

# Nguyen Ngoc Tri Vi

AI Engineer | Computer Vision Engineer

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 [github.com/nntrivi2001](https://github.com/nntrivi2001)

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## Summary

**Valedictorian** IT graduate (HUIT, GPA 3.74) with 1.5 years of experience as an **AI/Computer Vision Engineer**. Skilled in developing end-to-end vision systems, especially using **Python, OpenCV, YOLO, and TensorFlow/PyTorch** for tasks like quality inspection and object tracking. Eager to contribute to innovative AI projects and deliver high-performance computer vision solutions.

## Work experience

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VSTECH COMPANY LIMITED

Aug 2023 – Feb 2025

### Computer Vision Engineer / Application Developer

- **Designed and developed a complete Nozzle Quality Inspection application** for a Japanese client using **Python and OpenCV**. Implemented classical computer vision algorithms (e.g., thresholding, contour analysis, Hough Circle detection, geometric measurements) to automatically analyze nozzle dimensions and classify quality (OK/NG).
- **Integrated and configured an industrial 3D vision system** (OPT Vision camera and software) for automated measurement of Samsung LED panels, achieving a **verified average accuracy of 93%**.
- **Contributed to data preparation for AI projects**, including tasks like data labeling, preprocessing and statistical analysis.
- **Developed a web-based interface** for controlling and monitoring industrial robots via a custom webserver.
- Researched and evaluated computer vision techniques for potential application in new projects.

## Education


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Ho Chi Minh City University of Industry and Trade

 Ho Chi Minh City, Vietnam

*Engineer of Data Analyst*

**GPA: 3.74/4.0**

 Oct 2020 – Oct 2024

- Graduated **Valedictorian** of the Information Technology major
- *Relevant Coursework: **Artificial Intelligence, Machine Learning, Image Processing, Data Structures & Algorithms, Linear Algebra, Probability & Statistics, Object-Oriented Programming.***

## Certifications

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### [Supervised Machine Learning: Regression and Classification](#)

Coursera | Feb 2023

### [Advanced Learning Algorithms](#)

Coursera | Jul 2023

### [Unsupervised Learning, Recommenders, Reinforcement Learning](#)

Coursera | Apr 2024

### [ChatGPT Advanced Data Analysis](#)

Coursera | Apr 2024

## Skills

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- **Programming & Scripting:** Python (NumPy, pandas, scikit-learn), C++, C#, SQL, HTML/CSS, JavaScript
- **Machine Learning & Deep Learning:** TensorFlow, Keras, PyTorch, Scikit-learn, CNNs, RNNs, Model Training & Evaluation
- **Computer Vision:** OpenCV, Object Detection (YOLO, Faster R-CNN), Image Segmentation, OCR, Image Processing & Augmentation Techniques
- **Data Handling & Visualization:** Data Cleaning, Data Annotation/Labeling, Performance Evaluation, Matplotlib, Seaborn
- **Databases:** SQL Server, MongoDB, Neo4j
- **Mathematics & Statistics:** Linear Algebra, Calculus, Probability, Optimization Methods
- **Operating Systems:** Windows (Primary), Linux/Ubuntu (Basic Familiarity)
- **Languages:** English (Intermediate/Advanced reading, basic conversational), Vietnamese (Native)

## Awards received

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- **Valedictorian** – Information Technology major at HUIT (2024)
- **Second Place** – 5th “Essential IT Products and Topics” Competition, HUIT (2024)
- **Consolation Prize** – TOFAS Competition (2023)
- **“Clean Code” Award & Consolation Prize** – “Finding Talents and Innovative IT Products in the Digital Age,” HUIT (2022)
- **Excellent & Outstanding Student Awards** – Multiple semesters at HUIT (2020–2024)

## Projects

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### Optimizing Traffic Lights Using Traffic Density *(Graduation Thesis)*

- Developed a dynamic traffic light control system in **SUMO** to minimize vehicle waiting times by simulating traffic flow.
- Implemented a pipeline using **YOLOv10** for vehicle detection/counting and **Webster's formula** to calculate optimal signal timings based on density.
- Dynamically adjusted signals via SUMO's Traci API, achieving **6.2%-13.3% reduction** in average waiting times compared to fixed-time methods.
- **Technologies:** Python, SUMO, YOLOv10, OpenCV, Webster's Formula.

### Vehicle Counting Using YOLOv10 and ByteTrack *(Personal Project)*

- Built a real-time system to detect (**YOLOv10**), track (**ByteTrack**), and count various vehicle types crossing a predefined line in videos.
- Implemented line-crossing logic and visualization using **OpenCV**, providing accurate traffic flow analysis.
- **Technologies:** Python, YOLOv10, ByteTrack, OpenCV.

### License Plate Recognition using YOLO *(Personal Project)*

- Developed an automated license plate recognition system using a **two-stage YOLO approach**: one model for plate detection (YOLOv10), another for character recognition.
- Implemented custom **Python/OpenCV** logic to preprocess cropped plates and reconstruct the final string, correctly handling **two-line plates** by sorting character boxes.
- Visualized detected plates, characters, and the recognized string on output images/video.
- **Technologies:** Python, YOLO (x2 models), OpenCV.

### Portfolio & Additional Projects

Explore further projects, including coursework applications and Kaggle competition entries on my GitHub. My portfolio also provides GIF demos for the projects detailed above (viewable in the Projects, 'Notes' column).

- **Portfolio:** [nntrivi2001.github.io](https://nntrivi2001.github.io)
- **GitHub:** [github.com/nntrivi2001](https://github.com/nntrivi2001)