

# Handy Wicaksono, S.T., M.T., Ph.D.

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## EDUCATION

Ph.D. in Computer Science and Engineering University of New South Wales, Sydney, Australia Dissertation Title : "A Relational Approach to Tool Creation by a Robot" Supervisor : Prof. Claude Sammut	2014 - 2019
M.T. (master degree) in Electrical Engineering Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia	2007 - 2009
S.T. (bachelor degree) in Electrical Engineering Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia	1998 - 2003

## WORK EXPERIENCE

Secretary of Electrical Engineering Dept., UK Petra	2020 - now
Head of Telematics Laboratory, Electrical Engineering Dept., UK Petra	2019 - 2020
Casual Tutor & Lab Demonstrator, UNSW Australia	2014 - 2017
Head of Control System Laboratory, Electrical Engineering Dept., UK Petra	2009 - 2013
Lecturer, Electrical Engineering Dept., UK Petra	2004 - now

## TEACHING (SELECTED)

Automasi 1 Learn to design and implement an automated system controlled by a Programmable Logic Controller (PLC)	2004 - now
Automasi 2 Learn to design and implement an HMI (Human Machine Interface) and a SCADA (Supervisory Control and Data Acquisition) for an automated system	2004 - now
Mobile Robot Design (past) Learn to design and program an autonomous mobile robot in A Robot Operating System (ROS) environment	
Control System Fundamentals (past) Learn to design a mathematical model of a system, analyzing its performance, and designing a suitable PID controller to get optimum result	

## SUPERVISING STUDENT TEAMS

National PLC Programming Competition Institut Teknologi Bandung, 2 <sup>nd</sup> place	2007
National PLC Programming Competition Universitas Negeri Surabaya, 2 <sup>nd</sup> place	2019
Program Kreativitas Mahasiswa Karsa Cipta (PKM-KC) Dikti, funded	2020

## RESEARCH INTERESTS

Currently, I am interested in several topics:

- Applying industrial revolution 4.0 technology components (such as: AI/machine learning and internet of things) in a smart factory
- Equipping a robot with tool use and tool creation ability to help human

In the past, I did research on several areas:

- Behaviors coordination and reinforcement learning implementation in a mobile robot
- Developing various automated system using a PLC or a SCADA system
- Finding the most effective PID controller tuning method of a DC motor

## PUBLICATIONS (SELECTED)

### *Books*

Wicaksono, H., Unofficial Beginner's Guide to S7-200 Siemens PLC. Yogyakarta, Indonesia: Graha Ilmu, 2013.

Wicaksono, H., SCADA Software dengan Wonderware In Touch; Dasar-Dasar Pemrograman. Yogyakarta, Indonesia: Graha Ilmu, 2012.

Wicaksono, H., Programmable Logic Controller; Teori, Pemrograman dan Aplikasinya dalam Otomasi Sistem. Yogyakarta, Indonesia: Graha Ilmu, 2009.

### *Journals*

Wicaksono, H., C. Sammut, "A Cognitive Robot Equipped with Autonomous Tool Innovation Expertise", IJECE, vol. 10, no. 2, Apr. 2020

Wicaksono, H., C. Sammut, "Tool Use Learning for a Real Robot", International Journal of Electrical and Computer Engineering (IJECE), vol. 8, no. 2, Apr. 2018

Wicaksono, H., H. Khoswanto and S. Kuswadi, "Teleautonomous Control on Rescue Robot Prototype", Telkomnika – Indonesian Journal of Electrical Engineering, vol. 10, no. 4, pp. 621-628, Dec. 2012

Wicaksono, H., H. Khoswanto, and S. Kuswadi, "Behaviors Coordination and Learning on Autonomous Navigation of Physical Robot", Telkomnika – Indonesian Journal of Electrical Engineering, vol. 9, no. 3, pp. 473-482, Dec. 2011.

Wicaksono, H., "Analisa Performansi dan Robustness Beberapa Metode Tuning Kontroler PID pada Motor DC", Jurnal Teknik Elektro – Universitas Kristen Petra, vol. 4, no. 2, Sep. 2004.

### *Conferences*

Wicaksono, H. Towards a Relational Approach for Tool Creation by Robots in International Joint Conference on Artificial Intelligence – Doctoral Consortium, August 2017, Melbourne, Australia

Wicaksono, H., C. Sammut, and R. Sheh. Towards Explainable Tool Creation by a Robot in International Joint Conference on Artificial Intelligence – eXplainable Artificial Intelligence Workshop, August 2017, Melbourne, Australia

Wicaksono, H. and C. Sammut. Relational Tool Use Learning by a Robot in a Real and Simulated World In Proceedings of Australasian Conference on Robotics and Automation, 2016, Brisbane, Australia

Wicaksono, H., "Q Learning Behavior on Autonomous Navigation of Physical Robot", in Proc. of The 8th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI), Incheon, South Korea, 2011, pp. 50-54.

Wicaksono, H., Prihastono, K. Anam, R. Effendi, I. A. Sulistijono, S. Kuswadi, A. Jazidie, M. Sampei, "Modified Fuzzy Behavior Coordination for Autonomous Mobile Robot Navigation System", in Proc. of ICCAS-SICE, Fukuoka, Japan, 2009, pp. 2944-2948.

## AWARDS AND GRANTS

### *Scholarship*

Beasiswa Pendidikan Pascasarjana – Luar Negeri from Ditjen Dikti 2014 - 2017  
Pursuing Ph.D. in School of Computer Science and Engineering, UNSW Sydney

Beasiswa Pendidikan Pasca Sarjana from Ditjen Dikti 2007 – 2009  
Pursuing master degree in Electrical Engineering Department , ITS Surabaya

### *Research grant*

Hibah Penelitian Terapan Unggulan Perguruan Tinggi” RISTEKDIKTI 2021  
Title: “Sistem Cerdas Terintegrasi untuk Mendukung Layanan Home Care bagi Lansia”

Hibah Penelitian Internal from LPPM UK Petra 2020  
Title: “Condition-based Maintenance dengan Industrial IoT untuk Peningkatan Efisiensi Pabrik”

Hibah Riset Unggulan from Fakultas Teknologi Industri – UK Petra 2020  
Title: “Smart Maintenance System Memanfaatkan Augmented Reality dan Machine Learning”

Penelitian Hibah Bersaing from DP2M – Dikti 2013 – 2014  
Title: “Semi-Autonomous Telepresence Robot”

Hibah Penelitian Internal from LPPM UK Petra 2012 – 2013  
Title: “Prototipe Robot Patroli dengan Kinect sebagai Pendeteksi Postur Jatuh Manusia”

Hibah Penelitian Internal from LPPM UK Petra 2011 – 2012  
Judul: “Patriot : Teleautonomous Mobile Robot untuk Aplikasi Search and Rescue”

Hibah Penelitian Dosen Muda from DP2M – Dikti 2010  
Judul: “Implementasi Adaptive Potential Field Behavior Coordination and Compact Q-Learning untuk Sistem Navigasi Autonomous Mobile Robot”

### *Community service and teaching grant*

Hibah Abdimas Internal from LPPM UK Petra 2020  
Title: “Skill Upgrading untuk Meningkatkan Kompetensi Siswa dan Guru di SMK Kristen Petra”

Teaching Innovation Award from ELTC UK Petra 2020  
Title: “Modul Pembelajaran Jarak Jauh untuk MK Automasi 1”

Hibah Buku Pengajaran from Research Center UK Petra 2008  
Book title: “Programmable Logic Controller – Teori, Pemrograman dan Aplikasinya dalam Otomasi Sistem”

### *Travel grant*

Travel Support Scholarship from IEEE 2014  
Following the IEEE-RAS Response Robotics Summer School inPerth, Australia

Hibah Seminar Luar Negeri from DP2M – Dikti 2011  
Following URAI 2011 in Incheon, South Korea

Hibah Seminar Luar Negeri from DP2M – Dikti and “Student Travel Grant Award” from conference committee 2009  
Following ICCAS – SICE 2009 di Fukuoka, Japan

## MEMBERSHIP

Perkumpulan Automasi Indonesia (PAI) 2020 – now

Indonesian Association of Pattern Recognition (INAPR) 2019 – now

Soft Computing Indonesia (SC – INA) 2009 – now

IEEE *student member* 2015 – 2016

## **SCIENTIFIC SERVICES**

Chief editor International Journal of Industrial Research and Applied Engineering (JIRAE)	2020 – now
Reviewers For international journals (IJECE, Telkomnika, IJAI) and conferences (ICED, ISITIA, IROS)	2019 – now
Student volunteer For International Conference on Machine Learning (ICML) in Sydney	2017
Local Chair For World Congress IFSA -AFSS conference	2011

## **CERTIFICATION AND TRAINING PARTICIPANTS (SELECTED)**

Higher Education Teaching Certificate Completing an online short course from Harvard Bok Center, funded by UBCHEA	2020
Competence Assessor Certificate from BNSP Joining with Lembaga Sertifikasi Profesi (LSP) Elektronika Nasional (ENAS)	2019
Participant of “Writing Clearly and Succinctly” Workshop Held by Faculty of Engineering – UNSW Sydney	2014
Participant of IEEE-RAS Response Robotics Summer School in Perth	2014
Participant of “Wonderware InTouch Programming” Training Held by PT. Trimaxindo Adimitra	2009

## **INDUSTRIAL PROJECT AND TRAINING**

Alarm monitoring system using PLC and HMI Providing service for PT Tadakara Teknik Sumberkarya	2020 - now
Founder, online course developer CV Insan Cerdas Indonesia	2019 – now
OPC Data Logging in SCADA System Providing service for Perusahaan Gas Negara	2007
Trainer and material developer Industrial Automation Training Center, UK Petra	2006 – now

*Updated: 23 December 2020*