



# TEGUH SANTOSO LEMBONO

Research Assistant

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## SUMMARY OF QUALIFICATIONS

### Easy to collaborate with

Many collaborations with both internal group members and external researchers (LAAS, Edinburgh, A\*Star, Oxford, MPI). Able to understand others and communicate clearly, both technical and non-technical.

### Practical experience

Worked in many robotics projects involving various robots (Universal Robot, Denso, Franka Emika Panda, AnyMal, Talos) that require a lot of system integration (integrating the computer vision, robot control, motion planning, motion capture). One published US patent on the tapping robot.

### Research experience

Worked in robotics research for > 8 years and published > 15 research papers in prestigious conferences and journals (ICRA, IROS, RA-L, T-ASE). The current research topics focus on motion planning, optimal control, and machine learning.

### Strong technical knowledge

Good understanding on both classical robotics theory (kinematics, dynamics, control, planning, estimation, optimization) and machine learning (learning from demonstration, supervised learning, Bayesian model, VAE, GAN).

## LANGUAGE SKILL

Indonesian



English



French



German



## COMPUTER SKILLS

ROS	Gazebo	Pybullet	OpenRave
Ubuntu	Tensorflow	Solid Work	ANSYS CFX
MATLAB	Python	C	C++

## EDUCATION

**PhD (Cand.), EPFL (École polytechnique fédérale de Lausanne), Switzerland**  
Expected graduation date: July 2021.

2018-Now

**M.Sc. Mechanical Engineering, National University of Singapore (NUS), Singapore**

**COURSES:** Linear System, Computer Control System, Neural Network, Deep Learning for Computer Vision, Real Time System, Advanced Robotics, Computer Aided Product Design, Measure and Integration. **CGPA: 4.55/5**

2016

**B.Eng. Mechanical Engineering, Nanyang Technological University (NTU), Singapore**

**CORE COURSES:** Dynamics and Control, Mechanism Design, Robotics, Microprocessors, Fluid Mechanics, Fluid Dynamics, Heat Transfer, Thermodynamics, Electrical & Electronics, Mechanics of Material, Engineering Design, Manufacturing.

**CGPA: 4.8/5.0, First Class Honours**

2012

**Completed Courses on Coursera (Certified)**

**FROM UC SAN DIEGO:** Data Structures and Algorithms Specialization (Data Structures, Algorithmic Toolbox, Algorithms on Strings, Algorithm on Graphs, Advanced Algorithms and Complexity).

**FROM UNIVERSITY OF AMSTERDAM:** Basic Statistics and Inferential Statistics.

**TOEFL Score: 113 out of 120 (TOEFL IBT).**

**GRE Score: 340 out of 340, and 4 score for AWA.**

## WORK EXPERIENCE

- July 2018 - Now  
Research Assistant at Robot Learning and Interaction, Idiap Research Institute and PhD Candidate at EPFL (Dr. Sylvain Calinon)
  - My PhD takes part in MEMMO Project ([www.memmo-project.eu](http://www.memmo-project.eu)), where we aim to build a unifying controller for legged robots using optimal control and memory of motion. With precomputed dataset and machine learning algorithms, we aim to use optimal control in real time to control various legged robots (quadruped, biped, and exoskeleton). The project involves 10 partners from various renowned institutions with whom I collaborate.
- July 2017 - July 2018  
Research Associate at Control Robotics Intelligence (CRI) Group, Nanyang Technological University (Assoc. Prof. Pham Quang Cuong)
  - Worked with ROS and OpenRave to develop an automated robotic drilling solution which consists of an industrial robot (Denso), 3D camera, and laser scanner, and developed a new motion planning algorithm (RoboTSP) to optimize the drilling sequence.
  - Developed SCALAR, a new calibration method using only a laser scanner attached on the robot arm and several calibration devices (a flat plate and a sharp tool tip) that can be easily manufactured.
- July 2017 - July 2018  
Teaching Assistant at Nanyang Technological University
  - Tutorial classes on "Introduction to Electrical Circuits" and "Control Theory."
- July 2016 - July 2017  
Research Assistant at Singapore University of Technology and Design (Assoc. Prof. Tan U-Xuan)
  - Designed a state estimation algorithm for monocopter with Extended Kalman Filter.
  - Designed a Human Machine Interface (HMI) to control multiple Unmanned Ground Vehicles (UGVs).
  - Created a simulation program for the UGV controls using ROS, Gazebo, and Qt in C++.
  - Designed experiments to evaluate the effectiveness of the HMI.
- Nov 2013 - July 2016  
Project Officer at Robotics Research Center, NTU Singapore (Prof. Chen I-Ming)
  - Implemented robot calibration algorithm as Rviz plugin.
  - Integrated a robot taping system, which consists of 4 processes: 3D model generation, post processing, path planning, and execution on Universal Robot.
  - Finalist in a robot waiter competition. Built a mobile robot to serve as a waiter from scratch. Designed the navigation system and integrated the whole software system.
- July 2012 - Oct 2013  
Engineer at Excel Marco Singapore Pte. Ltd.
  - Designed graphics for Human Machine Interface (HMI) to be used in FPSO
  - Programmer for the topsides. Use Siemens PCS7 to create ICSS (Integrated Control and Safety System) Program
  - Helped to conduct FAT with customer
- Feb 2011 - June 2011  
Research Intern at Fraunhofer Institute of Production and Automation (IPA), Stuttgart, Germany
  - Joined ROSETTA research project, a collaboration between seven European Institutes and universities.
  - The research was about how to generate (ABB) robot programming codes automatically without the help of an experienced programmer

## ACHIEVEMENTS AND HONORS

2021	US Patent (Published) No. 10946526, Robot taping system and method of taping	2009 - 2012	Dean's List, Nanyang Technological University, Singapore  Top five percents student according to GPA	2009 - 2012	President Research Scholarship (NTU)  Research funding for undergraduate student	2007	Bronze Medal in International Astronomy Olympiad 2007 in Ukraine
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