

Muhammad Hilmi Asyrofi

✉ mhilmiasyrofi@gmail.com | ☎ (+65) 85472451

🐙 github.com/mhilmiasyrofi | 💼 [linkedin.com/in/mhilmiasyrofi/](https://www.linkedin.com/in/mhilmiasyrofi/) | [Portfolio](#) | [Google Scholar](#)

📄 Architecting Machine Learning in the Cloud | [Kaggle Data Science Expert](#) | Certified Solution Architect

QUALIFICATION SUMMARY

As a seasoned Machine Learning Engineer with over 5 years of experience, I specialize in transforming complex challenges into business-driven solutions through data science. My expertise in software development and cloud-based machine learning enables me to consistently deliver high-impact scalable projects. I excel in leading cross-functional teams to optimize performance, enhance cost-efficiency, and ensure reliability. Committed to continuous learning, I stay at the cutting edge of technology by actively engaging 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 and led the implementation of a multi-country pricing system, automating the workflow and increasing the price update frequency from bi-weekly to daily.
- **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)
- Maintained ML projects using Dockerized environments on Nvidia DGX AI Supercomputer

Co-Founder & CTO

Surabaya, 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

Machine Learning Engineer Intern

Jakarta, Indonesia

Bukalapak

May 2018 - Aug 2018

- Developed object detection and character recognition features for search-by-image functionality. Localized text lines using CTPN and combined bounding boxes for context-related words.

EDUCATION

Institut Teknologi Bandung (ITB)

Bandung, 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** MySQL, BigQuery, PostgreSQL, MongoDB

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, Hawaii. 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](#)
- Muhammad Hilmi Asyrofi, Yang Zhou, and David Lo. “**CrossASR++: A Modular Differential Testing Framework for Automatic Speech Recognition**”. 29th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE '21). Athens, Greece. August 2021. [PDF](#) [GitHub](#) [Video](#) [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 7th, 2024)