Huu Tho DANG

Robotics/Automatic/AI (PhD.)

- Nat: French/Vietnamese

Skills

Linux, Windows, Office 10+ yrs.

Matlab/Simulink 10+ yrs.

Python/C++ 8+ yrs.

ROS/Git/GitHub 4+ yrs.

CAD 8+ yrs.

Languages

English

French

Vietnamese

Education

06/2021 - present

PhD in Robotics

Montpellier University, France

Underwater Robots for Karst and Marine Exploration: A Study of Redundant AUVs.

09/2017 - 05/2021

Biography

I obtained Engineering degree in electrical-electronic-control, and Master degree in control in 2003 and in 2006 in Vietnam, respectively. I got PhD degree of the Montpellier University in robotics in June, 2021. My interests are design, control, optimization, and artificial intelligence for robots.

Work experiences

Post-doc **09/2024 - 31/08/2025**

Explore Team
Montpellier University, France
LIRMM, Montpellier University, France
`http://www.lirmm.fr/`

Artificial Intelligence for underwater robots:
+ *Reinforcement Learning methods for robots: A Survey.*
+ *Propose a neural network to estimate inverse dynamics model and control un underwater robot, BlueROV.*
Key Techniques: Robot simulation, Artificial intelligence, Reinforcement learning.
Tools: Matlab/C++/Python; ROS2/Gazebo; Tensorflow/PyTorch.

Lecturer - Researcher **09/2022 - 31/08/2024**

Teaching: Polytech Montpellier
`https://www.polytech.umontpellier.fr/`
Research: Explore Team - Underwater Robots
LIRMM, Montpellier University, France
`http://www.lirmm.fr/`

Research: Reinforcement Learning, Artificial Intelligence, Neural Network, Regression Algorithms, Inverse Problem:
+ *Propose Actor - Critic architecture to control underwater robots.*
+ *Propose a neural network architecture to estimate inverse model and control an underwater robot.*
Teaching: Mobile Robot, ROS project, Manipulation Robot, Robotic Projets, Linear Multivariable Systems, Discrete Systems, Network and Automatic.
Tools: Matlab/C++/Python; ROS; CoppeliaSim; Tensorflow/PyTorch.

Engineer **01/2022 - 31/08/2022**

Explore Team (Robot for Karst exploration)
LIRMM, Montpellier University, France
`http://www.lirmm.fr/`

LEZ 2020 project for Karst exploration: HIL simulation, Underwater robot controle - Télémaque : *realize the controller of Télémaque (by quaternions) which is used for Karst exploration.*
Key Techniques: Quaternion control, Backstepping; Kalman filter.
Tools: C++/Python.

Engineer **06/2021 - 31/12/2021**

Explore Team (Surface Autonomous Vehicles)
LIRMM, Montpellier University, France
`http://www.lirmm.fr/`

Energy - Efficient Path Planning for Surface Autonomous Vehicles:
+ *Propose a simulator to find energy-efficient path with respect to energy (consummation et production) a surface autonomous vehicle equipped by a kite, of solar panels and a propulsion system.*
+ *Implement un A* based algorithm to find a best path that optimizes consummation and production energies.*
video link: `https://youtu.be/KEq9iOf1Z38`
Key Techniques: Path planning, A* algorithm, Energy model.
Tools: Matlab.

PhD candidate

Montpellier University, France

Underwater Robots

2004 - 2006

Master of Science

Vietnam National University, Ho Chi Minh City University of Technology (HCMUT), Vietnam

Control.

1998 - 2003

Bachelor of Engineering

Vietnam National University, Ho Chi Minh City University of Technology (HCMUT), Vietnam

Electrical, Electronic and Control.

Contacts

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References

Prof Lionel Lapierre
ROBEX Team, ENSTA Bretagne

lionel.lapierre@ensta-bretagne.fr

lapierre@lirmm.fr

Ph.D Candidate — **2017 - 05/2021**

Explore Team (Prof. Lionel Lapierre - Thesis Advisor)
LIRMM, Montpellier University, France
http://www.lirmm.fr/

Underwater Robots for Karst and Marine Explorations: Study of redundant systems:
+ *Propose performance indices to design optimal configurations of an underwater robot.*
+ *Optimize the configuration of a robot (static et dynamic) in function of performance indices.*
+ *Concept and design the umbrella robot with dynamic configuration (from hardware to software) which can vary its configuration with respect to missions.*
+ *Propose a real-time control allocation approach to optimize energy consumption of the robot. Kalman filter, IMU calibration, and 3D path following method have been implemented.*
+ *Design a controller by quaternions.*
video link: https://youtu.be/eie6NNAydtY(Cube robot)
video link: https://youtu.be/yBBCu1z3q-0 (Umbrella robot with dynamic configuration).
Key Techniques: Optimization; Multiobjective optimization; Path following; Kalman filter; PID, Quaternion control; Backstepping; Control allocation.
Tools: Matlab/C++/Python; FreeCAD/AutoCAD; ANSYS; Electronics.

Research Assistant — **2015 - 2017**

Electrical and Electronic Department
Universiti Teknologi PETRONAS, Malaisie
https://www.utp.edu.my

Research: Nonlinear System and Model Predictive Control:
+ *Model the system "Twin-Rotor".*
+ *Propose a model predictive controller to do trajectory tracking.*
video link: https://youtu.be/xPgLQk64_PU
Teaching: PID regulation, Random Process and Probability.
Key Techniques: System Identification; Model Predictive Control; Optimization.
Tools: Matlab/Simulink/C++/Python.

Lecturer — **2007 - 2015**

Electrical and Electronic Department
Ho Chi Minh University of Transport, Vietnam
https://ut.edu.vn/en/

Teaching: Robotic; Control and measurement systems, system identification, industrial networks, SLAM; linear and nonlinear systems, sensors and motors, PLC (Programmable Logical Controller).
Key Techniques: SLAM; Robotics, Control; Sensors; Motors; PLC.
Tools: Matlab/Simulink/C++/Python; Step7 - Siemens and Schneider PLCs

Engineer — **2003 - 2007**

Southern Airport Authority, Vietnam

PLC (Programmable Logical Controller), Supervision system, Electrical distribution system: *PLC Program.*
Key Techniques: Robotics; Energy system.
Tools: PLCs of Siemens and Schneider.