

CURRICULUM VITAE

PERSONAL INFORMATION

Full Name: Truong Nhat Hao

Date of Birth: 23/07/1995

Origin: Ho Chi Minh City, Vietnam

Current Place: Karlsruhe, Germany

EDUCATION

Master student in Mechatronics and Sensor Systems Technology

October 2021 - October 2023

Hochschule Karlsruhe - VGU

- CGPA: 1.3/5.0 - Est. Ranking: 1st/11
- Relevant Coursework: System Modelling, Numerical Simulation, Signal Processing, Control Theory, Smart Materials, Advanced Robotics.
- Honors: Merit Scholarship all semesters, DAAD Sur-place Scholarship (2021)

B.Eng in Control Engineering

October 2013 - October 2017

HCMC University of Technology and Education

- CGPA: 7.85/10.0 - Ranking: 6th/101
- Relevant Coursework: Electrical Electronics, Automation System, Control Theory, Image Processing
- Thesis: Coffee bean sorter using Image Processing and Multi-layer Neural Networks
- Honors: Merit Scholarship all semesters, Student of 5 Merits (2016)

PROFESSIONAL EXPERIENCE

Autonomous Software Engineer

January 2021 – January 2023

Vinfast - Vingroup

- Worked in a team of 6 people to research and develop solutions on planning and vehicle dynamics control for ADAS system, achieving rank 3rd in International CARLA Autonomous Driving Challenge (Python, Carla)
- Developed simulation framework for autonomous driving iterative testing (Docker, Azure DevOps)
- Built data platform and web service to handling vehicle testing data (Python, Django REST framework, SQL)

Robotics Engineer

July 2020 – December 2021

Kambria - Ohmnilabs Vietnam

- Implemented Vision-based Robotics Calibration, enhancing Vision-based Driving Assistance feature, which improved Self-Charging feature's accuracy. The feature was in production mode and brought up to more than 1.000 users (OpenCV, Javascript)
- Optimized functionalities and parameters to enhance autonomous mobile robot's capabilities under ROS software stack, such as navigation, exploration, localization etc. (ROS, Python)

Senior Software Engineer

April 2017 – June 2020

Emage Vision Pte. Ltd.

- Worked as individual to develop 2D image processing's algorithm for automated optical inspection in semiconductor fabrication, achieving 99.8% accuracy and repeatability (HALCON, OpenCV, C++)
- Implemented calibration setup for stereo vision, extracting 3D mapping from points of interest for quality inspection in wire bonding process: wire loop height, sagging, touching, achieving 10 microns accuracy, 5 microns repeatability
- Optimized application functionalities under different platform (C# WPF, C++ MFC)
- Built ROS stack for robot manipulator, working in calibration for hand-eye system, collecting data and training the object detection modules. (ROS, PyTorch).

COURSES AND TRAINING

Azure Data Engineer Associate issued by Microsoft (2021).

Self-Driving Cars Specialization Course by University of Toronto, issued by Coursera (2020).

Deep Learning Specialization Course by Andrew Ng, issued by Coursera (2020).

PLC Specialization Training Course issued by Vietnamese-German Center, HCMUTE (2016).

RELEVANT SKILLS

Technical Skills	MATLAB, Python, C/C++, C#, HALCON, ROS, OpenCV, PyTorch, Docker, Carla, Git, Agile Scrum Planning.
Knowledge	Stereo Vision, Image Processing in Machine Vision, Robot Manipulator, Autonomous Mobile Robot, Sensors, Dynamic Planning and Control in Autonomous System, Sensors, Automation System, Communication Interface.
Language Skills	English CEFR C1 (IELTS Academic 7.0).

EXTRA-CURRICULAR PROJECTS AND ACTIVITIES

System identification using T2-Fuzzy Neural Network for VICON system February 2023

Research at M.E.R Lab

- Developed dynamics model identification's algorithm based on interval type-2 fuzzy logic control (MATLAB).
- Using data collected from VICON motion capture system, achieving 85.5% accuracy from ground truth.

Adaptive sliding mode control for crane system November 2022

Research at M.E.R Lab

- Proposed adaptive control law based on sliding mode control for crane system in simulation (MATLAB).
- Implemented other control laws such as: optimal control, state-space control, LQR control for both lumped-mass crane and distributed mass crane.

Stable control of ball and plate system 2018

Student Scientific Research Fair HCMUTE

- Developed vision-based 2-DOF system to balance the ball on a flat surface, designing forward-PID control law to stabilize the ball, achieving 94% accuracy compared to pre-defined trajectories (MATLAB).
- Successfully presented to research committee, achieving a "Good" score.

Micromouse Contest 2017

First Prizes

- Studied circuit design and sensor placement from previous contests from Japan to bring out most decent solution.
- Combined the knowledge of dynamic control, path planning, memory optimization, and sensor system to solve the 16x16 maze on 8-bit micro-controller, granted two first prizes for solving time and optimal design.

Armbot Contest 2016

Consolation Prize

- Studied and built a mobile robot with arm in order to grasp the balls and arrange them on a pyramid.
- Using 3 omnidirectional wheels for holonomic driving and parallel robot arm's mechanism to grasp the objects.

Teaching Assistant on *Automatic Control* and *Micro-processor* courses in HCMUTE (2016).

Volunteer in *Voluntary Green Summer Campaign* (2015).