TU VO

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Seoul, South Korea

PROFESSIONAL SUMMARY

Machine Learning Research Scientist with 5+ years of experience in Computer Vision and TinyML. Proven track record of publishing in top-tier conferences (WACV, ICCV) while engineering production-grade systems for microchips and cloud environments. Expertise in bridging the gap between theoretical research and deployable AI solutions.

TECHNICAL STRENGTHS

Languages	Python, MATLAB, SQL, Bash/Shell
Frameworks	PyTorch, TensorFlow, Scikit-learn, Pandas, LangChain, LangGraph
Tools & Platforms	Docker, Kubernetes (Kubeflow), GCP, Azure, PostgreSQL, FastAPI, Linux/Vim
Research Focus	Computer Vision (Restoration, Deblurring), TinyML, Efficient Deep Learning

EXPERIENCE

Research Scientist *March 2022 - Present*
KC Machine Learning Lab *Seoul, South Korea*

- **Image Restoration Research (WACV 2025, NeurIPS):** Spearheaded research on single-image defocus deblurring, resulting in a novel Deep Unrolling Network accepted to **WACV 2025** and **NeurIPS 2025 COML Workshop**.
- **Resource Constrained Vision (ICCVW 2023):** Developed a resource-efficient training pipeline for constrained environments. Authored reports and contributed to the "Resource Constrained Deep Learning" workshop published in **ICCV 2023**.
- **Efficient Super-Resolution (CVPR 2022 Challenge):** Researched and engineered lightweight models for image super-resolution tasks, conducting extensive benchmarking for the CVPR 2022 Efficient Super-Resolution Challenge.

Machine Learning Engineer *March 2020 - January 2022*
InhandPlus Inc. *Seoul, South Korea*

- **TinyML Sound Detection:** Engineered a lightweight sound detection model for the InhandPlus smartwatch, achieving **97% accuracy** in real-world trials. Optimized the model for low-power microchip deployment to trigger camera activation.
- **Behavior Analysis Pipeline:** Led the development of a patient monitoring system combining object detection (TensorFlow) and action recognition (LSTM). Built the training pipeline on **Azure Kubeflow** for daily model updates, achieving 95% accuracy in hospital deployments.
- **Auto-Labeling Tooling:** Developed an automated labeling tool (based on LabelImg) integrated with custom object detection models. Reduced manual data labeling time by **3x**, significantly accelerating dataset creation.

AI Engineer *February 2019 - March 2020*
Tricubics Inc. *Seoul, South Korea*

- **Smart Retail Object Detection:** Deployed a YOLOv3-based object detection system for smart retail environments. Integrated vision outputs with weight sensors for real-time inventory tracking at Emart Headquarters (90% system accuracy).
- **Synthetic Data Generation:** Developed an automated Data Generator using foreground segmentation to synthesize training data with randomized backgrounds, solving data scarcity issues for retail items.

PUBLICATIONS

Error-Aware Deep Unrolling Network for Single Image Defocus Deblurring
Tu Vo, Chan Y. Park
Submitted to ICASSP (Under Review); Accepted to 2025 NeurIPS COML Workshop.

Deep Joint Unrolling for Deblurring and Low-Light Image Enhancement (JUDE)
Tu Vo, Chan Y. Park
WACV, 2025 — Project Page — Paper

Benchmarking Model Training and Inference for Resource-Constrained Deep Learning
... **Tu Vo** ...
ICCVW, 2023 — Paper

Attention! Stay Focus!
Tu Vo
CVPRW, 2021 — Paper — Code

High Dynamic Range Video Synthesis Using Superpixel-Based Illuminance-Invariant Motion Estimation
Tu Vo, Chul Lee
IEEE Access, 2023 — Paper

Robust HDR Video Synthesis Using Superpixel-Based Illumination Invariant Motion Estimation
Tu Vo, Chul Lee
IEEE ICCE-Asia, 2018 — Paper

Human Visual System Model-Based Optimized Tone Mapping of HDR Images
Nam Hoang Nguyen, **Tu Vo**, Chul Lee
IEEE Access, 2021 — Paper

PERSONAL PROJECTS

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. CVPRW 2021
- Github link: ATTSF

Zero-DCE TF:
A TensorFlow implementation of Zero-DCE, a deep learning-based image enhancement algorithm that functions without paired input-ground truth data.
Link: Zero_DCE_TF

ML in Production:
An open-source tutorial repository demonstrating production deployment strategies. Includes implementations for REST API, Docker, TF Serving, and Kubernetes.
Link: ml_in_production

EDUCATION

Pukyong National University, South Korea *February 2019*
MS in Computer Engineering
Hanoi University of Science and Technology, Vietnam *July 2016*
Bachelor in Electrical & Electronic Engineering (Advanced Program)