

# HUY NGUYEN

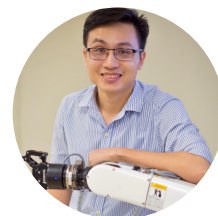
## PhD Candidate & Robotic Scientist

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Personal webpage

GitHub repository



## SUMMARY

I am currently a researcher at CRI group, the School of Mechanical and Engineering, Nanyang Technological University, Singapore. My research interests include intelligent perception; robot-camera calibration; uncertainty in manipulation tasks; integration of 3D perception, tactile perception and compliant control.

## RESEARCH PROJECTS

### Probabilistic framework for fine assembly

CRI group @NTU

Oct 2017-Now

- We propose a general probabilistic framework to handle system uncertainties, multi-sensor integration, and other related problems.
- To validate the model, we implement our framework in a typical robotic system and perform a highly dexterous task-pin insertion.
- Some functionalities for the framework are open-source and can be found at [python-cope](#)

### Robotic assembly of an IKEA chair

CRI group @NTU

2015-Apr 2018

- We wanted to assess whether, based on state-of-the-art robotic capabilities, it is possible to tackle a typical task that solicits all manipulation skills: the autonomous assembly of an IKEA chair.
- I was involved in doing the calibrations and 3D perceptions for the project. Working on that project, I also came up with a new approach for the hand-eye calibration problem.

### Touch-based object localization

CRI group @NTU

May 2017-Sep 2017

This project addressed the touch-based object localization problem in cluttered environments, where outlier measurements could lead to significant loss in precision in existing approaches. The approach consisted of applying RANSAC to a Bayesian estimation framework and of proposing a novel face selection procedure to improve the speed of the measurement likelihood evaluation in the Bayesian updating steps.

### Airbus Shopfloor Challenge

CRI group @NTU

Jan 2016-May 2016

- Our team needed to build a light-weighted robot system able to perform drilling tasks with a stringent accuracy requirement.
- I was in charge of the perception part of the system which includes the tool (drill bit) calibration, camera calibration and hand-eye calibration; localization using 3D and 2D camera.
- During that time, we also released the ROS package [ENSENSO](#), which acts as a ROS driver for Ensenso 3D cameras.

## LIFE PHILOSOPHY

*"Tough times don't last. Tough people do."*

## HONORS AND AWARDS

- 🏆 2nd prize at Airbus Shopfloor Challenge  
ICRA May 2016, Stockholm, Sweden
- 🏆 Honda's Young Engineers and Scientists Award-Top 30  
2012, 2013
- 🏆 Intel Vietnam Engineering Scholarship for outstanding academic performance and dedication  
2012
- 🏆 Pony Chung Foundation Scholarship  
2012
- 🏆 GE foundation scholar-leaders program  
2010-2014
- 🏆 Recontres du Viet Nam- Odon Vallet scholarship  
2010, 2011

## STRENGTHS & SKILLS

ROS, openCV, PCL, Python, C++, openRAVE

Perception

Calibrations

## LANGUAGES

Vietnamese

English



## EDUCATION

PhD in Perception and Calibration (Robotics)

Nanyang Technological University- Singapore

2014-2018

B.S. in Mechatronics - Top 1/500

Ho Chi Minh City University of Technology (Bach Khoa University)- Viet Nam

2009 - 2014

CGPA: 8.98/10

## PUBLICATIONS

### Journal Articles

- Nguyen, Huy and Quang-Cuong Pham (2019). "A probabilistic framework for tracking uncertainties in robotic manipulation". In: *IEEE/ASME Transactions on Mechatronics (Under Review)*. URL: <https://arxiv.org/pdf/1901.00969>.
- Nguyen, H. and Q. Pham (2018). "On the Covariance of X in  $AX=XB$ ". in: *IEEE Transactions on Robotics* 34.6, pp. 1651–1658. DOI: 10.1109/TR0.2018.2861905.
- Nguyen, Huy and Quang-Cuong Pham (2016). "Time-optimal path parameterization of rigid-body motions: applications to spacecraft reorientation". In: *Journal of Guidance, Control, and Dynamics* 39(7), pp. 1665–1669. URL: <http://www.ntu.edu.sg/home/cuong/docs/TOPPS03SE3.pdf>.


## HOBBIES

playing sports 

going fishing 

trekking 



 I also love doing some DIY projects like art-threading, light-drawing, etc. in my leisure time.

## SOCIAL ACTIVITIES

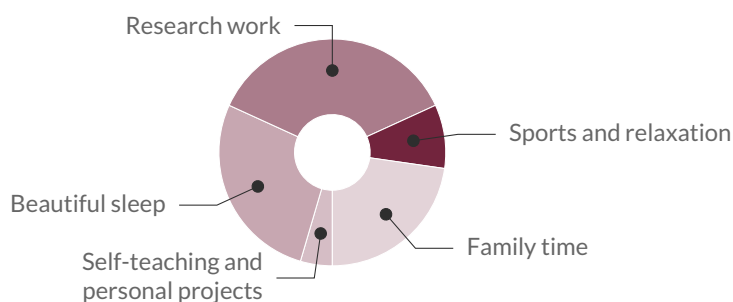
A member of GE Foundation Scholar-Leader Voluntary group

 2011-2015

A member of Dong Hanh Singapore Scholarship Association

 2015-2017

## A DAY OF MY LIFE



## REFEREES

**Asst. Prof. Pham Quang Cuong**

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<https://am.is.tuebingen.mpg.de/person/jboh>

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