI for image-text moderation.

AI Research Engineer   Singapore
School of Computing and Information System, Singapore Management University   Nov 2019 - May 2022

- Contributed to cutting-edge research on **Software Engineering for AI-Enabled Systems** (SE4AI) supervised by ACM Distinguished Scientist Prof David Lo, Director of Information Systems & Technology Cluster
- **Published 7 papers** in top-tier international conferences and journals, i.e., IEEE TSE (Q1, CCF Rank A, Impact Factor: 9.32), ACM ESEC/FSE (CORE A*), IEEE ICSME (CORE A), and IEEE SANER (CORE A)
- Pioneered the adoption of Dockerized environments to manage ML projects on Nvidia DGX AI Supercomputer

Co-Founder & CTO   Indonesia
Alinamed - Pitch Deck, Playstore   Jan 2019 - Jul 2020

- Managed the **end-to-end software development lifecycle**, including requirements analysis, design, implementation, code review, testing, deployment, maintenance, and feedback & improvement.
- Led the selection of programming languages, frameworks, cloud services, and databases.
- Won prestigious startup competitions, e.g., 1st Winner at WMM by Bank Mandiri, and Winner at Tech-to-Impact by UK-ID Tech Hub. Secured IDR 750 million funding from Telkom Indonesia.

EDUCATION

Institut Teknologi Bandung (ITB)   Indonesia
Bachelor of Computer Science   2015 - 2019

- Graduated **Cum Laude** with a **GPA 3.68** / 4.00
- Recognized as an **inspiring graduate** for academic excellence and extracurricular achievements. [ref]

HONORS & AWARDS

2022   **Bronze Medal | Top 7% (170 from 2,654) | Evaluating Written Essays | NLP |** [Kaggle Leaderboard](#)
The challenge was to assess the language proficiency of students by analyzing their written essays. I leveraged DeBERTa language models to extract the feature embeddings from the essays. Then, I trained neural network layers to predict the proficiency scores from extracted features.

2021   **Silver Medal | Top 5% (101 from 2,426) | Shopee Product Matching | NLP + CV |** [Kaggle Leaderboard](#)
The task was predicting similar e-commerce products by using product images and titles. I utilized EfficientNet and NFNet to extract feature embeddings from images and utilized BERT and TFIDF to extract feature embeddings from texts. I calculated the cosine distance between products and employed k-NN to find similar products

2021   **Top 3% (28 from 1,034) | Information Extraction - Shopee Data Science Challenge |** [Kaggle Leaderboard](#)
The challenge was extracting Point of Interest (POI) names and street names from unformatted Indonesia addresses collected by Shopee. I framed the challenge as NER (Named Entity Recognition), where POI and street are the extracted entities. Then, I fine-tuned the IndoNLU model on the customized dataset.

2011   **Bronze Medal | Mathematics Competition at 2nd National Science Camp |** [Certificate](#)
Awarded by Ministry of Education - Indonesia

CERTIFICATIONS

AWS	AWS Certified Solution Architect - Associate Credential ID: [ECHZM6M1XEE4QDSB](#)
Deeplearning.AI	Neural Network and Deep Learning Credential ID: [D8GK6SD6Y5TG](#)
Deeplearning.AI	Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization Credential ID: [SGC98U3G8K6P](#)

TECHNICAL SKILLS

Programming	Python, C++, Java, PHP, JavaScript, HTML, React, Golang, C, C#
Cloud	AWS Amazon Web Services, GCP Google Cloud Platform
ML Library	Scikit-Learn, PyTorch, TensorFlow, OpenCV
Database	BigQuery, MongoDB, DocumentDB, MySQL
CI/CD	Github Action, Buildkite, ArgoCD
Data Pipeline	Airflow, Google Cloud Composer, AWS MWAA
SRE	DataDog, AWS CloudWatch, StatusCake
Tool	Git, Docker, Kubernetes, FastAPI, ElasticSearch, Lambda

PUBLICATIONS

Muhammad Hilmi Asyrofi, Yang Zhou, Imam Nur Bani Yusuf, Hong Jin Kang, Ferdian Thung, and David Lo. "**BiasFinder: Metamorphic Test Generation to Uncover Bias for Sentiment Analysis Systems**". IEEE Transaction on Software Engineering (Q1, CCF Rank A, Impact Factor 9.32). [PDF](#)   [GitHub](#)   [DOI](#)

Zhou Yang, Jieke Shi, Muhammad Hilmi Asyrofi, and David Lo. "**Revisiting Neuron Coverage Metrics and Quality of Deep Neural Networks**". *28th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER).* Honolulu, Hawai. March 2022. [PDF](#)   [GitHub](#)   [DOI](#)

Muhammad Hilmi Asyrofi, Zhou Yang, Jieke Shi, Chu Wei Quan, and David Lo. "**Can Differential Testing Improve Automatic Speech Recognition Systems?**". 37th IEEE International Conference on Software Maintenance and Evolution (ICSME). Luxembourg. September 2021. [PDF](#)   [GitHub](#)   [DOI](#)

Zhou Yang, Harshit Jain, Jieke Shi, Muhammad Hilmi Asyrofi, and David Lo. "**BiasHeal: On-the-Fly Black-Box Healing of Bias in Sentiment Analysis Systems**". 37th IEEE International Conference on Software Maintenance and Evolution (ICSME). Luxembourg. September 2021. [PDF](#)   [GitHub](#)   [DOI](#)

[Google Scholar](#) for more publications

INTERPERSONAL SKILLS

2018   Granted Scholarship from Rumah Amal Salman ITB. Recognized as a **top 10 awardee for capacity building and leadership development**.

2017   Selected for leadership training by Siam Cement Group (SCG), focusing on fundamental leadership concepts and interpersonal skills.

I declare the details stated to be true and complete.
(This resume is updated on September 17th, 2024)