

Professional Experience

ESRI Indonesia (GIS Software & Services)

Jakarta, Indonesia

Data Scientist

January 2023 – present

Esri Indonesia provides GIS solutions and services to various industries in Indonesia, including local and national government, natural resources, utilities, transportation, telecommunications, and commercial.

- **Palm Tree Counting:** Led a palm tree counting project, overseeing data labeling of over 7000 data points on drone imageries, consulting with the reporting, and utilizing ArcGIS Pro for data preparation. Trained a deep learning model and managed performance analysis, resulting in an exceptional 95% mean Average Precision (mAP).
- **Road Damage Detection:** created a data engineering pipeline to convert ~16k raw images and labels data from multiple sources to ready-to-train data. Trained a deep learning model using YOLOv8 and achieved a precision-recall score of 0.635 across all 4 classes.
- **GIS-Based Market Development:** collaborated with the solution team to develop a dashboard able to showcase current market presence and potential leads. Created a custom data processing pipeline capable of handling 193 million records, reducing manual process time by 72%. Applied a statistical method to classify ~300 top priority leads out of 4000 prospects

Gojek (Q-commerce and Financial Services)

Jakarta, Indonesia

Junior Risk Data Analyst ⇒ Risk Data Analyst

April 2019 - December 2021

GoTo's ecosystem comprises of on-demand transport, e-commerce, food, and grocery delivery, logistics and fulfillment, and financial services through the Gojek, Tokopedia and GoTo Financial platforms.

- **Fraud analysis:** analyzed up to 1000 GPS movements daily to determine fraudulent patterns for constructing fraud rules of fourwheels and two-wheel platforms.
- **Rule deployment:** prevented new modus operandi from exploiting a GPS related-loophole in the production apps. Fraudsters abused this loophole for financial gain and reputation hijack. Reduced the number of case significantly from 400 to 10 cases daily, with a false positive rate under 1% within a month.
- **Rule enhancement:** analyzed the hypothesis made fraud my team then enhanced the rule by applying a more sophisticated method of fraud identification (relational graph logic) to detect the convoluted device connection/relation. Increased the detection rate by 50%.

Project

Land Cover Segmentation

(Rasterio, RioXarray, Sklearn)

- Used random forest classification to classify land cover from Sentinel-2 imagery
- The model achieved accuracy of 97%

Palm Tree Detection

(PyTorch)

- Identify palm trees in aerial imagery captured by drones
- Implemented pre-processing techniques for drone imagery and developed a custom training data processing pipeline
- Fine-tuned the Mask R-CNN model to achieve robust performance.

Skills and Tech Stack

- **Machine Learning, Deep Learning, MLOps:** PyTorch, YOLO, XGBoost, MLFlow, Optuna, DVC
- **Data Science:** VSCode, GeoPandas, Apache-Sedona, polars, duckdb, BigQuery SQL, ArcGIS Pro
- **Others:** Git, GitHub
- **Relevant coursework:** computer vision (image classification, object detection), spatial analysis, time series forecasting, clustering, classification
- **Languages:** Bahasa Indonesia (Native), English (CEFR Level C1/IELTS 7.5).

Education

MIT IDSS: Data Science and Machine Learning

Remote

An online professional course taught by the MIT faculty

August - November 2022

Topic covered: statistics, unsupervised and supervised learning, hypothesis testing, deep learning, recommendation system, network and graphical model, and predictive analysis.

Institut Teknologi Bandung

Bandung, Indonesia

B.Sc in Geodesy and Geomatics Engineering, GPA 3.21/4.00.

July 2014 - October 2018

Topic covered includes: calculus, statistics, GIS, satellite geodesy, remote sensing, spatial database, cartography.

Achievement

- **ESRI ArcGIS Pro Associate:** proof of experience in applying ArcGIS concepts and processes to workflows. Demonstrated proficiency using ArcGIS to manage, analyze, and manipulate geospatial data. [[Certificate](#)]
- **Neo4j Certified Professional:** official professional certification from Neo4j. [[Certificate](#)]
- **Panelist - ASEAN Geospatial Challenge:** a national level competition on geospatial solution and innovation. Involved as a panel in evaluating top 10 submissions. [[Certificate](#)]

Leadership/Voluntary Experience

[Yayasan Anak Bangsa Bisa \(YABB\)](#) *Mentor/Instructor - Generasi Gigih*

Jakarta, Indonesia
July - December 2021

Yayasan Anak Bangsa Bisa (YABB) is a non-profit organization founded by Gojek, a catalyst that enables resilient change makers to solve pressing challenges and build sustainable communities. Generasi Gigih programme focuses on generating tech-talent by conducting an intensive boot camp to prepare fresh graduates for the tech industry.

- **Designed, created, and lectured:** data analysis lecture materials (Python and SQL for data analysis).
- **Mentorship:** guide and mentor the participants during their internship. Ensured the participants gained the most during their internship while maintaining the focus on the projects they were working on.

[Ikatan Mahasiswa Geodesi ITB \(IMG-ITB\)](#) *Chairman of IMG-ITB (Executive Student Council)*

Bandung, Indonesia
August 2017 – March 2018

Ikatan Mahasiswa Geodesi ITB (IMG-ITB) is a profession-based student association.

- **Visioning:** designed a blueprint as the north star metrics of the association. Mainly focus on character and mindset development in a professional manner and making a concrete social impact.
- **Executive function:** managed a council consisting of 5 ministries and 15 departments to maintain and develop the student association.