Phan Tai Duc

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INTRODUCTION

AI Research Assistant with 2 years of hands-on experience in Computer Vision and Active Learning, currently in the third year of a Bachelor's program at FPT University, HCMC. At AiTA Lab (Artificial Intelligence of Technologies and Applications), I specialize in tailoring Active Learning strategies for Object Detection (AL-OD), with a focus on reducing human labeling effort and enhancing data efficiency. My long-term goal is to secure an AI Engineer role where I can contribute to developing intelligent, adaptive systems that push the boundaries of efficiency, interpretability, and human-AI collaboration.

EDUCATION

FPT University — **Hi-Tech Park, Ho Chi Minh City**
B.Sc. in Software Engineering — 2023 - Present

KEY SKILLS

Programming Languages	Python, Java, TypeScript, C/C++
Frameworks	PyTorch, TensorFlow, FastAPI, ReactJS, Spring Boot
Soft skills	Knowledge-sharing, Self-Motivation, Critical Thinking, Creative Thinking, Resilience and Flexibility
Languages	English (Fluent), Vietnamese (Native)

WORK EXPERIENCE

AI Engineer Part-time - ABC Studio — Jan 2025 - Apr 2025

- Modified and improved Mobile-ViT for small-scale, multi-object street vehicle scenarios.
- Worked with a large-scale proprietary dataset for 3D detection (Rope3D, DAIR-V2X).
- Implemented RTMPose (keypoint regression) in the NetsPresso-Trainer framework by NOTA (Korea).
- Implemented a Detection-then-Regression pipeline within DeepStream.

AI Engineer Intern - ABC Studio — Oct 2024 - Jan 2025

- Deployed DeepStream SDK on Jetson Orin NX for real-time processing.
- Modified Label Studio by applying Active Learning to reduce manual annotation workload.

- Integrated YOLOX into DeepStream.
- Achieved 27~30 FPS with eight videos streaming.

RESEARCH EXPERIENCE

FPT University - HCMC Campus **Hi-Tech Park, Ho Chi Minh City**
AI Research Assistant Sep 2023 - Present

ALMUS: Active Learning with Metric-based Uncertainty Sampling* May 2025 - Jun 2025

- Utilized mAP@50 (object detection standard metric) to become the core criterion for deciding which images are informative for YOLO11 to train on.
- Achieved 78% mAP@50 on VOC07+12 dataset with 20% of labeled data.

Improving Face Attendance System with Ensemble Learning Mar 2024 - Jun 2024

- Implemented VGGFace, GoogLeNet, and FaceNet for face recognition task to apply ensemble learning.
- Utilized MTCNN and Dlib toolkit for face detection.
- Applied similarity functions to calculate score for embedding features.

Real-time Traffic Sign Recognition on Embedded Systems Mar 2024 - Jun 2024

- Collected and introduced a new dataset, VNTSDB100 (Vietnamese Traffic Sign Detection Database).
- Optimized detector for deployment on Jetson Nano (2GB), achieving real-time detection.

PROJECTS

Make Your Own Datasets (FastAL) Jun 2025 - Present

- Applied uncertainty and diversity-based Active Learning techniques to help users reduce labeling effort on image datasets in 3 tasks (image classification, object detection, and image segmentation).
- Integrated YOLOE (YOLO RealTime See Anything) to achieve a real-time experience.
- Reduced labeling by up to 90% (coarse-grained) and 70–80% (fine-grained) in object detection tasks.