

VAN-TU VO

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GitHub ([link](#));

TECHNICAL STRENGTHS

Computer Languages	Matlab, Python, PySpark, SQL, Bash/C Shell (Vim & Linux OS)
Libraries/Tool	Tensorflow, Pytorch, Scikit-learn, Pandas, Docker, GCP, Azure, Sagemaker, FastAPI, Kubeflow, TFserve, Gradio
Research Focus	Machine Learning/Deep Learning applied on Computer Vision, Time Series Data.

EXPERIENCE

Research Scientist *March 2022 - now*
KC Machine Learning Lab *Korea*

- **Defocus Deblurred Image Restoration** - *on going ...*:
 - Doing Research on Image Enhancement, especially Defocus-Blur Problem.
- **Resource Constrained Vision** - *March 2023 - August 2023*:
 - Researched and developed a training pipeline to train a model under a given low resources.
 - Wrote report and contributed to a Workshop that was published in ICCV 2023 Proceedings.
- **Efficient Super-Resolution** - *March 2022 - September 2022*:
 - Researched and developed a resource efficient model for Image Resolution Task. - Conducted experiments on benchmark and participated in CVPR 2022 Challenge on Efficient Super-Resolution Models.

Software Engineer *March 2020 - January 2022*
InhandPlus Inc. *Korea*

- **Sound detection on Microchips - Time Series Data Project**:
 - Successfully develop a sound detection model and deploy it on a Microchips that is integrated in InhandPlus smartwatch. The model is designed to be small yet efficient to work as a trigger to turn on the camera when the patient open the medication bag. The model reached more than 97% accuracy in the real test.
- **Medication taking behavior analysis**:
 - Successfully released the software to monitor the medication usage behavior of the patients. This software is a combination of deep learning object detection models trained on real video data collected from hospitals and volunteers to detect objects in videos and LSTM models to analyze the action by considering videos as time-series data. The object detection models are built upon **Tensorflow Object Detection API** while action recognition models are built from scratch and updated daily using **Kubeflow on Azure**. The accuracy was more than 95% and the model was brought to cooperate with several hospitals in Korea.
- **AutoLabelling**:
 - Successfully released an Autolabeller tool based on the original LabelImg by adding the Autolabel function to it using the trained object detection models. This function helps reducing the human resources as well as labelling time by 3 times by empowering the object detection model.

AI Engineer

Tricubics Inc.

February 2019 - March 2020

Korea

· **Object Detection for Smart Store:**

- Successfully released an object detection algorithm to detect different objects inside a store. The object detection was built upon YOLOv3 for fast inference and the detection results are integrated with weight sensors to return as final detection output. The accuracy of the algorithm was about 90% and the system was installed inside the Emart Headquarter.

· **AutoDataGeneration:**

- Successfully developed a DataGenerator to support the object detection training. The DataGenerator extracts objects as foreground using a segmentation algorithm and the put objects on different random background. The DataGenerator help generating million bounding boxes for training the object detection model.

EDUCATION

Pukyong National University, South Korea

February 2019

MS in Computer Engineering

ACHIEVEMENTS

- Top-five team ranking of **MOAI 2020 Body Morphometry Segmentation Challenge** ([link](#))

PERSONAL PROJECTS

Document Splitting:

- Develop algorithm to split pdf files from a merged file. The algorithm consists of an image recognition branch and a Natural Language branch to handle both spatial and language information.

- Github link: [document_splitting](#)

Zero-DCE TF:

- A Tensorflow implementation of Zero-DCE, a deep learning based image enhancement algorithm without input-ground truth pairs.

- Github link: [Zero_DCE_TF](#)

Attention! Stay Focus! - CVPR Workshop 2021 ([link](#))

- A deep learning model to solve the Defocus Deblurring Problem. The deep learning model is modified from the original Unet with the Attention Mechanism. This project was published on CVPRWorkshop 2021.

- Github link: [ATTSE](#)

ML in production:

- This project aims to collect and reproduce various ways to deploy a Machine Learning model in production as a tutorial. This tutorial shows how to use RestAPI, Docker, TFserving, and Kubernetes to run the model.

- Github link: [ml_in_production](#)