

# Duy-Nam Bui

*Robotics, Multi-Robot Systems, Control,  
Motion Planning, Reinforcement Learning*

Vietnam  
☎ (+84) 865 213 063  
✉ [duynam.robotics@gmail.com](mailto:duynam.robotics@gmail.com)  
🎓 Duy-Nam Bui  
🌐 [buiduynam](https://buiduynam.github.io)  
🔊 [duynamrcv](https://duynamrcv.github.io)  
📺 [@buiduynam](https://@buiduynam)  
🔗 [duynamrcv.github.io](https://duynamrcv.github.io)



## EDUCATION

### Vietnam National University

*Master of Science in Electronics Engineering*

**Hanoi, Vietnam**

*Oct. 2022 – Dec. 2024*

- CGPA: 3.70/4.0 (Top 5%).
- Thesis title: Distributed Control strategies for Changing Multiple UAV Formation.
- Results: [Distributed Formation Reconfiguration Control](#)

### Vietnam National University

*Bachelor of Engineering in Robotics Engineering*

**Hanoi, Vietnam**

*Aug. 2018 – Jun. 2022*

- CGPA: 3.81/4.0 (Top 1%).
- Thesis title: Lyapunov-based Nonlinear Model Predictive Control for Trajectory tracking and Navigation of a Four wheeled omni-directional Mobile Robot.
- Results: [Mobile Robot Navigation using NMPC](#)

## PROFESSIONAL SKILLS

- **Academical Knowledge:** Robotics, Autonomous Systems, Multi-Agent Systems, Control Theory, Optimal Control, Path Planning, Motion Planning, Intelligent Algorithms, Reinforcement Learning
- **Programming Languages:** C/C++, Python, Matlab
- **Tools:** ROS, Ubuntu, Gazebo, Git, Latex, Fusion 360, 3D Printing, Embedded Systems

## WORK EXPERIENCES

### VinFast

*Motion Planning Engineer at ADAS Development Division, full-time*

**Hanoi, Vietnam**

*May 2025 – Present*

- **ADAS L2/L2+ Projects:** Algorithms developed and system integrated into autonomous car.
  - + **Vision based Parking (VParking) System**

### VinAI Research

*Automotive Embedded Engineer at Smart Mobility Division, full-time*

**Hanoi, Vietnam**

*Oct. 2023 – May 2025*

- **Parking Solutions:** Algorithms developed and system integrated into car to assist drivers in parking process.
  - + [Fully Automatic Parking Assist](#) (Smart Parking Innovation of the Year – [Autotech Breakthrough Award 2024](#))
  - + [Reverse Autonomous Emergency Braking](#)
  - + **Home-zone Park Assist**
- Developed optimal controller, with focus on Model Predictive Control solution.
- Developed and integrated motion planning modules (A\*, JPS, Hybrid A\*).
- Developed and enhanced the smooth movement of low-level controller.
- Developed safety control and surrounding collision warning functions in parking process.

### Rikkeisoft

*Robotics Engineer at Rikkei AI Division, full-time*

**Hanoi, Vietnam**

*Jul. 2022 – Aug. 2023*

- **Indoor Service Robot:** System integrated into assistance robot for home applications
  - Developed a ROS-based automated navigation system.
  - Developed and integrated an autonomous exploration, focus on frontier-based method.
  - Designed and developed software architecture to integrate AI model into robot.

- Designed 3D structures for a mobile robot.

## Vietnam National University

Research Study Assistant at Faculty of Electronics and Telecommunications

Hanoi, Vietnam

Sep. 2018 – Dec. 2024

- Studied of control and navigation modules for an autonomous mobile robot.
- Studied on multi-robot system and UAVs, focusing on cooperative control and path planning.

## AWARDS

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<b>Excellent Employee 2024</b> of VinAI	2025
<b>Best Paper Award</b> in 7th International Conference on Control, Robotics and Informatics	2024
<b>Master Scholarship</b> of Vingroup Innovation Foundation (VINIF)	2023, 2024
<b>Valedictorian</b> of Robotics Engineering	2022
<b>Best Under-graduation Thesis Award</b> in Robotics Examination Committee	2022

## PUBLICATIONS

### Journal

- Duy-Nam Bui, Manh Duong Phung and Hung Pham Duy. **Event-based Reconfiguration Control for Time-varying Formation of Robot Swarms in Narrow Spaces**, *Intelligent Service Robotics*, pp. 1–13, May 2025.
- Thu Hang Khuat, Duy-Nam Bui, Hoa TT. Nguyen, Mien L. Trinh, Minh T. Nguyen and Manh Duong Phung. **Multi-goal Rapidly Exploring Random Tree with Safety and Dynamic Constraints for UAV Cooperative Path Planning**, *IEEE Transactions on Vehicular Technology*, pp. 1–12, April 2025.
- Thuy Ngan Duong, Duy-Nam Bui and Manh Duong Phung. **Navigation Variable-based Multi-objective Particle Swarm Optimization for UAV Path Planning with Kinematic Constraints**, *Neural Computing and Applications*, vol. 37, pp. 5683–5697, January 2025.
- Duy-Nam Bui and Manh Duong Phung. **Radial basis function neural networks for formation control of unmanned aerial vehicles**, *Robotica*, vol. 42, pp. 1842–1860, June 2024.
- Duy-Nam Bui, Thi Thanh Van Nguyen, and Manh Duong Phung. **Lyapunov-based nonlinear model predictive control for attitude trajectory tracking of unmanned aerial vehicles**, *International Journal of Aeronautical and Space Sciences*, vol. 24, pp. 502–513, April 2023.
- Manh Cuong Nguyen, Nhu Toan Nguyen, Duy-Nam Bui, and Tung Lam Nguyen. **Adaptive fuzzy lyapunov-based model predictive control for parallel platform driving simulators**, *Transactions of the Institute of Measurement and Control*, vol. 45, pp. 838–852, September 2022.

### Conference

- Duy-Nam Bui, Thu Hang Khuat, Manh Duong Phung, Thuan Hoang Tran, Dong LT Tran. **Model Predictive Control for Optimal Motion Planning of Unmanned Aerial Vehicles**, In *7th International Conference on Control, Robotics and Informatics (ICCRI)*, pp. 1–6, 2024.
- Duy-Nam Bui, Thuy Ngan Duong, and Manh Duong Phung. **Ant colony optimization for cooperative inspection path planning using multiple unmanned aerial vehicles**, In *IEEE/SICE International Symposium on System Integration (SII)*, pp. 675–680, 2024.
- Duy-Nam Bui, Manh Duong Phung, and Hung Pham Duy. **Self-reconfigurable V-shape formation of multiple UAVs in narrow space environments**, In *IEEE/SICE International Symposium on System Integration (SII)*, pp. 1006–1011, 2024.
- Thuy Ngan Duong, Duy-Nam Bui, Manh Duong Phung, and Duy Hung Pham. **Deployment of UAVs for optimal multihop ad-hoc networks using particle swarm optimization and behavior-based control**, In *11th International Conference on Control, Automation and Information Sciences (ICCAIS)*, pp. 304–309, 2022.
- Hoang-Anh Phan, Duy-Nam Bui, Tuan Nguyen Dinh, Bao-Anh Hoang, An Nguyen Ngoc, Dong Tran Huu Quoc, Ha Tran Thi Thuy, Tung Thanh Bui, and Van Nguyen Thi Thanh. **Development of a Vision System to Enhance the Reliability of the Pick-and-Place Robot for Autonomous Testing of Camera Module used in Smartphones**, In *International Conference on Engineering and Emerging Technologies (ICEET)*, pp. 1–6, 2021.

## ACADEMIC SERVICES

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### Reviewer

- IEEE Transactions on Automation Science and Engineering
- IEEE Transactions on Aerospace and Electronic Systems
- Neural Computing and Applications
- Intelligent Service Robotics
- ISA Transactions

## REFEREES

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### **Dr. Hung Pham Duy**

Vietnam National University, Hanoi, Vietnam

Lecturer

[hungpd@vnu.edu.vn](mailto:hungpd@vnu.edu.vn)

### **Dr. Manh Duong Phung**

Fulbright University Vietnam, Ho Chi Minh City, Vietnam

Senior Lecturer

[duong.phung@fulbright.edu.vn](mailto:duong.phung@fulbright.edu.vn)