

Mohd Amiruddin Abd Rahman



Department of Physics, Faculty of Science, Universiti Putra Malaysia,
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Education

2012– 2016

Doctor of Philosophy in Wireless Communication

University of Sheffield, UK & Universiti Putra Malaysia (Jointly Awarded)

Thesis title: “Kernel and Multi-Class Classifiers for Multi-Floor WLAN Localisation”

2009– 2011

Master of Science in Sensor and Instrumentation

Universiti Putra Malaysia

Thesis title: “Detection of Ionic Conductivity and Moisture Content of Various Liquids Using Microwave Technique”

2003 – 2006

Bachelor of Science in Electrical Engineering

Purdue University, US

Employments

Aug 2016 – Now

Senior Lecturer (Assistant Professor), Faculty of Science, Universiti Putra Malaysia
ASEAN-India Research Post-Doctoral Fellow, Indian Institute of Technology, Kanpur, India

Oct 2019 – Apr 2020

CEO@Faculty Intern (Direct report to Vice President), National Instruments, Malaysia

Sep 2018 – Feb 2019

Tutor, Department of Physics, Faculty of Science, Universiti Putra Malaysia

Jul 2006 – Jul 2016

Awards

2019

ASEAN-India Research Training Fellowship, Government of India

2012 – 2015

PhD Scholarship of Academic Training Scheme (Public University), Malaysian Government

2012

Best Master’s Student Award, Department of Physics, Universiti Putra Malaysia

2010 – 2011

Bachelor’s degree Scholarship to American Top University, Malaysian Government

2005

Kudos Award (ID:81062 & 81063), Intel Chipset Group, Penang, Malaysia

2003, 2004

Semester Honors, BSEE Purdue University, US

2003, 2004

Certificate of Merit, Malaysian Student Department, Chicago, US

2003

Dean’s List, BSEE Purdue University, US

Teaching Experience

2016	PHY3306 Electronics (3+1 credits) (TEM: 4.57/5) PHY3401 Electromagnetism (3 credits) (TEM: 4.32/5)
2017	PHY3301 Analog Electronics (3+1 credits) (TEM: 4.32/5) PHY4995 Advanced Labs (3 credits) (TEM: N/A) PHY4303 Computer Interfacing and Control (3+1 credit) (TEM: 4.40/5) PHY3401 Electromagnetism (3 credits) (TEM: 4.46/5)
2018	PHY3306 Electronics (3+1 credits) (TEM: 4.36/5) PHY3304 Principles of Measurement System (3+1 credits) (TEM: 4.79/5)
2019	PHY3303 Sensor and Transducers (3+1 credits) (TEM: 4.57/5) PHY4301 Microprocessor and Microcomputer (3 credits) (TEM: 3.96/5)

*TEM = Teaching Evaluation Mark

Manuscript Reviewer

Jan 2020 – Now	Journal of Ambient Intelligence & Humanized Computing (JCR Q3)
Jan 2020	Journal of Thermal Analysis and Calorimetry (JCR Q2)
May 2019	International Journal of Electrical & Electronic Systems Research
May 2019	Recent Patents in Computer Science
Mar 2019	International Journal of Advanced and Applied Sciences
Jan 2019 – Now	SN Applied Sciences Journal
Nov 2018 – Now	IEEE Access Journal (JCR Q1)
Sep 2016	IEEE 3rd International Symposium on Telecommunication Technologies
Aug 2014	International Conference on Mobile and Ubiquitous Systems (Mobiquitous)

Professional Activities

2019 - Now	CEO@Faculty Fellow, Ministry of Education Malaysia
2018–2019	Intern to Vice President of Manufacturing APAC National Instruments
2008 – Now	Graduate Engineer (Registration No: 55961A), Board of Engineers Malaysia
2017 – Now	International Association of Engineers, Member (Member Number: 186998)
Apr 2016	Facilitator at Promotion of UPM Physics Programme at SMKA Maahad Hamidah, Kajang
Nov 2016	Examiner, Matriculation Physics PDT Paper, Ministry of Education, Malaysia
Apr – Aug 2016	Committee Member (Registration), Fundamental Science Congress Conference, UPM
Mar 2016	Academia, Network Collaboration Faculty of Science and Selangor Matriculation College
Oct 2014	Invited Researcher, Nokia Bell Labs, Belgium
May – Aug 2014	Post-graduate Research Intern, Nokia Bell Labs, Ireland
2009 – 2012	Student's Residential Fellow, Second College, Universiti Putra Malaysia
2012	Evaluator, Matriculation Physics Paper, Ministry of Education, Malaysia
2011	Examiner, Matriculation Engineering Physics Paper, Ministry of Education, Malaysia
Dec 2006	Committee Member, National Physics Conference (PERFIK), Kuala Lumpur, Malaysia
May – Aug 2005	Undergraduate Intern (Layout Engineer), Intel Corporation, Penang, Malaysia

Skills and Expertise

Programming Language

Mathworks MATLAB, C++, Ionic Framework, LabVIEW

Equipment

Vector Network Analyser, Spectrum Analyser

Software

LaTeX Document Processing, AWR Microwave Office Design Suit, EndNote, Mendeley, Joomla Web Development

Research

Research Interest

Currently my current research interest is on development of **algorithms for indoor localisation system, peer to peer networks, game theory, and application of predictive analytics**. My other interests also include **signal processing, sensor and instrumentation, wireless communication systems, and application of machine learning algorithms**.

Field of Expertise

Indoor Localisation/Positioning – Algorithms & System
Wireless Communication System
Sensor and Detection Technology
Machine Learning Theory and Applications
Statistics and Probability Functions Applications

Research Grant

1. Role: **Principal Investigator**
Year: 2019
Title of Grant: Optimized Wireless Localization and Tracking in Internet of Things Network
Sponsoring Agency: Department of Science and Technology, Government of India
Amount Received: **Rs340,000.00 (USD4918.10)**
Status: **On-going**
Duration of Grant: 6 months
Funding Type: ASEAN-India Research and Training Fellowship (AISTIC)
Original Grant Number: RTF/2018/000025
2. Role: **Principal Investigator**
Year: 2017
Title of Grant: Novel Indoor Localisation Algorithms Based on Magnetic Flux Density and Fusion with Wireless Local Area Network (WLAN) Signal
Sponsoring Agency: Ministry of Higher Education Malaysia
Amount Received: **RM81,200.00 (USD19848.93)**
Status: **On-going**
Duration of Grant: 2 years
Funding Type: Fundamental Research Grant Scheme (FRGS)
Original Grant Number: FRGS/1/2017/TK04/UPM/02/5
3. Role: Co-Investigator
Year: 2011
Title of Grant: Flux Modelling of Optical Properties of Leaves and Fruits
Sponsoring Agency: Ministry of Higher Education Malaysia
Amount Received: **RM 120,000.00 (USD29333.40)**
Status: **Completed**
Duration of Grant: 3 years
Funding Type: Fundamental Research Grant Scheme (FRGS)
Original Grant Number: FRGS/1/11/SG/UPM/02/37

Research Profile

H-Index: 7 (Scopus)
Total Citations (As of Apr 2020): 95

Publications

Journals

1. I. O. Alade, **M. A. Abd Rahman**, T. A. Saleh. (2020) "An approach to predict the isobaric specific heat capacity of nitrides/ethylene glycol-based nanofluids using support vector regression", *Journal of Energy Storage*, vol. 29, 101313, pp. 1-10. <https://doi.org/10.1016/j.est.2020.101313>. (JCR Q2)
2. I. O. Alade, **M. A. Abd Rahman**, Z. Abbas, Y. Yaakob, T. A. Saleh. (2020) "Application of support vector regression and artificial neural network for prediction of specific heat capacity of aqueous nanofluids of copper oxide", *Solar Energy*, vol. 197, pp. 485-490. <https://doi.org/10.1016/j.solener.2019.12.067> (JCR Q1)
3. R. Khan, M. Zakarya, A. A. Khan, I.U. Rahman, **M. A. Abd Rahman**, M. K. Abdul Karim, M.S. Mustafa. (2020) "A Heuristic Approach for Finding Similarity Indexes of Multivariate Data Sets," *IEEE Access*, vol. 8, pp. 21759-21769. <https://doi.org/10.1109/ACCESS.2020.2968222> (JCR Q1)
4. D. Uthandi, A. Sabarudin, Z. Mohd, **M. A. Abd Rahman**, M. K. Abdul Karim, (2019) Effectiveness of Post-Mortem Computed Tomography (PMCT) In Comparison with Conventional Autopsy: A Systematic Review", *Current Medical Imaging* (2019) 15: 1. *In Press* <https://doi.org/10.2174/1573405615666190821115426> (JCR Q4)
5. D. M. Khan, A. Yaqoob, N. Iqbal, A. Wahid, U. Khalil, M. Khan, **M. A. Abd Rahman**, M. S. Mustafa, and Z. Khan. (2019) Variable Selection via SCAD-Penalized Quantile Regression for High-Dimensional Count Data. *IEEE Access*, vol. 7, pp. 153205-153216. <https://doi.org/10.1109/ACCESS.2019.2948278> (JCR Q1)
6. Z. Farid, I.U. Khan, E. Scavino, **M.A. Abd Rahman** (2019). A WLAN Fingerprinting Based Indoor Localization Technique via Artificial Neural Network. *IJCSNS International Journal of Computer Science and Network Security*, vol. 19, no. 7, pp. 157-165.
7. A. Khan A, M. Khan, S. Ahmed, **M.A. Abd Rahman**, M. Khan. (2019) Energy harvesting based routing protocol for underwater sensor networks. *PLOS ONE*, vol. 14, Issue 7, e0219459. <https://doi.org/10.1371/journal.pone.0219459> (JCR Q2)
8. I.O.Alade, **M. A. Abd Rahman**, A. Bagudu, Z. Abbas, Y. Yaakob, T.A Saleh. (2019) Development of a predictive model for estimating the specific heat capacity of metallic oxides/ethylene glycol-based nanofluids using support vector regression, *Heliyon*, vol. 5, Issue 6, e01882, 2019. <https://doi.org/10.1016/j.heliyon.2019.e01882> (Scopus Q1)
9. I. O. Alade, **M. A. Abd Rahman**, T. A. Saleh. (2019) Predicting the specific heat capacity of alumina/ethylene glycol nanofluids using support vector regression model optimized with Bayesian algorithm, *Solar Energy*, vol. 183, pp. 74-82. <https://doi.org/10.1016/j.solener.2019.02.060> (JCR Q1)
10. A. A. Khan, A. Ali, M. Zakarya, R. Khan, M. Khan, I. Ur Rahman, **M. A. Abd Rahman**. (2019) A migration aware scheduling technique for real-time aperiodic tasks over multiprocessor systems. *IEEE Access*. vol. 7, pp. 27859-27873. <https://doi.org/10.1109/ACCESS.2019.2901411> (JCR Q1)
11. I.O Alade, **M.A.A. Rahman**, T. Saleh (2019). Modeling and prediction of the specific heat capacity of Al₂O₃/water nanofluids using hybrid genetic algorithm/support vector regression model. *Nano-Structures & Nano-Objects*, vol. 17, pp. 103-111, 2019. <https://doi.org/10.1016/j.nanoso.2018.12.001> (Scopus Q2)
12. I.O Alade, A. Bagudu, T.A. Oyehan, **M.A.A. Rahman**, T.A. Saleh & S.O. Olatunji (2018). Estimating the Refractive Index of Oxygenated and Deoxygenated Hemoglobin using Genetic Algorithm-Support Vector Machine Approach. *Computer Methods and Programs in Biomedicine*. <https://doi.org/10.1016/j.cmpb.2018.05.029> (JCR Q1)
13. **M. A. A. Rahman**, Z. Abbas, A. Ismail. (2017) Path Loss Extraction of 2.4 GHz WLAN Radio Waves in Various Multi-floor Buildings According to Seidel's Model. *Solid-State Science and Technology*, vol. 24, no. 1, pp. 1-13, 2017. <http://myjms.mohe.gov.my/index.php/masshp/article/view/2537/559>
14. Jusoh, M. A., Z. Abbas, **M. A. A. Rahman**, C. E. Meng, M. F. Zainuddin, F. Esa. "Critical Study of Open-ended Coaxial Sensor by Finite Element Method (FEM)", *International Journal of Applied Science and Engineering*, vol. 11, no. 4, pp. 343-360, 2013. [https://doi.org/10.6703/IJASE.2013.11\(4\).343](https://doi.org/10.6703/IJASE.2013.11(4).343)

15. **M. A. A. Rahman**, K. Khalid, J. Hassan, "Simultaneous Analysis of Conductivity and Concentration of Saline Solutions and Sea Water at Microwave Frequencies from Dielectric Investigation", *Solid-State Science and Technology*, Vol. 19, No. 1, pp. 1-5, 2011. <http://myjims.moe.gov.my/index.php/masshp/article/view/4954/1643>

Book Chapter

1. **M. A. Abd Rahman**, Z. Abbas, "WLAN Positioning System", *Emerging Themes in Fundamental and Applied Sciences - Physics*, New Edition, Online, Universiti Putra Malaysia Press, International, ISBN 9789673348135, pp. 105-112, 2018

Peer-Reviewed Conference Proceedings

1. **M. A. Abd Rahman**, M. K. Abdul Karim and C. E. Anak Bundak. (2019) "Weighted Local Access Point based on Fine Matching k-Nearest Neighbor Algorithm for Indoor Positioning System," *2019 AEIT International Annual Conference (AEIT)*, Florence, Italy, 2019, pp. 1-5. <https://doi.org/10.23919/AEIT.2019.8893365> (PDF)
2. M. Dashti, **M. A. Abd Rahman**, H. Mahmoudi and H. Claussen. (2015) "Detecting co-located mobile users," *2015 IEEE International Conference on Communications (ICC)*, London, 2015, pp. 1565-1570. <http://doi.org/10.1109/ICC.2015.7248547> (PDF)
3. Y. Liu, M. Dashti, **M. A. Abd Rahman** and J. Zhang. (2014) "Indoor localization using smartphone inertial sensors," *Positioning, Navigation and Communication (WPNC)*, 2014 11th Workshop on, Dresden, 2014, pp. 1-6. <http://doi.org/10.1109/WPNC.2014.6843288> (PDF)
4. **M. A. A. Rahman**, M. Dashti and J. Zhang. (2014) "Floor determination for positioning in multi-story building," *2014 IEEE Wireless Communications and Networking Conference (WCNC)*, Istanbul, 2014, pp. 2540-2545. <http://doi.org/10.1109/WCNC.2014.6952788> (PDF)
5. **M. A. Abd Rahman**, M. Dashti and J. Zhang. (2013) "Localization of unknown indoor wireless transmitter," *Localization and GNSS (ICL-GNSS)*, 2013 International Conference on, Turin, 2013, pp. 1-6 <http://doi.org/10.1109/ICL-GNSS.2013.6577270> (PDF)

Others

1. Extended Abstract: **M. A. Abd Rahman**, Z. Abbas, "WLAN Positioning Based on Enhanced k-Nearest Neighbour Classifier," *Fundamental Science Congress 2017*, UPM Serdang, 2017, pp. 187
2. Extended Abstract: **M. A. Abd Rahman**, Z. Abbas, "Averaged kernel floor localization algorithm for multi-floor WLAN positioning," *5th International Symposium on Applied Engineering and Sciences*, UPM Serdang, 2017, pp. 32
3. Extended Abstract: **Mohd Amiruddin Abd Rahman**, Kaida Khalid, "Simultaneous Detection of Ionic Conductivity and Moisture Content Using Microwave Technique", *Fundamental Science Congress*, 18-19 May, Serdang, Malaysia, 2010
4. Poster: A. Jusoh, Z. Abbas, A. Zakaria, J. Hassan and **M. A. A. Rahman**, "Determination of Moisture Content in Maize by Using Open Ended Coaxial Sensor at Microwave Frequency", *25th Regional Conference on Solid State Science and Technology*, 21-23 December, Penang, Malaysia, 2009

Intellectual Property

Copyright

1. ULAMs – Student: University Location Attendance Management System for Student Mobile Application – Process Flow. Filing IP No MyIPO: LY2019002607, Date: 15 May 2019
2. ULAMs – Student: University Location Attendance Management System for Student Mobile Application – Source Code. Filing IP No MyIPO: LY2019002598, Date: 15 May 2019
3. ULAMs – Lecturer: University Location Attendance Management System for Lecturer Mobile Application – Process Flow. Filing IP No MyIPO: LY2019002606, Date: 15 May 2019

Supervision

PhD

1. Alade Ibrahim Olanrewaju – (**main supervisor**)
Project Title: A computationally intelligent of nanofluid parameter predictions
(Status: In-Progress)
2. Nor Aina binti Abdul Wahab – (co-supervise with Dr. Nurul Huda (UPM))
Project Title: Dielectric properties investigation of fruits
(Status: In-Progress)
3. Ibrahim Ismaila Lakin – (co-supervise with Assoc. Prof. Dr. Zulkifly Abbas (UPM))
Project Title: Microstrip sensor for agricultural applications
(Status: In-Progress)
4. Adib bin Ali – (**main supervisor**)
Project Title: Indoor positioning and tracking within IoT transceiver environment
(Status: In-Progress)
5. Muhammad Shahrul Azwan Ramli – (**main supervisor**)
Project Title: Predictive analytics of cash crops production using IoT datasets
(Status: In-Progress)

MSc

1. Ahmad Khamis – (co-supervise with Assoc. Prof. Dr. Zulkifly Abbas UPM)
Project Title: Preparation and Characterisation of Epoxy Resin Fiber and Fe_2O_3
(Status: **Graduated**)
2. Muhammad Syahmi Samsuri – (**main supervisor**)
Project Title: Feasibility of Magnetic Field Fingerprint for Indoor Positioning
(Status: In-Progress)
3. Caceja Elyca Bundak – (**main supervisor**)
Project Title: Improvement of Indoor Positioning based on Hybrid WLAN and Magnetic Field Technology
(Status: In-Progress)

Undergraduate (Final Year Project Dissertation)

1. Atiqah Amira Ani
Project Title: Tracking with Wireless LAN Networks
(Status: **Completed**) (Sep 2016 – Jun 2017)
2. Muhammad Syahmi Samsuri
Project Title: Magnetic Field Based Indoor Localisation
(Status: **Completed**) (Feb 2017 - Jan 2018)
3. Hamdan Md Saleh
Project Title: Analysis of WLAN Signal for Human Activities Recognition
(Status: **Completed**) (Feb 2017 - Jan 2018)
4. Caceja Elyca Bundak
Project Title: Air Pollution Index Data Analytics
(Status: **Completed**) (Sep 2017 - Jun 2018)
5. Tan Peck Yeng
Project Title: Internet of Light based on WLAN Received Signal Strength
(Status: **Completed**) (Sep 2017 - Jun 2018)
6. Lee Wee Sin
Project Title: Fire detection system based IoT technology
(Status: **Completed**) (Sep 2017 - Jun 2018)
7. Choong Yen Khi
Project Title: Hybrid Triangulation and kNN algorithm for Indoor Positioning
(Status: **Completed**) (Sep 2017 - Jun 2018)

8. Mariatul Rawdhah Ahmad Fua'ad
Project Title: Ship Motion based on IMU sensor
(Status: **Completed**) (Sep 2017 - Jun 2018)
9. Noraisyah Abbas
Project Title: Radiomap Enhancement for Reliable Indoor Positioning
(Status: **Completed**) (Sep 2017 - Jun 2018)
10. Nur Adibah Kusini
Project Title: User Interaction Based on Webcam Image Processing Algorithm
(Status: **Completed**) (Sep 2017 - Jun 2018)
11. Norfarahana Mohd Osman
Project Title: Internet of Things Based Home Entertainment System and User Interaction
(Status: **Completed**) (Sep 2017 - Jun 2018)
12. Nurul Sabrina Razali
Project Title: Smart Shoes based on Piezoelectric Sensor
(Status: **Completed**) (Sep 2017 - Jun 2018)
13. Amir Nizamuddin Mardzukee
Project Title: Indoor Localization Based on Magnetic Field Direction and Strength
(Status: **Completed**) (Feb 2018 - Dec 2018)
14. Mohd Ezani Abdullah
Project Title: Low-Cost Weather Station Based on Arduino and Astro Satellite Dish
(Status: **Completed**) (Feb 2018 - Dec 2018)
15. Wan Muhammad Syahir Bin Awang
Project Title: Analysis of Power Conversion Efficiency of Photovoltaic (PV) Off Grid System
(Status: **Completed**) (Feb 2018 - Dec 2018)
16. Lam Chee Yuen
Project Title: Analysis of Different Prediction Technique to Estimate RSS For Reducing Surveying Effort in Fingerprint Based Indoor Positioning
(Status: **Completed**) (Feb 2019 - Dec 2019)
17. Nur Hanisah Mariah Md Sen
Project Title: Improvement of kNN Algorithm Using Clustered Sorted RSS Distance for Indoor Positioning
(Status: **Completed**) (Feb 2019 - Dec 2019)
18. Nur Afina Yas Rizon
Project Title: Support Vector Regression Based Bayesian Optimization for Prediction of Malaysia Air Pollution Index
(Status: **Completed**) (Feb 2019 - Dec 2019)
19. Nur Fadhilah Idrus
Project Title: Analysis of Codiaeum Variegatum (Croton) Growth Parameters Based On PH, Rain, Soil Moisture, Temperature And Humidity Sensors Dataset
(Status: **Completed**) (Feb 2019 - Dec 2019)
20. Norshamira Mad Radzi
Project Title: Impact of Access Point Location On Indoor Positioning
(Status: **Completed**) (Feb 2019 - Dec 2019)

Industrial Training Intern

1. Nur Afidah Roslan
Project Title: Analysis of Malaysian API index based on big geolocation and time history data for accurate haze and air pollution prediction
(Status: **Completed**) (Jul 2018 – Sep 2018)
2. Nurul Hafiza Muhamad Zailani
Project Title: Analysis of Malaysian environment weather relationship with API for accurate weather forecasting
(Status: **Completed**) (Mar 2019 – May 2019)

Research Assistant

1. Suhailah Mahzan
Project Title: Novel Indoor Localisation Algorithms Based on Magnetic Flux Density and Fusion with Wireless Local Area Network (WLAN) Signal
(Status: **Completed**) (Oct 2017 – Jan 2018)
2. Tuan Ahmad Zahidi Tuan Abdul Rahman
Project Title: Novel Indoor Localisation Algorithms Based on Magnetic Flux Density and Fusion with Wireless Local Area

Network (WLAN) Signal
(Status: **Completed**) (Apr 2018 – Jul 2018)

References

Professor Dr. Jie Zhang

Chair in Wireless System
Department of Electronic and Electrical Engineering
University of Sheffield
Portobello Centre
Pitt Street, Sheffield, S1 4ET, United Kingdom
Email: jie.zhang@sheffield.ac.uk

Mr. Raj Purushotaman

Managing Director
National Instruments (Malaysia) Sdn. Bhd.
Penang, Malaysia
Email: raj.purushothaman@ni.com

Associate Prof. Dr. Zulkifly Abbas

Department of Physics
Faculty of Science
Universiti Putra Malaysia
43400 UPM Serdang, Selangor, Malaysia
Email: za@upm.edu.my

Professor Dr. Yatindra Nath Singh

Dean of Infrastructure and Planning
Department of Electrical Engineering
Indian Institute of Technology Kanpur
Kanpur, Uttar Pradesh, India 208016
Email: yensingh@iitk.ac.in