Thanh P. Ly

Vingroup Scholar

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EDUCATION

University of Pennsylvania — Philadelphia, USA
School of Engineering and Applied Science (Penn Engineering) — 2025
Master of Science in Engineering in Robotics

Ho Chi Minh City University of Technology (HCMUT) — Ho Chi Minh City, Vietnam
Vietnam National University, Ho Chi Minh City — 2022
Bachelor of Engineering in Mechatronic Engineering, *summa cum laude*

PROGRAMMING & SKILLS

Python, MATLAB, Microcontrollers, C, C++, PLC, Robot Kinematics, Dynamics and Control, Mechatronics System Design, Computer vision, Machine learning, Deep learning, SOLIDWORKS, AutoCAD

WORK EXPERIENCE

Procter & Gamble — Ho Chi Minh City, Vietnam
Project Manager – Power Control & Information Systems — January 2023 – May 2023

- Created digital twins and applied machine learning to optimize energy consumption, targeting savings of up to $5 Million globally;
- Visualized energy consumption data to localize losses at equipment level and eliminate them through P&G internal controls and sustainability culture;
- Designed sensors plan, validated data and developed action plans for identified loss points;
- Designed and validated electrical and mechanical standards for 2 new products supply flow (process/machine sensors, Rockwell PLCs/HMI software, computer system validation, etc.);
- Assessed and standardized operation technology system (system architecture and cybersecurity).

Vingroup Big Data Institute – VinBigData — Hanoi, Vietnam
Technology Specialist — July 2022 – December 2022

- Researched monocular depth estimation for 3D reconstruction in robotic vision tasks;
- Expatiated on vision systems concerning construction sites safety and early warning protocols;
- Undertook an intensive and comprehensive AI training program, covering mathematics, machine learning, deep learning, computer vision, natural language processing, and AI ethics.

Intel — Ho Chi Minh City, Vietnam
Undergraduate Technical Intern — February 2021 – August 2021

- Performed Intel's internal qualification tasks to ensure quality of output chipset products (data analysis, tools calibration, troubleshooting tool failures, etc.);
- Determined collision risk between chipset products and internal structure of the machines;
- Produced existing/experimental chipset products;
- Performed maintenance tasks and supervised external contractors in hazardous operations;
- Installed mechanical and electrical modules on 32 machines in production areas.

RESEARCH EXPERIENCE

Control and Automation Laboratory, — Ho Chi Minh City, Vietnam
Ho Chi Minh City University of Technology — April 2021 – June 2022
Undergraduate Researcher, Department of Mechatronics

- Programmed 3D reconstruction algorithms based on active structured light principles;

- Programmed calibration algorithms for robot–camera systems using dual quaternions, essentially giving sight to robots, allowing understanding of 3D space environment;
- Automated image acquisition, camera calibration, stereo calibration, phase-shift sequencing, and robot grasping modules to create a fully automatic process, ready for industrial deployment;
- Designed and optimized stereo vision systems robust to vibration, adaptive to field-of-view in different applications, and compatible with various robot end-tool mounting standards;
- Designed conveyor belt mechanical, pneumatic mechanisms for sorting post-harvest vegetables;
- Implemented PointNet deep learning model to conduct part segmentation of individual objects in a bin, allowing robots to locate and grasp various shapes of industrial bin picking targets.

PUBLICATIONS & TECHNICAL REPORTS

1. P. Thanh Ly, Q. Chi Nguyen, N. Duy Hung Nguyen, P. -T. Pham and K. -S. Hong, "Structured-Light-Based 3D Scanning System for Industrial Manipulator in Bin Picking Application," *2022 Australian & New Zealand Control Conference (ANZCC)*, 2022, pp. 34-39, doi: 10.1109/ANZCC56036.2022.9966979.
2. N. Duy Hung Nguyen, P. -T. Pham, P. Thanh Ly, L. H. Nguyen Nguyen, and Q. Chi Nguyen, "Bin-Picking Solution for Industrial Robots Integrating a 2D Vision System," *2022 International Conference on High Performance Big Data and Intelligent Systems (HDIS)*, 2022, pp. 266-270, doi: 10.1109/HDIS56859.2022.9991341.
3. V. Long Dinh, T. An Ha, P. Thanh Ly, and H. Q. Thinh Ngo, "Design and control a portable ventilator," *8th Science and Technology Symposium for OISP Students*, 2020, pp. 19-24.

HONORS & AWARDS

1. Vingroup Science and Technology Scholarship Program for Overseas Study for Master's and Doctoral Degrees (Vingroup) 2023
2. Valedictorian Award – Gold Medal (HCMUT) 2022
3. Excellent Graduation Thesis Award – First Prize (HCMUT) 2022
4. SBA Scholarship (Saigon Hi-tech Park Business Association) 2022
5. Panasonic Scholarship (Panasonic Vietnam) 2022
6. Academic Incentive Scholarships (HCMUT) 2018–2022
7. KSYS-CUBE Scholarship (HCMUT, Kanden Systems, and Cube System) 2021

TEACHING EXPERIENCE

Control and Automation Laboratory 2021–2022
Teaching Assistant – Teaching Computer Vision and Mechanical Design to new members

British Council 2019–2020
Teaching Assistant – Assisting English teachers and helping students with special needs

ACTIVITY

Dormitory arrangement for COVID-19 quarantine 2020
Volunteer at Dormitory of Vietnam National University, Ho Chi Minh City