



Dr. Norasmadi Abdul Rahim

Dr. Norasmadi leads and defines projects around pattern recognition, advanced signal processing and system identification at Universiti Malaysia Perlis (UniMAP). His works focus on design and development of an intelligent system in order to interact with the real-world problem.

Norasmadi completed a PhD in 2015 looking at intelligent techniques to recognize an acoustic signal based on pattern recognition (Ensemble Methods). He holds a PhD degree in Mechatronic Engineering from Universiti Malaysia Perlis, a Master degree in Electrical Engineering (Advanced Signal Processing) from Universiti Teknologi MARA and a First Degree in Electrical Engineering (Power) from Universiti Teknologi MARA. He has authored and co-authored more than 40 research works (journals, book chapters, conference papers) and served on the program and organizing committees of numerous national and international conferences.

EDUCATIONAL BACKGROUNDS

2015	PhD	Mechatronic Engineering (Pattern Recognition and Signal Processing), Universiti Malaysia Perlis, Malaysia
2005	Msc	Electrical Engineering (Advanced Signal Processing), Universiti Teknologi MARA, Malaysia
2002	Bsc	Electrical Engineering (Power), Universiti Teknologi MARA, Malaysia

EMPLOYMENT HISTORY

2015 – current	<i>Senior Lecturer</i> , Mechatronic engineering program, School of Mechatronic Engineering, Universiti Malaysia Perlis, Malaysia
2008 – 2009	<i>Head of Program</i> , Mechatronic engineering program, School of Mechatronic Engineering, Universiti Malaysia Perlis, Malaysia
2005 – 2008	<i>Lecturer</i> , Mechatronic engineering program, School of Mechatronic Engineering, Universiti Malaysia Perlis, Malaysia

PROFESIONAL ASSOCIATIONS

1. Board of Engineers Malaysia (BEM) – **65984A**
2. SClence and Engineering Institute (SCIEI) – **20120705001**
3. International Association of Engineers (IAENG) – **109829**
4. International Association of Computer Science and Information Technology (IACSIT) – **80350254**

PUBLICATIONS

Journals

2020

1. A.S. Abdull Sukor, L.M. Kamarudin, A. Zakaria, N. Abdul Rahim, S. Sudin, H. Nishizaki, "RSSI-Based for Device-Free Localization Using Deep Learning Technique", *Journal of Smart Cities*, Vol. 3, Issue 2, Pages 444-455, 2020 [[Link](#)]

2019

1. B.P. Ooi, N. Abdul Rahim, A. Zakaria, M.J. Masnan, S.A. Abdul Shukor, "*Random Subspace Oracle (RSO) Ensemble to Solve Small Sample-Sized Classification Problems*", *Journal of Intelligent & Fuzzy Systems*, Vol. 36, Issue 4, Pages 3225-3234, 2019 (**Q2 – Impact Factor: 1.637**)
2. A.S. Abdull Sukor, A. Zakaria, N. Abdul Rahim, L.M. Kamarudin, R. Setchi, H. Nishizaki, "*A Hybrid Approach of Knowledge-Driven and Data-Driven Reasoning for Activity Recognition in Smart Homes*", *Journal of Intelligent & Fuzzy Systems*, Vol. 36, Issue 5, Pages 4177-4188, 2019 (**Q2 – Impact Factor: 1.637**)

2018

1. B.P. Ooi, N. Abdul Rahim, A. Zakaria, M.J. Masnan, S.A. Abdul Shukor, M.P. Paulraj, "*Parametric Feature Selection for an Enhanced Random Linear Oracle Ensemble Method*", *Journal of Telecommunication, Electronic and Computer Engineering*, Vol. 10, No. 1-13, Pages 111-116, 2018
2. A.S.A. Sukor, A. Zakaria, N. Abdul Rahim, R. Setchi, "*Semantic Knowledge Base in Support of Activity Recognition in Smart Home Environments*", *International Journal of Engineering & Technology*, Vol. 7, No. 4.27, Pages 67-72, 2018
3. S.A. Abdul Shukor, N. Abdul Rahim, K. Kohlhof, Z.A.Z. Jamal, "*Internet-of-Things (IoT) for Human Thermal Comfort: A Simulative Investigation*", *Journal of Telecommunication, Electronic and Computer Engineering*, Vol. 10, No. 1-14, Pages 119-123, 2018
4. M.N. Abu Bakar, A.H. Abdullah, N. Abdul Rahim, H. Yazid, S.N. Misman, M.J. Masnan, "*Rice Leaf Blast Disease Detection Using Multi-Level Colour Image Thresholding*", Vol. 10, No. 1-14, Pages 1-6, 2018
5. N.S. Khalid, A.H. Abdullah, S.A.A. Shukor, N.D. Dalila, M.J. Masnan, H. Mansor, N. Abdul Rahim, F.S.A. Sa'ad, "*Detection of Colletotrichum Gloeosporioides Fungus Isolates Development/Spread for Mango (Mangifera Indica L.) Cultivar from Electronic Nose Using Multivariate-Statistical Analysis*", *Journal of Telecommunication, Electronic and Computer Engineering (JTCE)*, Vol. 10, No. 1-6, Pages 171-175, 2018

2017

1. B.P. Ooi, N. Abdul Rahim, A. Zakaria, M.J. Masnan, S.A. Abdul Shukor, "An Enhanced Random Linear Oracle Ensemble Method using Feature Selection Approach based on Naïve Bayes Classifier", *Journal of Telecommunication, Electronic and Computer Engineering*, Vol. 9, No. 4, Pages 69-77, 2017
2. A.N. Norali, A.H. Abdullah, Z. Zakaria, N.Abdul Rahim, S.K. Nataraj, "Human Breathing Classification Using Electromyography Signal with Features Based on Mel-Frequency Cepstral Coefficients", *International Journal of Integrated Engineering – Special Issue on Electrical Electronic Engineering* Vol. 9, No. 4, Pages 85-92, 2017
3. A. F. A Hamid, M. T. A. Rahman, S. F. Khan, A. H. Adom, M. A. Rahim, N. Abdul Rahim, M. H. N. Ismail, A. Norizan, "Connected car: Engines diagnostic via Internet of Things (IoT)", *Journal of Physics: Conference Series (JPCS)*, 908 (1), Pages 1-11, 2017

2016

1. Hayder A. Azeez, N. Abdul Rahim, M. J. A. Safar, "EMG Controlled Wheelchair Movement based on Masseter and Buccinators Muscles", *International Journal of Engineering Trends and Technology (IJETT)*, Vol. 37, No. 3, Pages 133-139, 2016
2. Hayder A. Azeez, N. Abdul Rahim, M. J. A. Safar, "Controlling Power-assisted Wheelchair Movements by using LDA Classifier", *International Journal of Engineering Trends and Technology (IJETT)*, Vol. 37, No. 5, Pages 269-272, 2016

2015

1. N. Abdul Rahim, MP Paulraj, A.H. Adom, S.A. Abdul Shukor, M.J. Masnan, "Homogeneous Multi-Classifer System for Moving Vehicles Noise Classification Based on Multilayer Perceptron", *Journal of Intelligent & Fuzzy Systems*, Vol. 29, No. 1, Pages 149-157, 2015 (**Q2 – Impact Factor: 1.812**).
2. Nurlisa Yusuf, Ammar Zakaria, Mohammad Iqbal Omar, Ali Yeon Md Shakaff, Maz Jamilah Masnan, Latifah Munirah Kamarudin, Norasmadi Abdul Rahim, Nur Zawatil Isqi Zakaria, Azian Azamimi Abdullah, Amizah Othman and Mohd Sadek Yasin, "In-Vitro Diagnosis of Single and Poly Microbial Species Targeted for Diabetic Foot Infection using E-Nose Technology", *BMC Bioinformatics*, Vol. 16, Issue 1, Pages 158, 2015 (**Q1 – Impact Factor: 2.58**).
3. M. H. M. Razali, S. M. Mamduh, K. Kamarudin, A. Zakaria, N. A. Rahim, L. M. Kamarudin, N. Azmi, A. Y. M. Shakaff, F. S. A. Saad, and S. A. A. Shukor, "Development of Microphone System for Low Cost Bioacoustic Device", *Journal of Medical Imaging and Health Informatics*, Vol. 5, No. 6, Pages 1242-1245, 2015 (**Q4 – Impact Factor: 0.642**)
4. Humairah Mansor, Abdul Hamid Adom, Norasmadi Abdul Rahim, "Development of Leader and Follower Strategy for Swarm Robot Applications", *Jurnal Teknologi*, Vol. 77, No. 28, Pages 55-59, 2015

2014

1. A.H. Abdullah, A.Y.M. Shakaff, A.H. Adom, A. Zakaria, F.S.A. Saad, N.A. Rahim, K. Kamaruddin, S.M. Mamduh, J.M. Sah, T.G. Teo, "Mobile Olfaction System for Poultry Farm Malodour Monitoring", *Australian Journal of Basic & Applied Sciences*, 8(4), Special 2014, Pages 593-600.

2013

1. N. Abdul Rahim, Paulraj M P and A.H. Adom, "Classification of Moving Vehicles using Multi-Classifiers with Time-Domain Approach", International Journal of Computer Applications, Volume 71, No. 1, Pages 12-17, June 2013 (ISSN: 0975-8887).
2. N. Abdul Rahim, M.P. Paulraj, A.H. Adom, "Heterogeneous Multi-Classifiers for Moving Vehicle Noise Classification using Bootstrap Method", International Journal of Engineering and Advanced Technology™ (IJEAT), Volume-2, Issue-4, April 2013, Pages 435-439 (ISSN: 2249-8958).
3. N. Abdul Rahim, M.P. Paulraj, A.H. Adom, "Adaptive Boosting with SVM Classifier for Moving Vehicle Classification", Journal of Procedia Engineering, Volume 53 (2013), Pages 411-419 (ISSN: 1877-7058)
4. M.P. Paulraj, Abdul Hamid Adom, Sathishkumar Sundararaj, Norasmadi Bin Abdul Rahim, "Moving Vehicle Recognition and Classification based on Time Domain Approach", Journal of Procedia Engineering, Volume 53 (2013), Pages 405-410 (ISSN: 1877-7058).

2012

1. N. Abdul Rahim, Paulraj M P, A.H. Adom, "*Homogeneous Multi-Classifiers for Moving Vehicle Classification*", Karpagam Journal of Computer Science, Vol 6, pp. 342-354, Issue Sep-Oct 2012.
2. A.H. Ismail, S.J. Jamil, A. Hilmy Ismail, M.N. Ayob, N. Abdul Rahim, "*A Comprehensive Study of Using 2D Barcode for Multi Robot Labelling and Communication*", International Journal on Advanced Science Engineering Information Technology, Vol. 2 (2012),No. 1 (IJASEIT)
3. Humairah Mansor, Abdul Hamid Adom, Norasmadi Abdul Rahim, "*Wireless Communication for Mobile Robots Using Commercial System*", International Journal on Advanced Science Engineering Information Technology, Vol. 2 (2012),No. 1 (IJASEIT)

Book Chapters

1. N. Abdul Rahim, Paulraj M P, A. H. Adom, "*Adaptive Boosting for Moving Vehicle Noise Classification using SVM and KNN Classifier*", Emerging Trend in Engineering Research, Vol 1, pp 229-238, **2013**, Bonfring Publisher, India (ISBN 978-93-82338-32-1)
2. A.H. Abdullah, N.A. Rahim, M.J. Masnan, F.S.A. Sa'ad, A. Zakaria, A.Y.M. Shakaff, O. Omar "Rice and The Electronic Nose", The Electronic Nose and Tongue in Food Science, pp. 103-113, **2016**, Elsevier Inc. (ISBN:978-0-12-800243-8)

Conferences

2019

1. M.A. Markom, A.H. Adom, S.A. Abdul Shukor, N. Abdul Rahim, E.S. Mohd Muslim Tan, B. Ilias, "*Improved KNN Scan Matching for Local Map Classification in Mobile Robot Localisation Application*", IOP Conference Series: Materials Science and Engineering, Vol. 557, Issue 1, Pages 1-6, 2019
2. A.S. Abdull Sukor, A. Zakaria, N. Abdul Rahim, L.M. Kamarudin, H. Nishizaki, "*Abnormality Detection Approach using Deep Learning Models in Smart Home Environments*", International Conference on Communications and Broadband Networking, Pages 22-27, 2019.

2018

1. A.S. Abdull Sukor, A. Zakaria, N. Abdul Rahim, "Activity recognition using accelerometer sensor and machine learning classifiers", International Colloquium on Signal Processing & Its Applications (CSPA), Pages 233-238, 2018
2. W.M. Nooriman, A.H. Abdullah, N. Abdul Rahim, K. Kamarudin, "Development of wireless sensor network for Harumanis Mango orchard's temperature, humidity and soil moisture monitoring", Symposium on Computer Applications & Industrial Electronics (ISCAIE), Pages 263-268, 2018

2017

1. B. Ilias, S.A. Abdul Shukor, A.H. Adom, N. Abdul Rahim, M.F. Ibrahim, S. Yaacob, "Indoor Mobile Robot Localization using KNN",
2. A.N. Norali, A.H. Abdullah, Z. Zakaria, N. Abdul Rahim, S.K. Nataraj, "Human Breathing Assessment using Electromyography Signal of Respiratory Muscles", International Conference on Control System, Computing and Engineering (ICCSCE), Pages 1, 2017
3. A.N Norali, A.H Abdullah, Z. Zakaria, N. Abdul Rahim, V. Vijejan, S.K. Nataraj, "Classification of human breathing task based on electromyography signal of respiratory muscles", International Colloquium on Signal Processing & its Applications (CSPA), Pages 196-201, 2017
4. A.H. Abdullah, S.A. Shukor, M.S. Kamis, A.Y.M. Shakaff, A. Zakaria, N. Abdul Rahim, S.M. Mamduh, K. Kamarudin, F.S.A. Saad, M.J. Masnan, H. Mustafa, "Calibration of an electronic nose for poultry farm", Pages 1, 2017

2016

1. K. A. A. Aziz, A. F. Salleh, N. Abdul Rahim, M. H. M. Som, H. Sakeran, "Influence of Synchronized Dead Point Elimination Crank on Cyclist Muscle Fatigue", 2nd International Conference on Green Design and Manufacture (IConGDM 2016), Pages 1-6, 2016

2015

1. N. Abdul Rahim, Paulraj M.P., A.H. Adom, S.A.A. Shukor and M.H. Masnan, "Multi-Classifer System for Moving Vehicles Noise Classification based on K-Nearest Neighbor", Proceeding of the 2015 International Symposium on Advanced Engineering (ISAE 2015) – **Best Paper Award**
2. A.H. Abdullah, A.H. Adom, A.Y.M. Shakaff, M.J. Masnan, A. Zakaria, N.A. Rahim, O. Omar, "Classification of Malaysia Aromatic Rice using Multivariate Statistical Analysis", International Conference on Mathematics, Engineering and Industrial Applications 2014 (ICoMEIA 2014).

2014

1. Tan Hui Ling, S Ahmad Faizal, Norasmadi Abdul Rahim, Wan Mohd Zuki, "Feature Extraction of Knee Joint Vibroarthrographic (VAG) Signal Using Statistical Means", Applied Mechanics and Materials, Pages 832-835, November 2014 (ISSN: 1662-7482).
2. Mohamad Asyraf Faris Abdol Aziz, Ahmad Faizal Salleh, Sukhairi Sudin, Fezri Aziz, Ali Yeon Mohamad Shakaff, Mohammad Shahril Salim, Norasmadi Abdul Rahim, "Athlete overtraining monitoring system", Proceedings of the International Colloquium on Sports Science, Exercise, Engineering and Technology 2014 (ICoSSEET 2014), Pages 209-217.

3. M.H.M. Razali, N. Azmi, A. Zakaria, L.M. Kamarudin, S.M. Mamduh, K. Kamarudin, S.A.A. Shukora, A.Y.M. Shakaff, N. Abdul Rahim, F.S.A. Saad, "Sound Analyser for Bioacoustic Monitoring System using LabVIEW", 2014 International Conference on Computer, Communications, and Control Technology (I4CT), Pages 434-437.
4. R. Visvanathan, S. M. Mamduh, K. Kamarudin, M.H.M. Razali, A.S.A. Yeon, A. Zakaria, L.M. Kamarudin, S.A.A. Shukor, A.Y.M. Shakaff, F.S.A. Saad, N. Abdul Rahim, "Multi Channel Ultrasonic Sensing System for Wall Features Extraction", 2014 2nd International Conference on Electronic Design (ICED), Pages 351-355.

2013

1. N. Abdul Rahim, Paulraj M P, A. H. Adom, "Heterogeneous Multi-Classfier for Moving Vehicle Noise Classification", International Conference on Intelligent System and Control (ISCO'2013), 4-5 Jan 2013, Coimbatore, Tamilnadu, India.
2. N. Abdul Rahim, Paulraj M P, A. H. Adom, "Classification of Moving Vehicle using Heterogeneous Multi-Classifiers", First IEEE International Conference on Innovations in Communication, Information and Computing (ICICIC'13), January, 9-11, 2013 at Sasurie College of Engineering, India.

2012

1. A.H. Ismail, M. Nasir Ayob, Thum Kaihao, Hassrizal H.B., M.S.M Hashim, N. Abdul Rahim, M.S. Muhamad Azmi, M. Azri Aziz, Shahrman A.B., Khairulnizam WAN, "*Investigation of Homogeneous Multi Robots Communication via Bluetooth*", 2012 IEEE Symposium on Computer Applications and Industrial Electronics (ISCAIE2012).
2. N. Abdul Rahim, Paulraj M P, A. H. Adom, S. Sathish Kumar, "*Time-Domain Approach for Moving Vehicle Classification using Homogeneous Multi-Classifiers*", International Conference on Computing Techniques, Embedded Systems and Drives (ICCED2012)
3. N. Abdul Rahim, Paulraj M P, A. H. Adom, S. Sathish Kumar, "*Classification of Moving Vehicle using Homogeneous Multi-Classifiers*", International Conference on Computational Intelligence and Information Technology (ICCIIT2012)
4. N. Abdul Rahim, Paulraj M P, A. H. Adom, S. Sathish Kumar, "*Adaptive Boosting for Moving Vehicle Classification using Knn Classifier*", Regional Economic Development through Science, Technology and ART, (REDSTAR2012).

2011

1. N. Abdul Rahim, Paulraj M P, A. H. Adom, S. Sathish Kumar, "*Neural Network Ensembler for Moving Vehicles Classification*", 2011 Engineering Post Graduate Research Conference (ENGGPOS2011)
2. N. Abdul Rahim, Paulraj M P, A. H. Adom, S. Sathish Kumar, "*Moving Vehicle Noise Classification using Multiple Classifiers*", 2011 IEEE Student Conference on Research and Development (SCoReD2011)
3. I.M. Yassin, M.N. Taib, M.Z.A. Aziz, N.A. Rahim, N.M. Tahir, A. Johari, "*Identification of DC Motor Drive System Model using Radial Basis Function (RBF) Neural Network*", 2011 IEEE Symposium on Industrial Electronics & Applications (ISIEA2011).

2010

1. Norasmadi Abdul Rahim, Paulraj M P, Abdul Hamid Adom, Sathishkumar Sundararaj, "Moving Vehicle Noise Classification using Backpropagation Algorithm" International Colloquium on Signal Processing and its Applications (CSPA 2010).
2. I.M. Yassin, M.N. Taib, N.A. Rahim, M.K.M. Salleh, H.Z. Abidin, "Particle Swarm Optimization for NARX structure selection – Application on DC motor model", 2010 IEEE Symposium on Industrial Electronics & Applications (ISIEA2010).
3. H. Mansor, A.H. Adom, N.A. Rahim, "Development of Swarming Algorithm for Mobile Robots" International Postgraduate Conference On Engineering (IPCE2010).

2009

1. Hamid M.H.A. , Adom A.H. , Rahim N.A. , Rahiman M.H.F. , "Navigation of Mobile Robot using Global Positioning System (GPS) and Obstacle Avoidance System with Commanded Loop Daisy Chaining Application Method", International Colloquium on Signal Processing and its Applications (CSPA 2009).
2. M.H.A. Hamid, A.H. Adom, N.A. Rahim & M.H.F. Rahiman, "Multi-Terrain Mobile Robot in Agricultural Application with GPS Mapping and Obstacle Avoidance System", International Conference on Robotics, Vision, Signal Processing, & Power Applications (RoViSP 2009).

2008

1. Ihsan M. Yassin, Norasmadi A. Rahim and Mohd N. Taib, "NARMAX Identification of DC Motor Model using Particle Swarm Optimization", International Colloquium on Signal Processing and its Applications (CSPA 2008)
2. Mohamad hanif Abd Hamid, Abdul Hamid Adom, mohd Hafiz Fazalul Rahiman, Norasmadi Abdul Rahim, Abu Hassan Abdullah "Autonomous Mobile Robot (AMRSBot) with GPS Navigation and Ultrasonic Obstacle Avoidance System", (BICET2008)

2007

1. M.A.A. Halim, L.J. Jia, A.H. Adom and N.A. Rahim, "System Identification for ARMAX Model via BCLS Method", The First International Conference on Control, Instrumentation and Mechatronics Engineering, 2007 (CIM07)
2. N. Abdul Rahim, M.N. Taib, A.H. Adom and M.A.A. Halim "Nonlinear System Identification for a DC Motor using NARMAX Model with Regularization Approach", The First International Conference on Control, Instrumentation and Mechatronics Engineering, 2007 (CIM07)
3. Azizul Mohamad, Norasmadi Abdul Rahim, Shazmin Aniza Abdul Shukor and Nashrul Fazli Mohd Nasir, "A Review of Fuel Cell Powered Mobile Robots", Conference on Applications and Design in Mechanical Engineering (CADME07), 25-26 October 2007, Kangar, Malaysia
4. Nashrul Fazli Mohd Nasir, Ying Yang, Azizul Mohamad, Norasmadi Abdul Rahim and Ramachandran Nagarajan, "Preliminary Development Artificial Pancreas", International Conference on Engineering and ICT (ICEI-2007)
5. Salleh, Z. Mashor, M.Y. Noor, N.R.M. Aniza, S. Rahim, N.A. Wahab, A.S.W. Noor, S.S.M. Idris, F.M. Hasan, H, "Colour Contrast Enhancement Based on Bright and Dark Stretching for Ziehl-Neelsen Slide Images", Third International Conference on International Information Hiding and Multimedia Signal Processing (IIHMSP 07)

2006

1. N.A. Rahim, M.N. Taib, A.H. Adom and M.Y. Mashor, "*The NARMAX Model for a DC Motor using MLP Neural Network*", International Conference on MAN-MACHINE System 2006 (ICoMMS 2006).

2003

1. N.A. Rahim, M.N. Taib and M.I. Yusof, "*Nonlinear System Identification for a DC Motor using NARMAX Approach*", AsiaSense 2003.

RESEARCH GRANTS

MOSTI SCIENCE FUND

1. Design of an Artificial Intelligent Diagnostic System for Tuberculosis Infection, 9005-00003, Jan 2007-Jan 2009, Co-Researcher, **RM155, 000 – Completed**
2. Development of Ultrasonic Tomographic Imaging Instrument for Measuring Oxygen Transfer Rate in Bioreactor, 9005-00021 / 03-01-15-SF0036, January 2007-January 2009, Co-Researcher, **RM205, 000 – Completed.**

TRANS-DISCIPLINARY RESEARCH GRANT SCHEME (TRGS)

1. A Localisation of Moisture Distribution in Agricultural Silos via RF Signal and Assisted by Deep Learning Algorithm (*Intelligent Machine Learning Technique for Predicting the Moisture Distribution and Provide Quantification Assessment using Deep Convolutional Neural Network*), Co-Researcher, Co-Researcher, **RM145,000**, January 2019 – 31 December 2021 – **In Progress**

LONG TERM RESEARCH GRANT SCHEME (LRGS)

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PROTOTYPE RESEARCH GRANT SCHEME (PRGS)

1. Early Detection System for Indoor Biological and Gas Contaminants, December 2015 – November 2017, Co-Researcher, **RM85,000 - Completed**

FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS)

1. A new multimodal classification-based method for 3D point cloud big data management in heritage building preservation, August 2017 – July 2010, Co-Researcher, **RM69,000 – In Progress**
2. Fundamental Study and Investigation of Intelligent Algorithm for Autonomous Multi-Terrain Mobile Robot Control and Navigation in Large Scale Plantations, 9003-00132, October 2007-April 2010, Leader, **RM100, 000 – Completed.**
3. A Study of An Intelligent Control System for Lower Limb Rehabilitation, 9003-00160, October 2007-April 2010, Co-Researcher, **RM72, 000 – Completed.**

4. Fundamental Study on The Development of Tactile Sensory Aid For Hearing Impaired, June 2008-May 2010, 9003-00186, Co-Researcher, **RM101, 000 – Completed.**
5. Formulation of Image Enhancement and Features Extraction Algorithms For Automated Intelligent Diagnostic System Based On Ziehl-Neelsen Smear For Tuberculosis Infection, January 2007-January 2010, 9003-00092, Co-Researcher, **RM13,500 – Completed**
6. Fundamental of Features Extraction of Leukemia, October 2007-April 2010, 9003-00129, Co-Researcher, **RM100,000 – Completed**
7. Artificial Pancreas Rejection Mechanism, January 2007-January 2009, 9003-00102, Co-Researcher, **RM13,500 – Completed**

EXPLORATORY RESEARCH GRANT SCHEME (ERGS)

1. Memristor based Silicone Brain-Enabling Instantaneous Artificial Neural Network Performing Pattern Recognition, 9010-00029, July 2013-October 2015, Leader, **RM120, 000 – Completed.**

INDUSTRIAL GRANT

1. Attitude Control System Project for Innosat, Sponsor: Astronautics Technology Sdn. Bhd. (ATSB), 9002-00004, August 2006-June 2010, Co-Researcher, **RM118, 000 – Completed.**

UniMAP SHORT TERM GRANT

1. Prediction of Solar Energy and Average Clearness Index at North Malaysia Region, February 2006-February 2007, 9001-00030, **RM10, 000 – Completed**

PANEL EXAMINERS

Doctor of Philosophy (PhD)

1. Chawki Berkai, Non-Linear Features and Feature Selection Algorithms for Speech based Prediction of Body Mass Index (BMI), Universiti Malaysia Perlis, 2017.

Master

1. Siow Lean Thiam, Design and Analysis of Ultrasound Tomography for Imaging of Void Fraction on Composite Pipe, Universiti Malaysia Perlis, 2017.
2. Muhammad Aizat Abu Bakar, Development of Portable Electronic Nose for Monitoring the Atmosphere Hazards in Confined Space, Universiti Malaysia Perlis, 2018.
3. Asyraf Hakimi Bin Abu Bakar, Non-Invasive Jaundice Detection System using Colour Card Technique, Universiti Malaysia Perlis, 2018.
4. Rina Syazwani Bt Zulkafli, A Smart Battery Charging System based on the Depth of Discharged Technique for a Grid-Connected Photovoltaic System, Universiti Malaysia Perlis, 2018.

POSTGRADUATES SUPERVISION

Doctor of Philosophy (PhD)

1. Marni Azira Markom, The Mobile Robot System for Mapping and Localisation Utilising Single Laser Range Finder in Static Environments, **(2018) – Co-Supervisor, Completed.**
2. Abdul Syafiq Abdull Sukor, Abnormality Detection based on Activities of Daily Living in Smart Home Environments, **(2019)- Co-Supervisor, Completed.**
3. Ahmad Nasrul Norali, Development of Real Time Assistive Device for Muscular Disorders Patients using Electromyography (EMG) Signal, **(2020)-Co-Supervisor, Completed**
4. Mohd Hafiez Mohd Razali, Intelligent Bioacoustic Monitoring System: Recognition of Animal Sound using Microphone Array, **Co-Supervisor, In-Progress**
5. Mohd Nazri Abu Bakar, Paddy Diseases Detection and Forecasting System using Multi-Sensors Modalities and Decision Support System, **Co-Supervisor, In-Progress**
6. Hayder Abdulazeez Yousif, Evaluation of Lower Limb Muscles Fatigue during 400-M Running at Different Strategies, **Supervisor, In-Progress**
7. Ooi Boon Pin, An Enhanced Pattern Recognition using Ensemble Methods based on Optimization Algorithm, **Supervisor, In-Progress**

Master

1. Aida Sharmila Wati Binti Wahab, Rekabentuk Sistem Diagnosis Pintar Untuk Penyakit Tuberkulosis Berdasarkan Imej Kahak Ziehl-Neelsen, **(2010) – Co-Supervisor, Completed**
2. Humairah Binti Mansur, Development of Swarming Algorithm for Mobile Robots, **(2014) – Co-Supervisor, Completed**
3. Hayder Abdulazeez Yousif, A Classification of EMG Signal from Masseter and Buccinators Muscles to Control the Directional Movement of Power-Assisted Wheelchair, **(2016), Supervisor, Completed**
4. Nor Shaifuddin Abdul Hamid, Detecting Structural Steel Damage Level using Non-Destructive Vibration Testing, **Co-Supervisor, In-Progress**
5. Wan Mohd Nooriman Wan Yahya, Development of Intelligent Green House Irrigation System using Wireless Sensor Network, **Co-Supervisor, In-Progress**
6. Yallini A/P Selva, Effects of Stability Exercises on 10M Air Rifle Shooting Performance, **Co-Supervisor, In-Progress**

SCIENTIFIC COMMUNITY SERVICES

Technical Program Committees/Reviewer/External Reviewer

1. IEEE Symposium on Industrial Electronics and Applications, ISIEA2012
2. IEEE Business, Engineering & Industrial Applications Colloquium, BEIAC2013
3. IEEE Symposium on Business, Engineering & Industrial Applications, ISBEIA2013
4. Journal of Language Research and Evaluation, Springer, 2013
5. IEEE Colloquium on Humanities, Science & Engineering Research, CHUSER2014
6. International Colloquium on Science and Technology, ICOST2014
7. IEEE Student Conference on Research and Development (SCoReD), 2014,2015

8. The 8th International Conference on Signal Processing Systems, ICSPS2016
9. International Conference on Signal Processing Systems (ICSPS), 2018,2019,2020

AWARDS

No	Project	Medal	Award	Year
1	Design and Development of a Multi-Terrain Mobile Robot for Oil Palm Estate Applications	Bronze	UniMAP	2007
2	Process Tomography Imaging Sensor	Gold	UniMAP	2008
3	Process Tomography Imaging Sensor	Gold	MTE	2008
4	Autonomous Mobile Robot Surveillance (ARMSBot)	Bronze	UniMAP	2008
5	An Intelligent Gesture to Voice Communication System for Hearing Impaired	Gold	UniMAP	2009
6	An Intelligent Sign Language to Voice Communication System for Hearing Impaired	Gold	ITEX	2010
7	An Early Detection of Basal Stem Rot (BSR) Disease in Oil Palm Trunk using Intelligent Autonomous Robot	Bronze	MTE	2011
8	Low Cost SMS-based Car Security System	Bronze	MTE	2011
9	Nurse Following Robot: An Automated Robust Nurse Following Robot by Enhance High-Speed Vision System with Sensor Integration for Dynamic Human Tracking and Obstacle Avoidance	Silver	UniMAP	2012
10	ChicSense : Malodour Monitoring System	Gold	BIS	2013
11	NYSIS: Natural Intel Indoor Air Purifier	Bronze	BIS	2013
12	Aromatic Rice classification System (ARCSys)	Gold	UniMAP	2014
13	Aromatic Rice classification System (ARCSys)	Silver	MTE	2014
14	HAZSens: Web-Based Machine Olfaction System for Atmospheric Hazards	Silver & Special Award	IENA	2014
16	Occupational Noise Exposure Monitoring for Manufacturing Industries	Silver	EREKA	2016
17	Lighting System based on the Human Presence	2 nd Place	TGL-CTREST	2017
	IOT-ACT: An IOT-based Air Conditioning Control for Thermal Comfort	Silver	EREKA	2018