PERSONAL INFORMATION

Thanh-Tung Ngo

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EDUCATION

10/2020 – 08/2022

M. Sc. in Mechatronics Engineering

Hanoi University of Science and Technology (HUST), Hanoi, Vietnam

Thesis: Landmark detection and localization solution for GraphSLAM in autonomous vehicles

GPA: **3.86**/4.0

09/2015 – 08/2020

Degree of Engineer in Mechatronics Engineering

(**Highest entrance score** of the Talented Program in Mechatronics – top **1.5% university**)

Hanoi University of Science and Technology, Hanoi, Vietnam

GPA: **3.25**/4.0

EXPERIENCE

09/2022 – present

College of Engineering and Computer Science, VinUniversity

Teaching Assistant

Courses: Intelligent Physical Systems, Mechatronics, Mechanical Synthesis, Mechanics of Engineering Materials, Introductory Fluid Mechanics, Thermodynamics

03/2022 – 08/2022

VinUni-Illinois Smart Health Center, VinUniversity

PI: Dr. Hieu Pham, Prof. Minh Do

Research Assistant

Project: Automatic Cranial Implant Design with Artificial Intelligence

- Proposed a method using Reinforcement Learning to design implants for varied skull defects.

05/2018 – 08/2022

Autonomous Intelligent Robotics Lab, HUST

PI: Dr-Ing. Xuan-Ha Nguyen

Research Assistant

Project: Deep Learning in Computer Vision and GraphSLAM for long-term autonomous vehicle applications

Collaborator: **Autonomous Intelligent Systems Lab, University of Freiburg, Germany**

- Researched probabilistic navigation algorithms: GMapping, EKFSLAM, and GraphSLAM;
- Finetuned object detection and instance segmentation deep learning models (YOLOv4, YOLACT++) with Cityscapes dataset for the feature extraction task;
- Customized stereo depth estimation models (AANet+, LEAStereo) with ApolloScape dataset;
- Proposed a lightweight traffic sign perception method combining object detection and depth estimation, which increased the accuracy and reduced the computational cost.

Project: R&D of SLAM algorithms for autonomous intelligent robots in logistics and services

- Designed software and hardware systems of an intelligent service mobile robot (AIR-HUST);
- Developed robot applications based on ROS: navigation, GUI, and speech recognition;
- Proposed a multi-layer sensor fusion (IR, LIDAR, sonar) SLAM solution;
- Implemented the proposed solution on the developed robot.

05/2018 – 07/2020

CMC Institute of Science and Technology, CMC Corporation, Hanoi, Vietnam

PI: Dr-Ing. Xuan-Ha Nguyen

R&D Intern

Project: CMC Intelligent Service Robot

- Developed a reception robot (C-Bot) based on TurtleBot2;
- Researched autonomous navigation algorithms: Gmapping, AMCL, and DWA;

PUBLICATIONS

[1] H. X. Nguyen, **T. T. Ngo**, and A. D. Nguyen, "Development of real-time traffic-object and traffic-sign detection models applied for autonomous intelligent vehicles," *J. Sci. Technol. Smart Syst. Devices*, vol. 32, pp. 17-24, Jan. 2022, doi: 10.51316/jst.155.ssad.2022.32.1.3.

[2] H. X. Nguyen, **T. T. Ngo**, and H. V. Nguyen, "Development of an autonomous intelligent mobile robot based on AI and SLAM technology," in *Proc. Int. Conf. Intell. Syst. Netw. 2021*, pp. 319-326, doi: 10.1007/978-981-16-2094-2_40.

[3] H. X. Nguyen, H. V. Nguyen, **T. T. Ngo,** and A. D. Nguyen, "Improvement of Control Algorithm for mobile robot using multi-layer sensor fusion," *Vietnam J. Sci. Technol.*, vol. 59, no. 1, pp. 110-119, Feb. 2021, doi: 10.15625/2525-2518/59/0/15301.

[4] H. X. Nguyen, H. V. Nguyen, and **T. T. Ngo**, "A new landmark detection approach for SLAM algorithm applied in mobile robot," *J. Sci. Technol. Tech. Univ.*, vol. 146, pp. 31-36, Nov. 2020, doi: 10.51316/30.7.6.

[5] H. X. Nguyen, **T. T. Ngo**, T. V. Nguyen, A. D. Pham, and T. D. Nguyen, "An efficient approach for traffic sign detection, classification, and localization applied for autonomous intelligent vehicles," in *J. Mordern Phys. B* (submitted).

HONORS AND AWARDS

2021 **Nominee** of VEF2.0 (top 30) and Vingroup Scholarship for Overseas Study (top 20)

2020 **Domestic Master Scholarship** (full tuition fee and monthly stipend)
Vingroup Innovation Foundation, Vingroup Big Data Institute

2020 **1st prize** in **Student Research Competition**
Hanoi University of Science and Technology

2017 **4th prize** in the **2017 Blitz Research Competition**
Vietnam Summer School of Science, Rencontres du Vietnam

2016 – 2019 **Student with five good merits** (morality, studying, physical training, volunteer, integration)
Vietnam National Union of Students of Hanoi University of Science and Technology

2015 – 2017 **FYT Scholarship for Outstanding Students** (top *25 nationwide*)
FPT Center for Young Talents, FPT Corporation

EXTRACURRICULAR ACTIVITIES

07/2019 **Representative of Vietnam – NUS Enterprise Summer Program in Entrepreneurship**, *National University of Singapore, Singapore*
- Took part in an intensive two-week introduction to the core concepts of entrepreneurship and the startup ecosystem of Southeast Asia, along with 180 students from 22 countries;
- Worked in a 6-member team to propose startup idea: "Online platform for startup mentoring".

09/2018; 03/2019 **Representative of HUST – TFI Specialists' Community Action and Leadership Exchange (TFI SCALE)**, *Temasek Polytechnic, Singapore & HUST, Vietnam*
- Participated in a cross-cultural and leadership training program for 3 weeks in Singapore and 2 weeks in Vietnam;
- Proposed IT idea: "A mobile app to support intellectually disabled people".

12/2015 – 12/2017 **Member of Management Board – FPT Center for Young Talents**, *FPT Corporation, Vietnam*
- Organized seminars and networking activities for elite undergraduate students in Hanoi.

09/2015 – 08/2017 **President – GSTT Group Hanoi**, *Hanoi, Vietnam*
- Organized optional-fee Math and Physics preparation courses for candidates of the Talented Program at HUST and supported high school students in academic orientation.

SKILLS

Language	IELTS 7.0 (R 8.0, L 7.5, S 6.0, W 6.5)
Programming languages	Python, C/C++, Matlab, XML
Robotics	ROS | 2D LiDAR, Embedded computer (Raspberry Pi) deployment
Frameworks	Pytorch, Scikit-Learn, Numpy, WandB, Gym | Vim | Git | Latex