Nguyen Ngoc Tri Vi (Thomas)

Artificial Intelligence Developer

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Summary

Valedictorian in Information Technology at Ho Chi Minh City University of Industry and Trade (HUIT), with one year of experience in industrial image processing. Passionate about digital transformation and AI applications, aiming to develop innovative and practical solutions to create value for the community.

Education

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

Certifications

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

Work experience

VSTECH COMPANY LIMITED — **Aug 2023 – Aug 2024**

AI Application Developer

- Conducted research and applied advanced image processing techniques to develop a product quality inspection application, and created comprehensive documentation for customers.
- Evaluated and statistically analyzed the performance of the company's existing AI models, providing insights for enhancements.
- Assisted in improving the model for detecting defective products in the production line.
- Researched, developed, and evaluated an Optical Character Verification (OCV) model, including data acquisition and augmentation using advanced image processing techniques, and integrated pre-trained models to enhance performance.

Skills

Artificial Intelligence and Data Science:

- **Python programming**: Experienced in object-oriented programming and scripting, with proficiency in utilizing libraries such as NumPy, pandas, and scikit-learn for data analysis and machine learning tasks.
- **Mathematics**: Familiar with key concepts including linear algebra, calculus, probability, and statistics, essential for understanding and implementing machine learning algorithms.
- **Machine Learning**: Knowledgeable in various machine learning concepts and experienced with both supervised (e.g., regression, classification) and unsupervised (e.g., clustering) machine learning models.
- **Computer Vision**: Experienced in applying computer vision techniques for tasks such as image classification, object detection, and image segmentation. Familiar with libraries like OpenCV, TensorFlow, Keras, and PyTorch, and capable of developing and utilizing pre-trained models for advanced image analysis.

Database management: Capable of designing, building, managing, and integrating databases into applications using SQL Server, Neo4J, and MongoDB.

Programming languages and Scriptings: Experienced with programming languages such as C/C++, C# for coursework projects, and skilled in scripting languages like HTML/CSS, Javascript for web development.

Awards received

Graduated as Valedictorian of the Information Technology major at HUIT (2024).

Second place in the 5th 'Essential IT Products and Topics' competition at HUIT (2024).

Consolation Prize in the TOFAS competition (2023).

"Clean Code" Award and Consolation Prize in the "Finding Talents and Innovative IT Products in the Digital Age" competition at HUIT (2022).

Excellent Student Award (2020-2021, 2023-2024) and Outstanding Student Award (2021-2023).

Merit Scholarships for every academic semester (2020-2024).

Interests and Hobbies

Enjoy reading books to enhance knowledge and gain new insights.

Technology and innovation, especially in the field of AI.

Participating in sports like football, badminton and jogging to stay healthy.

Projects

Personal Project	Name	License Plate Recognition using YOLOv10
	Description	This project uses YOLOv10 for real-time detection and recognition of vehicle license plates in video footage. YOLOv10 detects plates, which are then processed using perspective transformation and OCR to extract the characters. The recognized license numbers are displayed on the video with bounding boxes around the plates. The system outputs a labeled video stream, making it useful for automated traffic monitoring and vehicle identification.

Personal Project	Name	Vehicle Counting Using YOLOv10 and ByteTrack
	Description	This project uses YOLOv10 for real-time vehicle detection and ByteTrack for tracking across frames. It detects motorcycles, cars, buses, and trucks, counting them as they cross a predefined line in the video. The system outputs a video with vehicle counts and tracks, providing accurate traffic analysis.

Graduation Thesis	Name	Optimizing Traffic Lights Using Traffic Density
	Description	Utilizes the "Simulation of Urban Mobility" application to optimize traffic lights based on vehicle density. The system captures panoramic images of intersections, segments them by road, and uses YOLOv10 for vehicle counting. Then calculates traffic light cycle times using Webster's formula, determines weights for each road, and adjusts signal timings accordingly to balance traffic flow. The system continually updates and optimizes traffic light cycles in real-time until the intersection is clear of vehicles.

Internship Project	Name	Nozzle Quality Inspection
	Description	A desktop application built with Python and OpenCV to inspect the quality of nozzles, developed for a Japanese client. The app takes pictures of nozzles and contact tips using a camera, measures their size, and compares the measurements to set standards. It provides real-time feedback to ensure the nozzles meet quality requirements.

Coursework	Name	Face Verification using Siamese Neural Network

	Description	Use Kivy and KivyMD frameworks to build application interface and implement a face verification model employing a Siamese Neural Network with VGGFace as a sub-neural network. Processes cropped face images captured from the camera as input and computes the similarity score with face images stored in the database as output.

Internship Project	Name	Incomplete product detection
	Description	Utilize YOLOv8 to detect incomplete product based on quantity of screws/wave washers and percent of object out of frame. The images classified as "Not good" or "incomplete" will be deleted and summarize the number of remaining images and the number of deleted images in each folder.

Internship Project	Name	Similarity estimation model for printed characters
	Description	Using the Tensorflow framework to split the data into a test set and a training set, then proceed with preprocessing, augmentation, model creation, compilation, and training to obtain embedded vectors from the images. The model takes a cropped character image as input and learns the differences between each class, producing an embedded vector of the input image as output.

Coursework	Name	Face recognition
	Description	Detect faces in photos and real-time webcam streams using a user-friendly GUI. Accurate and efficient face recognition with Dlib and OpenCV.

Other courseworks and Kaggle competitions	Developed applications to practice image processing techniques and build a model for predicting heart disease. Took part in Kaggle competitions like predicting house prices, recognizing digits, and forecasting Titanic survival, achieving relatively high rankings. For more detailed information about these projects, please visit my GitHub page.