



WILLY FITRA HENDRIA

✉ willyfitrahendria@gmail.com | 📍 Seoul, South Korea

🌐 [willyfitrahendria](#) | 🐙 [willyfh](#) | 📄 [Google Scholar](#)

Skills

- Machine Learning | Computer Vision | Vision-Language | Full-Stack | English, Indonesian
- Python | Java | C++ | C# | JavaScript | HTML | CSS | SQL | NoSQL | Git | Docker | GCP | Airflow | FastAPI
- PyTorch | TensorFlow | Scikit-learn | OpenCV | spaCy | Pandas | TorchServe | TensorFlow Serving

Experience

AI Research Engineer **Dagyeom Co., Ltd.** *South Korea* **10/2023 - Present**

- Developing a **desktop** and **web** application for the real-time anomaly detection system of video and audio data.
- Researched and deployed a state-of-the-art **anomaly detection** model (from CVPR) into an existing system.
- Implemented **multithreading** with **ONNX** in C# and Python, resulting in a **20x improvement** in inference time.
- Authored a research paper on unsupervised anomaly detection for publication in an **SCI-level** journal.
- Proposed and developed a novel approach for **unsupervised anomaly detection** using **PyTorch**.

AI Research Engineer **Tricubics** *South Korea* **04/2023 - 10/2023**

- Implemented **multi-GPU inference** with **multithreading**, resulting in an 80% improvement in the FPS of multi-model ML system.
- Built and deployed an **object detection** model for real-time video stream data, achieving a 35% gain in mAP.
- Built and deployed a state-of-the-art **pose estimation** model (published in 2023), resulting in 26% AP gain.
- Built and deployed an **image classification** model, resulting in 33% improvement in the F1 score.
- Improved a knowledge-based **action recognition** algorithm by integrating **object tracking** and **sensor fusion** techniques, resulting in a considerable 24% enhancement in accuracy.

Graduate AI Researcher **VLI Lab (Sejong University)** *South Korea* **03/2021 - 03/2023**

- Produced the highest research output in the lab by writing two first-authored papers, filing two patents, and leading teams in completing **deep learning**-based projects, such as **object detection** and **video captioning**.
- Proposed and developed a novel **graph neural network**-based **video captioning** using **PyTorch**, which achieved state-of-the-art results.
- Reproduced several **machine learning** papers, such as **federated learning**, **object detection**, **video captioning**, and **video retrieval**.

Machine Learning Engineer **Detik Network** *Indonesia* **11/2019 - 10/2020**

- Built **Scikit-learn**-based **classification**, **regression**, and **clustering** models for AI use cases in online media articles, such as **tagging** and **categorization** of articles, **recommendation engine**, and **customer segmentation**.
- Improved preprocessing time of 20 million data from 50 minutes to 3 minutes by converting the **Spark**-based code to **Google BigQuery**.
- Built monitoring and inference pipeline of **Google AutoML** model for batch prediction by using **Apache Airflow**.

Software Engineer **Works Applications Co., Ltd.** *Singapore, Japan* **01/2016 - 09/2018**

- Led the development of the UI component library from understanding the requirements, implementation, code reviewing, and testing.
- Improved build time of a large project from more than 1 hour to less than 20 minutes.
- Designed and developed the **front-end** and **back-end** of an e-commerce system using **Java Spring** framework.

Education

Master of Science

Sejong University

South Korea 03/2021 - 02/2023

- Major in Intelligent Mechatronics Engineering and Convergence Engineering for Intelligent Drone (Dual Degree).
Thesis: Video Captioning Based on Graph Neural Networks Using Action Knowledge

Nanodegree

Udacity

Online 11/2019 - 02/2020

- Program in Machine Learning Engineer. **Capstone Project:** Cat Breed Image Classification Using CNN [\[link\]](#)

Bachelor of Science

Bandung Institute of Technology

Indonesia 08/2011 - 09/2015

- Major in Computer Science (Informatics). **Relevant Courses:** Artificial Intelligence, Machine Learning, Database, and Software Engineering

Projects

- **MSVD-Indonesian:** A benchmark for multimodal video-text tasks in Indonesian [\[link\]](#) (2023)
- **Graph Transformer:** An unofficial implementation of Graph Transformer in PyTorch [\[link\]](#) (2023)
- **CLIP4Caption:** An unofficial implementation of CLIP4Caption in PyTorch [\[link\]](#) (2022)
- **Federated Learning:** An unofficial implementation of federated learning in TensorFlow [\[link\]](#) (2021)

Publications

- Action knowledge for video captioning with graph neural networks, JKSU-CIS (Q1), Elsevier [\[link\]](#) (2023)
- Improving distinctiveness in video captioning with text-video similarity, Image and Vision Computing (Q2), Elsevier [\[link\]](#) (2023)
- Non-contact supervision of COVID-19 breathing behaviour with FMCW radar and stacked ensemble learning model in real-time, Transactions on Biomedical Circuits and Systems (Q1), IEEE [\[link\]](#) (2022)
- Non-Contact Monitoring and Classification of Breathing Pattern for the Supervision of People Infected by COVID-19, Sensors (Q1), MDPI [\[link\]](#) (2021)
- Combining transformer and CNN for object detection in UAV imagery, ICT Express (Q1), Elsevier [\[link\]](#) (2021)

Patents

- Knowledge distillation for graph-based video captioning, KR, Unexamined, App. No. 1020220018494 [\[link\]](#) (2022)
- Transfer of tactile data in teleoperation system, KR, Granted, App. No. 1020210154046 [\[link\]](#) (2021)

Peer-reviews

- **Reviewer:** Signal Processing Letters (Q1), IEEE (2023)
- **Reviewer:** Complex & Intelligent Systems (Q2), Springer (2023)
- **Reviewer:** Transactions on Intelligent Transportation Systems (Q1), IEEE (2022)
- **Reviewer:** Artificial Intelligence Review (Q1), Springer (2022)

Others

- Contributed to several open-source projects, including [Anomalib](#), [MMPose](#), and [SEACrowd](#) (2023 - 2024)
- Served as the Sejong University **representative** for the Indonesian Students Association in Korea (2021 - 2023)
- Spoke as an **invited speaker** on “Object Detection for Drone Imagery” in the digiXed Webinar (03/2023)
- Instructed Big Data Analytics for Indonesian government staff in a five-day online training organized by the Ministry of Communication and Information Technology (03/2023)
- Awarded the **AWS Scholarship**, securing a position among the top 300 performers in the Amazon Web Services DeepRacer Challenge (11/2019)
- Achieved a **Gold Medal** in an intra-university chess team competition at Olympiad VIII KM-ITB 2015 (02/2015)