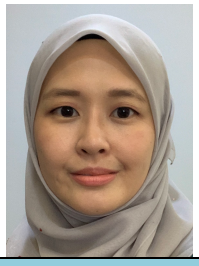

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Education

- PhD Mechanical and System Engineering (Robotics), Newcastle University, UK, 2012.
- MSc Mechatronics Engineering with Distinction, Newcastle University, UK, 2008.
- BEng Electronics and Mechanical Engineering, Chiba University, Japan, 2007.

Area of Interest

Robot Manipulation and Force Control, Mechatronics System Design, Mobile Robot, Industrial Robotics, Rehabilitation and Medical Robotics, Deep Learning, Intelligent Control System, Image Processing, Computer Aided Detection, Health and Sport Monitoring System.

Professional Qualification/ Membership/ Affiliation

- Graduate Member, Board of Engineers Malaysia (BEM)
- Member, Institute of Electrical and Electronics Engineering (IEEE)
- Member, The Institution of Engineering and Technology (IET)
- Coordinator, UiTM-TUT Collaboration Lab 2023 – 2025
- Researcher, Mechatronics and Intelligent System
- Certified HRDF Trainer
- Executive Committee, Student Activities Committee Chair, IEEE Malaysia Section 2023-2024
- Executive Committee, IEEE Robotics and Automation Society, Malaysia Chapter 2015, 2019-2022
- Secretary, IEEE Robotics and Automation Society, Malaysia Chapter 2016-2017
- Senior Engineering Expert, UiTM-Fraunhofer Innovation Lab (innovationlabs.my)
- Senior Researcher, Advance Mechatronics Research Group 2012 - 2022
- Affiliate Researcher, Applied Electromagnetic Research Centre 2016 - 2022

Appointments

Position	Duration
• **Associate Professor** – School of Mechanical Engineering, College of Engineering, UiTM.	July 2022 to date
• **Associate Professor** - Faculty of Electrical and Electronic Engineering, UTHM.	Mac 2019 – June 2022
• **Manager (Robotics)** – Petronas Research Sdn. Bhd. (Attachment)	Dec 2020 to Nov 2021
• **Head of Program (Bachelor of Electronic Engineering)** – Faculty of Electrical and Electronic Engineering, UTHM.	May 2019 to May 2020
• **Head of Department** – Department of Electronic Engineering, Faculty of Electrical and Electronic Engineering, UTHM.	May 2019 to May 2020

• **Head of Department** – Department of Mechatronic and Robotic Engineering, Faculty of Electrical and Electronic Engineering, UTHM.	Apr 2016 – Apr 2019
• **Head of Program (Masters in Electrical Engineering)** – Faculty of Electrical and Electronic Engineering, UTHM.	Oct 2016 to Dec 2017
• **Head of Panel (Bachelor of Electronic Engineering)** – Faculty of Electrical and Electronic Engineering, UTHM.	Apr 2014 – Apr 2016
• **Head of Laboratory (Mobile Robotics and Industrial Control)** - Department of Mechatronic and Robotic Engineering, Faculty of Electrical and Electronic Engineering, UTHM.	Jan 2013 – Apr 2014
• **Lecturer** – Department of Mechatronic and Robotic Engineering, Faculty of Electrical and Electronic Engineering, UTHM.	Dec 2012 to Feb 2019
• **Tutor** – Department of Mechatronic and Robotic Engineering, Faculty of Electrical and Electronic Engineering, UTHM.	May 2007 to Dec 2012

Courses Taught/Teaching Experience

No.	Course	Year
1.	Advanced Industrial Robotics – Masters by Coursework	Sem 2 2012/2013 Sem 2 2013/2014 Sem 2 2018/2019 Sem 2 2019/2020
2.	Engineering Mathematics IV (Numerical Methods)	Sem 1 2012/2013 Sem 2 2015/2016 Sem 2 2016/2017 Sem 2 2017/2018 Sem 2 2018/2019 Sem 2 2019/2020
3.	Industrial Automation System	Sem 2 2013/2014
4.	Instrumentation and Control System	Sem 1 2013/2014 Sem 2 2013/2014 Sem 1 2014/2015
5.	Control System Theory	Sem 1 2014/2015 Sem 2 2015/2016
6.	Mechatronic Mechanism	Sem 2 2014/2015 Sem 1 2015/2016 Sem 2 2015/2016 Sem 3 2015/2016 Sem 1 2016/2017 Sem 1 2017/2018
7.	Automated Manufacturing System	Sem 1 2015/2016

8.	Intelligent Control System	Sem 2 2016/2017 Sem 2 2017/2018
9.	Mechatronic Design Software	Sem 2 2013/2014 Sem 1 2013/2014
10.	Integrated Design Project II	Sem 1 2013/2014 Sem 1 2014/2015 Sem 1 2015/2016 Sem 1 2016/2017
11.	Robotics System	Sem 1 20182019 Sem 2 20182019 Sem 2 20192020 Sem 1 20202021 Sem 1 20212022 Sem 2 20212022
12.	Control Systems	Sem 1 20192020 Sem 2 20192020 Sem 1 20212022
13.	Instrumentation and Measurement	Sem 2 20212022
14.	Applied Electronics and Microprocessor	Sem 2 20212022
15.	Statics	Sem 1 20222023
16.	Material Science	Sem 1 20222023
17.	Numerical Methods	Sem 2 20222023 Sem1 20232024
18.	Robotics and Automation	Sem 2 20222023
19.	Dynamics	Sem 1 20232024

Research Grants

No.	Project Title	Amount (RM)	Year	Source of Fund
Active Grants				
1.	Establishment of UiTM-TUT Collaboration Lab (**Project Leader**)	RM18,700	2023	International
2.	Intelligent Navigation in Tight Space Restaurant for Food Delivery Mobile Robot based on Soft Actor Critic Reinforce Learning (**Co-researcher**)	30,000	2022-2023	GPP

3.	An Improved White Blood Cell (WBC) Detection And Classification For Leukemia Prediction Based On Fusion Of Region Convolution Neural Network (RCNN) And Capsule Network (Capsnet) (**Project Leader**)	84,750	2019-2023	FRGS
4.	Hand Pose Tracking from Depth Map Using Deep Learning (**Co-Researcher**)	98,800	2019-2023	FRGS
5.	Value Creation Through Digitalization At TDK Electronics (**Co-researcher**)	20,000	2021-2023	SEPADAN RE-SIP
	Completed Grants			
1.	A Real Time Portable Electromagnetic Radiation Level And Monitoring System (**Co-researcher**)	82,768	2019-2022	PRGS
2.	Algorithm for predictive models in assessing stroke patients' upper limb performance using non-motorized device for effective rehabilitation program (**Co-Researcher**)	40,000	2019-2022	FRGS RACER
3.	Deep Learning-based of Failures Detection In Advance Additive Manufacturing Of FDM 3D Printers (**Co-Researcher**)	40,000	2019-2022	FRGS RACER
4.	Data Science Platform for Smart Diagnosis of Upper Limb Spasticity (**Co-researcher**)	184,000	2019-2021	E-DANA MESTECC
5.	Acute Lymphoblastic Leukemia (ALL) Cell Localization And Classification From Blood Smear Images Based On Deep Learning Framework (**Co-Researcher**)	30,000	2019-2021	GPPS
6.	Classification Of Hand Motions For Non-invasive BCI-based Robot Hand Control (**Project Leader**)	23,000	2019-2021	GPPS
7.	Establishment of UTHM Community Innovation Centre 'i.d.e.a.l Makerspace' Towards IR 4.0 (**Co-researcher**)	20,000	2019-2021	Contract Grant
8.	Development Of A Virtual Marketing Tool For Universiti Tun Hussein Onn Malaysia (UTHM) (**Co-researcher**)	20,000	2020-2021	Contract Grant
9.	Development of Early Ischemic CT Brain Detection using	20,000	2019-2020	GPPS

	Convolutional Neural Network (**Co-researcher**)			
10.	Gesture Controlled Robotic Arm for Skin-Graft System using Leap Motion (**Project Leader**)	20,000	2019-2020	GPPS
11.	Development Of Intelligent Position Control For Automated Rubber Tapping Mechanism (**Project Leader**)	20,000	2019-2020	GPPS
12.	Brain Computer Interface Based Robotic Arm Control (**Project Leader**)	20,000	2019-2020	GPPS
13.	Adaptation Of Fraunhofer Model Into Malaysia's Innovation Ecosystem (phase II - Creation Area & Demonstration Area) (**Co-researcher**)	20,000	2020	Contract Grant
14.	Graduate Employability Grant – Comptia Security (**Co-researcher**)	198,750	2019-2020	MOHE
15.	An Automated Detection Of Retinal Blood Vessel In Digital Fundus Images For Ocular Disease Screening (**Co-researcher**)	20,000	2018-2020	TIER 1
16.	Computer Aided Diagnosis (CAD) System For Ischemic Stroke Detection	30,000	2017-2020	GPPS
17.	Adaptation Of Fraunhofer Model Into Malaysia's Innovation Ecosystem (**Co-researcher**)	70,000	2018 -2019	Contract Grant
18.	Alternative Input Interface Development For A Wheelchair User With Severe Spinal Cord Injury (**Co-researcher**)	24,180	2017-2019	TWAS-COMSTECH
19.	An Improved Framework Of Remote Heart Rate Measurement From Video By Considering Various Subject Under Realistic Conditions Using Robust Patch Model (**Co-researcher**)	58,200	2016-2019	FRGS
20.	An Automated Noninvasive Dendritic Cells Image Analysis For High-throughput Cancer Immunotherapy Vaccine Preparation (**Project Leader**)	109,000	2016-2019	FRGS
21.	Development Of Soft Robot Medical Assistive Device In Fluoroscopy Examination (**Co-researcher**)	20,000	2016-2018	Short-term Research Grant
22.	Rapid Framework For White Blood Cell Morphology	20,800	2016-2018	GPPS

	Identification And Counting From Blood Smeared Images (**Co-researcher**)			
23.	Development Of Remote Heart Rate Measurement From Video By Considering Multiple Targets Using Robust Patch Model (**Co-researcher**)	23,400	2016-2018	GPPS
24.	An Automated Reward System: Smart Recycle Bin (SRB) (**Co-researcher**)	106,200	2015-2017	PRGS
25.	Assessment Of Arterial Wall Motion From Ultrasonic Image For The Healthy Subject And The Atherosclerosis Patient: Lumen Diameter And Intima-media Thickness (**Co-researcher**)	81,200	2015-2017	FRGS
26.	A New Mathematical Concept For Designing Active Compliance Control By Using Adaptive Controller To Replicate Human Grasping (**Co-researcher**)	133,700	2014-2017	FRGS
27.	Fundamental Study On Hela Cells Morphological Properties Induced Via Microsecond Pulse (**Co-researcher**)	127,200	2014-2017	FRGS
28.	Simulation Study Of Blood Flow Velocity In Vessel On 3d Image For Non-Invasive Early Diagnosis Of Deep Vein Thrombosis (DVT) (**Co-researcher**)	50,000	2014-2017	MDR
29.	Computer Aided System For White Blood Cells Morphology Analysis (**Project Leader**)	15,600	2016-2017	GPPS
30.	A Pilot Test On The Installation Of Self Cleaning Solar As An Alternative Power Supply For Shrimp Pond (**Co-researcher**)	30,000	2015-2016	PPRN
31.	Ultrasonographic Assessement Of Biomechanical Properties For Non- invasive Early Diagnosis Of Deep Vein Thrombosis (DVT) : A Venous Valve Behaviour (**Project Leader**)	50,000	2013-2016	MDR
32.	Adaptive Hybrid Force/position Control For Minimally Invasive Ultrasound-guide Breast Biopsy (UGBB) Robotic System (**Project Leader**)	80,000	2013-2016	RAGS
33.	Analysis On Phantom Experimental Of Vessel Behavior For Deep Vein Thrombosis Early Diagnosis (**Co-researcher**)	19,500	2014 -2016	GIPS

34.	Noninvasively Assessment Of In Vivo Vessel Valve Behavior For Early Diagnosis Of Deep Vein Thrombosis (DVT) (**Co-researcher**)	19,500	2014 -2016	GIPS
35.	Enhancing Wheelchair Controllability For Severe Impairment User To Improve Safety And Socially Issue (**Co-researcher**)	80,000	2013-2015	RAGS
36.	An Analysis of Wearable Sensors For Assisting Sports Performance (**Project Leader**)	50,000	2013-2015	RACE
37.	Analysis Of Red Blood Cell Segmentation Enhancement Methods In Overlapping Condition (**Co-researcher**)	50,000	2013-2015	RACE
38.	New Non-invasive Model Of Early Diagnosis Deep Vein Thrombosis (DVT) using Phantom Mimicking Vein With Thrombus (**Co-researcher**)	80,000	2013-2015	RAGS
39.	An Investigation Of A Practical Control Strategy For Underactuated Robot Fingers (**Co-researcher**)	10,000	2013-2015	Short term Grant

Student Supervision

PhD

No.	Name of Student	Title of Thesis	Status
1.	Mohd Afif bin Ayob **(Main SV)**	Development of 3D Ultrasound-Guided Breast Biopsy Robotic System	Completed
2.	Anis Azwani Muhd Suberi **(Main SV)**	Computer Aided Diagnosis (CAD) System for Ischaemic Stroke Detection	Completed
3.	Guo Jinmei **(Main SV)**	Rapid Target Recognition and Accurate Localization for Industrial Robot Vision System	On-going
4.	Jia Chaoyu **(Main SV)**	Deep Learning based Pipeline Defect Detection for Reconfigurable Tracked Mobile Robot	On-going
5.	Low Eugene **(Co SV)**	Ambulatory Retina Inspection and Instrument	On-going

MEng/MSc

No.	Name of Student	Title of Thesis	Status
1.	Alvin Jacob A/L Vadanayagam Stephen**(Main SV)**	An Analysis Of Wearable Sensors For Assisting Sports Performance	Graduated
2.	Ahmad Noor Ariff Bin Zainal Abidin **(Main SV)**	Non-invasive early diagnosis of Deep Vein thrombosis: Venous Valve Behaviour	Graduated
3.	Syahida binti Ishak **(Main SV)**	Non-invasive early diagnosis of Deep Vein thrombosis: Venous Wall Displacement	Graduated
4.	Anis Azwani Muhd Suberi **(Main SV)**	Computer-aided system for white blood cells Morphology Analysis	Graduated
5.	Ahmed Ahmed Metwally **(Main SV)**	Human Facial Expression Recognition with NAO robot	Graduated
6.	Wan Norliyana **(Main SV)**	Gesture Controlled Robotic Arm for Skin-graft System Using Leap Motion	Graduated
7.	Muhammad Faez Kamil **(Co SV)**	Development of Intelligent Position Control for Automated Rubber Tapping Mechanism	On-going
8.	Muhammad Firdaus Abd Ghani **(Co SV)**	Brain Computer Interface Based Robotic Arm Control	On-going

List of Publications

1. Norizan, N. A. A., Md Tomari, M. R. and **Wan Zakaria, W. N.** (2023) “Object Detection Using YOLO for Quadruped Robot Manipulation”, Evolution in Electrical and Electronic Engineering, 4(1),pp.329–336.
2. Zulkifli, A. T., Md Tomari, M. R. and **Wan Zakaria, W. N.** (2023) “LiDAR based Autonomous Navigation for USV Pipeline Inspection”, Evolution in Electrical and Electronic Engineering, 4(1), pp. 337–346.
3. Mohd Zani, M. Z. A. and **Wan Zakaria, W. N.** (2022) “Hybrid Force/Position Control of UR10 Robot Manipulator for Electrode Pasting Operation”, Evolution in Electrical and Electronic Engineering, 3(2), pp. 763–772.
4. **W. N. W. Zakaria**, I. A. -T. Mahmood, A. U. Shamsudin, M. A. A. Rahman and M. R. M. Tomari, "ROS-based SLAM and Path Planning for Autonomous Unmanned Surface Vehicle Navigation System," 2022 IEEE 5th International Symposium in Robotics and Manufacturing Automation (ROMA), Malacca, Malaysia, 2022, pp. 1-6, doi: 10.1109/ROMA55875.2022.9915665.
5. N. Rohaziat, M. R. M. Tomari and **W. N. W. Zakaria**, "White Blood Cells type Detection using YOLOv5," 2022 IEEE 5th International Symposium in Robotics and Manufacturing Automation (ROMA), Malacca, Malaysia, 2022, pp. 1-6, doi: 10.1109/ROMA55875.2022.9915690.
6. S. N. M. Safuan, M. R. M. Tomari, **W. N. W. Zakaria**, (2022). Cross Validation Analysis of Convolutional Neural Network Variants with Various White Blood Cells Datasets for the Classification Task. International Journal of Online & Biomedical Engineering. 2022, Vol. 18 Issue 2, p123-140
7. Tan, Z. F., & **Zakaria, W. N. W**. (2021). COVID-19 Mandatory Self-Quarantine Monitoring System. Evolution in Electrical and Electronic Engineering, 2(2), 605-614.

8. Suberi, A. A. M., **Zakaria, W. N. W.,** Fuad, N. F. N., Tomari, R., Nazari, A., & Rahmad, F. R. (2021). A CAD software application as a decision support system for ischemic stroke detection in the posterior fossa. In Handbook of Decision Support Systems for Neurological Disorders (pp. 203-221): Elsevier.
9. Birahim, M. F. S., Othman, N., Sapuan, S. Z., Tomari, M. R. M., **Zakaria, W. N.** W., & Lee, C. K. (2021). Improvement of Magnetic Field Induction for MPI Application Using Maxwell Coils Paired-Sub-coils System Arrangement. Paper presented at the Proceedings of the 11th National Technical Seminar on Unmanned System Technology 2019.
10. Muhd Suberi, A. A., **W. N. Wan Zakaria**, R. Tomari, A. Nazari, N. F. Nik Fuad, F. R. Rahmad and S. Mohd Fizol (2021). Stochastic analysis of ANN statistical features for ct brain posterior fossa image classification. Lecture Notes in Electrical Engineering. 666: 805-817.
11. Rahmad, F. R., **W. N. Wan Zakaria**, A. Nazari, M. R. Md Tomari, N. F. Nik Fuad and A. A. Muhd Suberi (2021). Hybrid skull stripping method for brain ct images. Lecture Notes in Electrical Engineering. 666: 629-639.
12. Wan Azlan, W. N., **W. N. Wan Zakaria**, N. Othman, M. N. Haji Mohd and M. N. Abd Ghani (2021). Evaluation of leap motion controller usability in development of hand gesture recognition for hemiplegia patients. Lecture Notes in Electrical Engineering. 666: 671-682.
13. Soon, C. F., M. F. Ramilan, D. Hanafi, **W. N. W. Zakaria**, S. B. M. Khialdin, H. Isa and K. S. Tee (2020). "Development of a 3D bio-printer using CoreXY mechanism and syringe-based extrusion." Indonesian Journal of Electrical Engineering and Computer Science 18(3): 1180-1187.
14. S. N. M. Safuan, M. R. M. Tomari, **W. N. W. Zakaria**, M. N. H. Mohd, and N. S. Suriani, "Investigation of white blood cell biomaker model for acute lymphoblastic leukemia detection based on convolutional neural network," *Bulletin of Electrical Engineering and Informatics,* vol. 9, no. 2, pp. 611–618, 2020.
15. Low E, Sam TH, Tee KS, Abdul Rahim R, Saim H, **Wan Zakaria WN**, Mohd Khialdin S, Isa H, Soon CF., "Development of a Wireless and Ambulatory Posture Monitoring System," *International Journal of Integrated Engineering,* vol. 12, no. 2, 02/13 2020.
16. N. Ibrahim, M. R. M. Tomari, and **W. N. W. Zakaria**, "Analysis of minimum face video duration and the effect of video compression to image-based non-contact heart rate monitoring system," Bulletin of Electrical Engineering and Informatics, vol. 9, no. 1, pp. 403-410, 2020.
17. F. A. N. Rashid, N. S. Suriani, M. N. Mohd, M. R. Tomari, **W. N. W. Zakaria**, and A. Nazari, "Deep Convolutional Network Approach in Spike Train Analysis of Physiotherapy Movements," in *Advances in Electronics Engineering*: Springer, 2020, pp. 159-170.
18. Nurmiza Othman, Muhamad Fikri Shahkhirin Birahim, Wan Nurshazwani Wan Zakaria, Mohd Razali Md Tomari, Md Nor Ramdon Baharom, Luqman Hakim " A Simulation Study of Excitation Coil Design in Single-Sided MPI Scanner for Human Body Application", Bulletion of Electrical Engineering and Informatics, Vol. 8, No. 4, 2019
19. Razali Tomari , Mohamad Fauzi Zakaria, Aeslina Abdul Kadir, **Wan Nurshazwani Wan Zakaria**, Mohd Helmy Abd Wahab "Empirical Framework of Reverse Vending Machine (RVM) with Material Identification Capability to Improve Recycling", Applied Mechanics and Materials, Vol. 892, pp. 114-119, 2019
20. S. N. M. Safuan, M. R. M. Tomari, and **W. N. W. Zakaria**, "White blood cell (WBC) counting analysis in blood smear images using various color segmentation methods," *Measurement,* vol. 116, pp. 543-555, 2018.
21. A. Sadiq, N. Othman, M. A. Jamil, M. Youseffi, M. Denyer, **W. W. Zakaria***, et al.*, "Fourth-Order Butterworth Active Bandpass Filter Design for Single-Sided Magnetic Particle Imaging Scanner," *Journal of Telecommunication, Electronic and Computer Engineering (JTEC),* vol. 10, pp. 17-21, 2018.
22. N. Ibrahim, R. Tomari, **W. N. W. Zakaria**, and N. Othman, "Analysis of Non-invasive Video Based Heart Rate Monitoring System obtained from Various Distances and Different Facial Spot," in *Journal of Physics: Conference Series*, 2018, p. 012003.
23. N. Ibrahim, M. N. Raman, L. F. Mahadi, and **W. N. W. Zakaria**, "Visualization on Colour Based Flow Vector of Thermal Image for Movement Detection during Interactive Session," in *Journal of Physics: Conference Series*, 2018, p. 012066.
24. A. A. Muhd Suberi, **W. N. Wan Zakaria**, R. Tomari, and N. F. Nik Fuad, "Classification of Posterior Fossa CT Brain Slices using Artificial Neural Network," *Procedia Computer Science,* vol. 135, pp. 170-177, 2018/01/01/ 2018.

25. N. S. Suriani, S. N. F. Ahmad, M. N. Mohd, M. R. Tomari, And **W. N. W. Zakaria**, "Human Activity Recognition Based On Optimal Skeleton Joints Using Convolutional Neural Network."
26. N. bt Ibrahim, N. S. bt Aziz, **W. N. W. Zakaria** and N. F. bin Nik Fuad, "Study of Vein Mechanism on Pregnancy Condition for Early Diagnosis of Deep Vein Thrombosis," in *9th International Conference on Robotic, Vision, Signal Processing and Power Applications*, 2017, pp. 627-636.
27. A. A. M. Suberi, **W. N. W. Zakaria**, R. Tomari, N. Othman, and N. F. N. Fuad, "Dendritic Cells Feature Extraction using Geometric Features and 1D Fourier Descriptors," *International Journal on Advanced Science, Engineering and Information Technology,* vol. 7, pp. 1334-1339, 2017.
28. I. A. Ihsan, R. Tomari, **W. N. W. Zakaria**, and N. Othman, "Alternative input medium development for wheelchair user with severe spinal cord injury," in *AIP Conference Proceedings*, 2017, p. 020032.
29. K. S. Tee, C. Z. E, H. Saim, **W. N. W. Zakaria**, S. B. M. Khialdin, H. Isa*, et al.*, "Fall prevention walker during rehabilitation," in *AIP Conference Proceedings*, 2017, p. 020033.
30. A. Jacob, **W. N. W. Zakaria**, M. R. B. M. Tomari, T. K. Sek, and A. A. M. Suberi, "Wearable flex sensor system for multiple badminton player grip identification," in *AIP Conference Proceedings*, 2017, p. 020036.
31. K. S. Tee, E. Low, H. Saim, **W. N. W. Zakaria**, S. B. M. Khialdin, H. Isa*, et al.*, "A study on the ergonomic assessment in the workplace," in *AIP Conference Proceedings*, 2017, p. 020034.
32. S. N. M. Safuan, R. Tomari, **W. N. W. Zakaria**, and N. Othman, "White blood cell counting analysis of blood smear images using various segmentation strategies," in *AIP Conference Proceedings*, 2017, p. 020018.
33. M. A. Ayob, **W. N. W. Zakaria**, J. Jalani, M. R. M. Tomari, A. A. M. Suberi, T. K. Sek*, et al.*, "Intelligent approach to Force/Position Control of Ultrasound-Guided Breast Biopsy Robotic System," *Journal of Telecommunication, Electronic and Computer Engineering (JTEC),* vol. 9, pp. 73-79, 2017.
34. C. Y. Kit, R. Tomari, **W. N. W. Zakaria**, N. Othman, S. N. M. Safuan, J. A. J. Yi*, et al.*, "Mobile based Automated Complete Blood Count (Auto-CBC) Analysis System from Blood Smeared Image," *International Journal of Electrical and Computer Engineering (IJECE),* vol. 7, pp. 3020-3029, 2017.
35. N. Ibrahim, R. Tomari, **W. N. W. Zakaria**, and N. Othman, "Non-contact Heart Rate Monitoring Analysis from Various Distances with different Face Regions," *International Journal of Electrical and Computer Engineering (IJECE),* vol. 7, pp. 3030-3036, 2017.
36. T. C. Hou, **W. N. W. Zakaria**, T. S. Jing, R. Tomari, T. K. Sek, and A. A. M. Suberi, "Vision Based Human Decoy System for Spot Cooling," *Telkomnika,* vol. 15, pp. 1512-1519, 2017.
37. K. S. Tee, Y. S. H. Javahar, H. Saim, **W. N. W. Zakaria**, S. B. M. Khialdin, H. Isa*, et al.*, "A Portable Insole Pressure Mapping System," *Telkomnika,* vol. 15, 2017.
38. R. Ngadengon, Y. Sam, J. Osman, R. Tomari, and **W. W. Zakaria**, "Stabilization of Inverted Pendulum: A Multirate Output Feedback Based Discrete Time Sliding Mode Control," in *9th International Conference on Robotic, Vision, Signal Processing and Power Applications*, 2017, pp. 419-426.
39. R. Tomari, **W. N. W. Zakaria**, and R. Ngadengon, "Head Pose Estimation from Undistorted Wide Field of View (WFoV) Kinect for Socially Acceptable Wheelchair," in *9th International Conference on Robotic, Vision, Signal Processing and Power Applications*, 2017, pp. 277-285.
40. A. A. M. Suberi, **W. N. W. Zakaria**, R. Tomari, and K. P. Lim, "Optimization of overlapping dendritic cell segmentation in phase contrast microscopy images," in *Biomedical Engineering and Sciences (IECBES), 2016 IEEE EMBS Conference on*, 2016, pp. 246-250.
41. A. Jacob, **W. N. W. Zakaria**, and M. R. B. M. Tomari, "Implementation of IMU Sensor for Elbow Movement Measurement of Badminton Players," in Robotics and Manufacturing Automation (ROMA), 2016 2nd IEEE International Symposium on, 2016, pp. 1-6.
42. M. Ayob, **W. W. Zakaria**, J. Jalani, N. M. Nasir, and M. M. Tomari, "Estimation of Nonlinear ARX Model for Soft Tissue by Wavenet and Sigmoid Estimators," *Journal of Telecommunication, Electronic and Computer Engineering (JTEC),* vol. 8, pp. 123-128, 2016.
43. **W. W. Zakaria**, R. Tomari, and R. Ngadengon, "Active Head Motion Compensation of TMS Robotic System Using Neuro-Fuzzy Estimation," in *MATEC Web of Conferences*, 2016.
44. A. A. M. Suberi, **W. N. W. Zakaria**, R. Tomari, and N. Ibrahim, "Quantitative ultrasound venous valve movement: early diagnosis of deep vein thrombosis," in *First International Workshop on Pattern Recognition*, 2016, pp. 100110L-100110L-5.

45. A. A. M. Suberi, **W. N. W. Zakaria**, R. Tomari, and M. X. Lau, "Dendritic cell recognition using template matching based on one-dimensional (1D) Fourier descriptors (FD)," in *First International Workshop on Pattern Recognition*, 2016, pp. 100110K-100110K-5.
46. H. C. Shamsudin, M. A. Ayob, **W. Zakaria, W. Nurshazwani**, and M. F. Zakaria, "Modeling and Simulation for One Leg of Quadruped Robot Trajectory," in *Applied Mechanics and Materials*, 2016, pp. 140-145.
47. A. Jacob, **W. N. W. Zakaria**, and M. R. B. M. Tomari, "Quantitative Analysis of Hand Movement in Badminton," in *Advanced Computer and Communication Engineering Technology*, ed: Springer International Publishing, 2016, pp. 439-448.
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50. M. A. Ayob, **W. N. W. Zakaria**, J. Jalani, and M. R. M. Tomari, "MODELING AND SIMULATION OF A 5-AXIS RV-2AJ ROBOT USING SIMMECHANICS," *Jurnal Teknologi,* vol. 76, 2015.
51. M. S Guzel, J. Erwin, and **W. N. Wan Zakaria**, "Vision based Object Recognition of E-Puck Mobile Robot for Warehouse Application," International Journal of Integrated Engineering, vol. 6, 2015.
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Award/Recognition				
No.	**Name of Awards**	**Title**	**Award Authority**	**Year**

1.	Silver Award	Covid-19 Mandatory Self-Quarantine Monitoring System	Innovative Research, Invention and Application Expo 2021 (I-RIA 2021)	2021
2.	POS DigiCert Industry Special Award	Automated Rubber Tapping Mechanism	POS Malaysia (I-RIA 2019)	2019
3.	Gold Award	Brain Ischemic Computer Aided System	International Invention & Innovative Competition (InIIC Series 1/2019)	2019
4.	Silver Award	Shiatsu Massager	International Invention, Innovation and Technology Exhibition (ITEX 2019)	2019
5.	Silver Medal	Computer Aided System for Dendritic Cell Identification (CasDC)	Malaysia Technology Expo 2017 (MTE 2017)	2017
6.	Gold Award	Mobile Based Automated Complete Blood Count (Auto-CBC) Analysis System from Blood Smeared Image	Innovative Research, Invention and Application Expo 2017 (I-RIA 2017)	2017
7.	Gold Medal	Computer Aided System for Dendritic Cells Morphopogy Analysis (CasDC) CasDC 1.0 - Computer Aided System for Dendritic Cell Morphology Analysis	Innovative Research, Invention and Application Expo 2017 (I-RIA 2017)	2017
8.	Gold Medal	Computer Aided System for Dendritic Cells Morphopogy Analysis	Innovation Design Research International Symposium (IDRIS 2017)	2017
9.		Mobile Based Automated Complete Blood Count (AUTO-CBC) Analysis System	Innovation Design	2017

	Double Gold Medal and Philippine Gold Award for Invention		Research International Symposium (IDRIS 2017)	
10.	Gold Medal	Reverse Vending Machine – Waste to Wealth (RVM-W2W)	Innovation Design Research International Symposium (IDRIS 2017)	2017
11.	Bronze Medal	CasDC 1.0 - Computer Aided System for Dendritic Cell Morphology Analysis	Research And Innovation Festival 2016 (R&I FEST 2016	2016
12.	Gold Medal	An Automated Recycle Bin with Reward Feature	International Invention & Innovative Competition (InIIC Series 2/2016)	2016
13.	Gold Medal	Computer Aided System for Dendritic Cells Morphopogy Analysis	International Invention & Innovative Competition (InIIC Series 2/2016)	2016
14.	Bronze Medal	A Modular General Purpose Robot Controller Board	Research And Innovation Festival 2014	2014
15.	Anugerah Pensyarah Cemerlang		UTHM	2014 2015 2016 2017
16.	Anugerah Perkhidmatan Cemerlang		UTHM	2015
17.	Anugerah Jasa Bakti	Perkhidmatan Taat Setia Selama 10 Tahun	UTHM	2017

Professional Services

No.	Role	Activity	Year
1.	Team Manager	UTHM ROBOCON Team	2012-2014
2.	Managing Editor	International Journal of Integrated Engineering	2013-2015
3.	Judge	National Forum and Exhibition on Engineering Design 2013 (NFEED 2013)	2013
4.	Secretary	IEEE International Symposium on Intelligent Robotics and Sensing 2015 (IEEE-IRIS 2015)	2015
5.	Secretary	International Conference on Electrical and Electronic Engineering 2015 (IC3E 2015)	2015
6.	Secretary	IEEE International Symposium on Intelligent Robotics and Sensing 2016 (IEEE-IRIS 2016)	2016
7.	Judge	2016 IEEE-RAS International Robot Pride Competition - Robot Dance Category & University/College Category	2016
8.	Secretary	National Robotics Competition (NRC 2016) - Open Category - Primary School (National Level)	2016
9.	Co-chair	IEEE International Symposium on Robotics and Automation 2017 (IEEE-ROMA 2017)	2017
10.	Advisor	International Conference on Electrical and Electronic Engineering 2017 (IC3E 2017)	2017
11.	Treasurer	National Robotics Competition 2017 (Johor State Level)	2017
12.	Advisor	International Conference on Electrical and Electronic Engineering 2017 (IC3E 2019)	2019
13.	Judge	National Robotics Competition 2019 (Johor State Level)	2019
14.	Senior Engineering Expert	National Robotics Competition (NRC 2019) - Open Category - Primary School and Lower Secondary School (Johor State Level)	2019
15.	Academic External Advisor	UTHM-Fraunhofer Innovation Lab (innovationlabs.my)	2019 to date
16.	External Examiner	Diploma in Industrial Automation Engineering Technology (Mechatronics) & Bachelor of Engineering Technology (Honours) Mechatronics, UCTATI	2021-2023
17	Professional HRDF Trainer	Bachelor of Robotic Design and Development, Taylor's University	2021-2023
		HRD Corp - Human Resource Development Corporation	2022 to date