Faber Yosua **Silitonga**

M.Sc · Aerospace Engineering

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Summary

I'm a machine learning engineer with experiences in developing and serving ML model, with MLOps, to generate crypto trading signal. I also have software engineering experiences in building a scalable event-driven crypto trading bot that continuously monitor the price and user trades, while actively trading 24/7. I'm a fast learner and willing to learn various other skills and tools that could help me to be a better engineer and individual. I believe that AI will shape the technology in the future with MLOps as one of the important key for AI adoption in the industry.

Experience

KepingAI
Jakarta, Indonesia

Machine Learning Engineer
Oct. 2021 - Present

- Developed an **LSTM with transformer model** to forecast cryptocurrency prices and served it as a crypto trading signal engine. The model (signal engine) was deployed on Google Cloud Function. The **MLOps** pipeline is built on Kubeflow to retrain and validate the model weekly, store it in cloud storage, and redeploy the signal engine to update the inference model.
- The signal was available in Tokocrypto exchange with **2900+ subscribed users**. It was also one of the **Top 5 Signals** in 3commas.io (2021) with more than **140,000 actionable signals** traded and 2400+ active users (average $5,000 trading capital).
- Developed **event-driven bots** for crypto trading, that continuously monitor the price and user's trades through APIs and websockets; execute the trades, on user behalf, based on the received signals.
- The bot platform generated a total of **$45M+ trading volume** with 400+ registered users and 10+ professional traders (individual/team) providing their monetized signals. The platform managed a total of **$2M+ asset under copy** of the active users.

Nodeflux
Jakarta, Indonesia

AI Engineer Intern
June 2019 - Sept. 2019

- Developed a new method for license plate detection using WPOD-Net (Warped Planar Object Detection), a convolutional neural network (**CNN**) architecture that simultaneously **detects the license plate** and performs an affine **transformation** to warp the image, hence resulting with a planar frontal view.
- Developed an image deblurring module using CNN for the pre-processing pipeline of the license plate recognition.
- The full license plate recognition pipeline is using YOLOv3 for vehicle detection and optical character recognition. Then, the license plate detection with the WPOD-Net module is integrated between the two.

Education

Institut Teknologi Bandung (ITB)
Bandung, Indonesia

M.Sc. in Aerospace Engineering
Aug. 2018 - February 2021

- GPA: **4.00/4.00**
- Thesis: **Visual-based Fluid Motion Estimator with Deep Learning**
- Developed a fluid motion estimator program using a state-of-the-art optical flow neural network to improve the previous particle image velocimetry (PIV) program. The program is written in Python with PyTorch and OpenCV.
- Significantly improved the inference time by **35 times** faster with much higher resolution thus, allowing the program to capture smaller scale fluid structure with higher accuracy.
- Provided a novel quantitative analysis for diagnosing the fluid flow during a root canal irrigation using the motion estimator program.

Bangkit 2020 by Google
Bandung, Indonesia

Graduate
Mar. 2020 - Sep. 2020

- Bangkit 2020 is a **program by Google**, in collaboration with Gojek, Tokopedia and Traveloka, to prepare students with industry-relevant tech competencies and developing critical soft skills. **Machine learning** and programming with TensorFlow is one of the key aspects of the program.
- 300 participants were selected from around 2500 applicants across Indonesia. The program consisted of 160 hours of interactive workshops, 36 assignments and a collaborative final project.
- Led a team of 3 people, with different educational backgrounds, to develop a web application for detecting face spoofing in live stream.

Projects and Researches

PROJECTS

ML with NumPy

OPEN SOURCE   *July 2021*

- Built some of the popular machine learning algorithms (e.g., linear regression, principal component analysis, k-nearest neighbors regression) from scratch using NumPy, in order to understand more about those algorithms from the inside.
- The NumPy models were built to act similarly to their scikit-learn counterparts, so that users should be able to use it right away.

Face Spoofing Detection Web Application

OPEN SOURCE   *June 2020 - Aug 2020*

- A simple web application that can access user's camera via browser and perform a live face spoofing detection on it.
- The MobileNet v2 is used as the classification model with single shot detector (SSD) for the face detection. Both models were built using TensorFlowJS.

RESEARCHES

Endodontics Flow Diagnosis using Computer Vision   *Indonesia*

ASSOCIATE RESEARCHER   *June 2020 - May 2022*

- A joint research between the Flow Diagnostics ITB Laboratory and Laser Research Center in Dentistry, Bandung.
- Root canal irrigation experiments were conducted with different methods and documented with a high-speed camera. The Lite-FlowNet **deep learning model was used to estimate and visualize the flow** velocity/movement in order to explore and analyze the flow behavior during the experiment and how it affects the irrigation process. There are **2 articles** published from this research.
- Huiz, H., **Silitonga, F.**, and Zuhal, L. (2022). "*Application of artificial intelligence in a visual-based fluid motion estimator surrounding a vibrating EDDY® tip*". Giornale Italiano di Endodonzia. http://dx.doi.org/10.32067/GIE.2021.35.02.50
- Huiz, H., Judith, E., **Silitonga, F.**, and Zuhal, L. (2022). "*Visualizing the velocity fields and fluid behavior of a solution using artificial intelligence during EndoActivator activation*". Dental Journal. http://dx.doi.org/10.20473/j.djmkg.v55.i3.p125-129

Skills

Programming	Python, SQL, Solidity, Arduino
ML Framework and Tools	PyTorch, TensorFlow, Keras, Kubeflow
Google Cloud Services	Kubernetes Engine, Pub/Sub, Cloud Run, Cloud Functions, Data Studio, Cloud Storage
Software Engineering Tools	REST API, Docker, RabbitMQ, Redis, Flask, Github Action CI/CD

Seminars & Training

TensorFlow Developer Certificate   *TensorFlow Certificate Program*

PARTICIPANT   *Sep 2020*

- The certificate is intended to be the foundational certificate for demonstrating the practical machine learning (ML) skills using TensorFlow for the building and training of models. It evaluates the principles of ML and deep learning through various problems (e.g., image recognition, object detection, and text recognition algorithms) involving real case studies.

Deep Learning Specialization   *Coursera*

PARTICIPANT   *Apr. 2019*

- Completed all (5 out of 5) courses of the Deep Learning Specialization program from deeplearning.ai, provided by Coursera. This specialization aims to teach from the foundations of Deep Learning up to how to lead successful machine learning projects. The courses are filled with theoretical explanations (e.g., convolutional neural networks and sequence models), yet also providing best practices on designing a machine learning projects (e.g., hyperparameter tuning, optimization, structuring ML projects, etc)