

Bùi Tùng Dương

Computer Vision Engineer

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SUMMARY

- Computer Vision and Software Engineer with 2+ years of full-time experience and one year of internship experience in camera systems, computer vision, edge AI, and manufacturing software.
- Experienced in RAW Bayer processing, ISP preprocessing, image validation, algorithm integration, failure analysis, and high-volume production-data automation.
- Built and validated image-processing pipelines against customer reference implementations with numerical deviation below 10^{-9} , while delivering automation solutions that reduced validation and analysis effort by up to 82%.
- Hands-on experience in AI model training and NVIDIA Jetson edge deployment, with additional project experience in camera calibration, geometric transformation, stereo vision, and real-time computer-vision systems.

WORK EXPERIENCE

LG Innotek Vietnam Haiphong

01/2024 - Present

Test Software Engineer

- Developed and maintained production test software for main, ultra-wide, and telephoto smartphone camera modules using Python, C++, and MATLAB, supporting projects from NPI builds through PVT ramp.
- Processed RAW Bayer image data and integrated customer-defined image-processing and camera functional-test algorithms into high-volume manufacturing test flows.
- Reproduced and validated reference algorithms in production software, achieving numerical deviation below 10^{-9} for verified outputs.
- Developed image-processing and automated validation tools that reduced initial failure-analysis reporting time by 80%, validation cycle time by 60%, and manual analysis effort by 82%.
- Investigated image and test-result anomalies by analyzing software behavior, preprocessing parameters, configuration, equipment conditions, and camera-module characteristics.
- Communicated technical findings and root-cause conclusions with production, process, equipment, and customer teams, translating complex result differences into actionable corrective actions.

Universal Scientific Industrial Vietnam

07/2023 - 12/2023

SFIS Engineer Intern

- Supported SFIS operations and investigated production-data synchronization issues across interconnected manufacturing systems.
- Developed internal utilities to automate data processing and improve system-to-system data flow.
- Automated SCP-based data synchronization during off-peak periods, replacing manual synchronization and reducing production waiting time.
- Worked with manufacturing databases, system logs, and shop-floor applications to support production workflows and system integration.

VNNet Haiphong

01/2023 - 06/2023

Software Engineer Intern

- Collected and prepared image data, trained a YOLOv5 fire-and-smoke detection model, converted it from PyTorch .pt to ONNX and TensorRT, and benchmarked FP32, FP16, and INT8 inference on NVIDIA Jetson Nano based on latency, throughput, and mAP.
- Integrated automatic fire alerts through phone notifications and on-site alarm systems; the solution was successfully accepted for deployment at a packaging manufacturing company in Hung Yen.
- Developed a configurable face-recognition attendance application using Hanet AI-camera APIs for identity recognition, event handling, and attendance recording.

SKILLS

Programming	Python, C++, MATLAB
Computer Vision / AI	OpenCV, PyTorch, TensorFlow, YOLO, InsightFace
Tools & Systems	Git, PowerShell
English	TOEIC Speaking 140

PROJECTS

Camera Geometry Toolkit	07/2026 - 08/2026
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<https://github.com/tdbui1209/camera-geometry-toolkit>

- Implemented pinhole-camera projection, coordinate transformations, monocular calibration, lens-distortion correction, planar homography, and ArUco-based pose estimation.
- Built a stereo-vision pipeline covering stereo calibration, image rectification, disparity estimation, and depth reconstruction.
- Structured the Python implementation as reusable modules with runnable demos and validation scripts.
- Developed Python OpenCV demos for environment verification and 3D-to-2D projection.

Open-Set Face Recognition	12/2021 - 01/2022
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<https://github.com/tdbui1209/Face-Recognition-With-InsightFace>

- Built a face-identification pipeline covering face detection, alignment, 512-dimensional embedding extraction, gallery enrollment, and cosine-similarity matching.
- Implemented similarity-threshold rejection to classify identities outside the enrolled gallery as unknown.
- Organized the application into reusable enrollment and inference workflows for adding and recognizing identities.

Kaggle: Global Wheat Detection	07/2023 - 07/2023
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<https://tdbui1209.github.io/portfolio/projects/kaggle-global-wheat-detection.html>

- Trained and evaluated an object-detection model for detecting wheat heads in outdoor agricultural images.
- Implemented dataset preprocessing, augmentation, training, inference, and prediction visualization.
- Analyzed false positives, missed detections, object scale variation, and image-domain differences across datasets.

AWARDS

2026 LG Innotek Improvement Excellence Award	03/2026
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- Developed a direct software interface between the production test system and automated visual-inspection equipment, accelerating inspection feedback and reducing the risk of defective units escaping downstream detection.
- Delivered estimated cost savings of approximately KRW 600 million per year.

Data-Centric AI Competition 2021 Prospective Prize by FPT Software	12/2021
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- Developed a face-mask wearing-condition detection pipeline for the COVID-19 context.
- Improved data quality through augmentation, incorrect-label correction, bounding-box refinement, synthetic data generation, and model-assisted data collection.
- Increased model performance from 0.64 to 0.91 mAP@0.5:0.95.
- Ranked 2nd in the student leaderboard and 11th overall.

EDUCATION

Vietnam Maritime University Information Technology	10/2020 - 04/2024
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GPA: 3.61/4.0