Dr. Norasmadi bin Abdul Rahim
Associate Professor

ADDRESS

Mechatronic Engineering Programme,
Faculty of Electrical Engineering Technology,
Universiti Malaysia Perlis,
Pauh Putra Campus
02600 Arau, Perlis, MALAYSIA

EDUCATION

PhD in Mechatronic Engineering
Universiti Malaysia Perlis, 2015
Pattern Recognition and Signal Processing

MSc in Electrical Engineering
Universiti Teknologi MARA, 2005
Advanced Signal Processing and System Identification

B.Eng (Hons) in Electrical Engineering (Power)
Universiti Teknologi MARA, 2002
Power System and Fuzzy Logic Control

WORK EXPERIENCE

Associate Professor, Universiti Malaysia Perlis
2021–Current
Senior Lecturer, Universiti Malaysia Perlis
2015–2021
Mechatronic Head of Program, Universiti Malaysia Perlis
2008–2009
Lecturer, Universiti Malaysia Perlis
2005–2014
Teaching Engineer, Universiti Malaysia Perlis
2004–2005

CONTACT

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PROFILE

Dr. Norasmadi leads and defines projects around pattern recognition, advanced signal processing and system identification at Universiti Malaysia Perlis (UniMAP). His work focuses on the design and development of an intelligent system in order to interact with the real-world problem. Norasmadi completed his PhD in 2015 on intelligent techniques to recognize an acoustic signal based on pattern recognition (Ensemble Methods). He has authored and co-authored more than 70 research works (journals, book chapters, conference papers) and served as organizing committee for numerous national and international conferences.

RESEARCH PROFILE

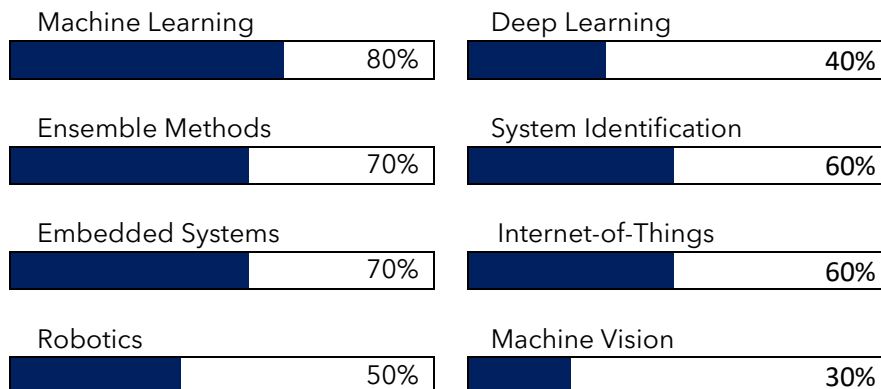| Research Paper	Cumulative Impact Factor	Graduated Students	Active Students
77	8.308	9	8

Journals	Conferences	Book Chapters	Awards
27	48	2	26

	No. of Paper	*H*-index	No. of Citation
Scopus	51	11	246
Google	77	14	510

*updated 10 September 2021

Cumulative Impact Factor (CIF)	Total	Q1	Q2	Q3	Q4
8.308	5	1	3	-	1

RESEARCH SKILLS

Machine Learning — 80%

Deep Learning — 40%

Ensemble Methods — 70%

System Identification — 60%

Embedded Systems — 70%

Internet-of-Things — 60%

Robotics — 50%

Machine Vision — 30%

TEACHING

Undergraduate Course:
1. Microprocessor
2. Microcontroller and Interfaces
3. Fundamental of Electrical Engineering
4. Analog Electronics
5. Embedded System Design and Applications
6. Embedded System and Interfacing
7. Digital Electronics
8. Digital Logic Design

PROFESIONAL ASSOCIATIONS

1. Board of Engineers Malaysia (BEM) – **65984A**
2. Malaysia Board of Technologist (MBOT) – **GT18051436**
3. SCIence and Engineering Institute (SCIEI) – **20120705001**
4. International Association of Engineers (IAENG) – **109829**
5. International Association of Computer Science and Information Technology (IACSIT) – **80350254**

POSTGRADUATE SUPERVISION

Graduated Postgraduate	Main Supervisor	Co- Supervisor
Doctor of Philosophy (PhD)	1	3
Master of Science (MSc)	1	4

Registered Postgraduate	Main Supervisor	Co- Supervisor
Doctor of Philosophy (PhD)	1	4
Master of Science (MSc)	-	3

Graduated PhD Postgraduate:

1. Hayder Abdulazeez Yousif Al-Yasari (**Main SV** - **2020**) – Evaluation of Lower Limb Muscles Fatigue in 400-Meters Sprinting using Three Pacing Strategies based on sEMG Signal
2. Ahmad Nasrul Norali (**Co-SV - 2020**) – Classification of Human Breathing Activity based on Electromyography Signal of Respiratory Muscles
3. Abdul Syafiq Abdull Sukor (**Co-SV - 2019**) – Context-aware Activity Recognition and Abnormality Detection Approaches in Smart Home Environments
4. Marni Azira Markom (**Co-SV - 2018**) – The Mobile Robot System for Mapping and Localisation Utilising Single Laser Range Finder in Static Environments

Graduated MSc Postgraduate:

1. Yallini A/P Selva (**Co-SV - 2020**) – Effect of Stability Exercises on 10M Air Rifle Shooting Performance
2. Anwar Mohammed Ali (**Co-SV - 2019**) – Smart Room Thermal Comfort Control using Fuzzy Inference System
3. Hayder Abdulazeez Yousif Al-Yasari (**Main SV - 2016**) – A Classification of EMG Signal from Masseter and Buccinators, Muscles to Control the Directional Movement of Power-Assisted Wheelchair
4. Humairah Mansor (**Co-SV - 2013**) – Development of Swarming Algorithm for Mobile Robot
5. Aida Sharmila Wati Binti Wahab (**Co-SV - 2010**) – Design of an Artificial Intelligent Diagnostic system for Tuberculosis Infection

Registered PhD Postgraduate:

1. Ooi Boon Pin (**Main SV**) - Hybrid Ensemble Model to Solve Small Sample-Sized Classification Problems
2. Mohd Hafiez Mohd Razali (**Co-SV**) - Intelligent Bioacoustic Monitoring System: Recognition of Animal Sound using Microphone Array
3. Mohd Nazri Abu Bakar (**Co-SV**) - Quality Measurement of Mango for Grading Standards using Multi Sensor Modalities and Decision Support System
4. Mustafa Mahmood Sabry (**Co-SV**) - 3D Computed Tomography Analysis using Deep Learning
5. Erdy Sulino Muslim Tan (**Co-SV**) - Soil NPK Nutrition Prediction using Machine Learning Techniques for Each Phenology Harumanis Mango Grown

Registered MSc Postgraduate:

1. Wan Mohd Nooriman Wan Yahya (**Co-SV**) - Development of Intelligent Green House Irrigation System using Wireless Sensor Network
2. Muhammad Ammar Asyraf Che Ali (**Co-SV**) - Optimisation of Stingless Beehive Conditions and Corresponding Parameters Utilising IoT and Machine Learning for Improved Honey Production
3. Azarul Fahmin Ab Hamid (**Co-SV**) - Connected Car: Predictable and Analytical Vehicle System Diagnostic with Internet of Things

UNDERGRADUATE SUPERVISION

Graduated:

1. Lee Chee Ling (**2020**) – Pathology Voice Recognition based on Machine Learning Approach
2. Teoh Shi Lin (**2020**) – Development of a Secured Laboratory Access System based on Face Recognition
3. Muhammad Amir Harith Abdul Jalil (**2020**) – Embedded Fuzzy Logic Controller based Irrigation System for Harumanis Mango
4. Danial Aiman Sukarno (**2020**) – Development of Excess Noise Monitoring System based on 1/3 Octave Filter Bank
5. Mooi Tah She (**2019**) – Fatigue Classification for 400-Meter Running based on Data Transformation Method
6. Lee Weng Yau (**2019**) – Harumanis Index Level Identification based on Colour Image Processing Method
7. Abdulmalik Mohamed Almubark Ahmed Ibrahim Altash (**2019**) – Identification of Iqra' Recitation based on The Domain Analysis
8. Lau Chuan Ping (**2019**) – An Intelligent Desk Lamp for Eye Comfort using Fuzzy Logic Controller
9. Tan Kean Tai (**2018**) – Sudden Cardiac Arrest Prediction based on Electrocardiogram (ECG) Signals Morphology
10. Muhammad Nur Amin Hamid (**2018**) – A Study of Excess Noise Emanating form Hammer Mill Machine based on 1/3 Octave Filter Bank
11. Lai Jiunn Chyuan (**2018**) – Accelerometer-based Personalized Gesture Recognition for Mobile Robot Application
12. Muhammad Ariff Ashraf Abdul Hamid (**2017**) – Knock Pattern Recognition for Home Automation
13. Norsyahmi Mohd Zahir (**2017**) – Classification of Knee Joint Vibroarthrographic (VAG) Siganl based on Support Vector Machines
14. Kang Wei Yu (**2017**) – An Enhanced Random Subspace Ensemble Method using Genetic Algorithm Approach
15. Jayaganes A/L R Viswanathn (**2017**) – A Study of Soft Independent Modelling of Class Analogy (SIMCA) Classifier for Multi-Class Application

16. Yasmin Suraya Zamre (**2017**) – Door Access Control System based on Voice Biometric Authentication

Registered

1. Omar Qaiyyum Mohammad Aslahuddin (2021) – Voice Disorder Classification based on 1/3 Octave Filter Bank
2. Abdul Fadhil Alias (2021) – Paddy Fields Fungus and Bacteria Early Prediction based on Embedded Fuzzy Logic
3. Teng Keat Fei (2021) – A Study of Random Weight Neural Network in Classifier Ensemble Model

PANEL EXAMINERS

Degree	Internal	External
Doctor of Philosophy (PhD)	1	-
Master of Science (MSc)	4	-

1. Chawki Berkai, Non-Linear Features and Feature Selection Algorithms for Speech based Prediction of Body Mass Index (BMI), Universiti Malaysia Perlis, 2017 (**Internal-PhD**).
2. Siow Lean Thiam, Design and Analysis of Ultrasound Tomography for Imaging of Void Fraction on Composite Pipe, Universiti Malaysia Perlis, 2017 (**Internal-MSc**).
3. Muhammad Aizat Abu Bakar, Development of Portable Electronic Nose for Monitoring the Atmosphere Hazards in Confined Space, Universiti Malaysia Perlis, 2018 (**Internal-MSc**).
4. Asyraf Hakimi Abu Bakar, Non-Invasive Jaundice Detection System using Colour Card Technique, Universiti Malaysia Perlis, 2018 (**Internal-MSc**).
5. Rina Syazwani Zulkafli, A Smart Battery Charging System based on the Depth of Discharged Technique for a Grid-Connected Photovoltaic System, Universiti Malaysia Perlis, 2018 **Internal-** (**MSc**).

PROFESSIONAL DEVELOPMENT ACTIVITIES

1. Judge Panel at Politeknik Sultan Abdul Halim Mu'adzam Shah for the National Innovation and Invention Competition through Exhibition **2021** (iCompEx2021)
2. Judge Panel at Universiti Malaysia Perlis for Virtual Expo of Innovation Product and System Design **2020** (ViDE2020)
3. Judge Panel at Politeknik Sultan Abdul Halim Mu'adzam Shah for the National Innovation and Invention Competition through Exhibition **2020** (iCompEx2020)
4. Judge Panel at the National Robotic Competition (NRC) for Open Category (Upper Secondary School) (**2019**)
5. Invited Speaker and Facilitator at Kolej Matrikulasi Perlis for Robotic Workshop (**2019**)
6. Speaker at Kedah Industrial Skills and Management Development Centre (KISMEC) for Long Range (LoRa) Transceiver and Internet of Things (IoT) (**2018**)
7. Invited Speaker and Facilitator at Kolej Matrikulasi Perlis for Robotic Workshop (**2018**)
8. Invited Speaker at Mechatronic Laboratory, Mie University, Japan for Internet-of-Things (IoT) Workshop (**2017**)

RESEARCH GRANTS

Active Grant (Total = RM520,130):

No.	Title	Grant	Duration	Status	Amount
1	Research & Development of "Local Community Online Marketplace – LoCoMART"	Uni PRIMA	2021-2023	Leader	RM50,000
2	Computer Vision based Pest Control in Smart Farming	Uni PRIMA	2021-2023	Member	RM20,000
3	New Ensemble Classifier Algorithm Incorporating Deep Learning Dropout Approach for Small Sample-Sized Problems	FRGS	2020-2022	Leader	RM66,680
4	Optimisation of Stingless Bee Hive Conditions and Corresponding Parameters Utilising IoT and Machine Learning for Improved Honey Production	FRGS	2020-2022	Member	RM79,000
5	Design and Development of an Automatic Waterjet Fruit Peeling and Cutting Machine	Uni PRIMA	2020-2022	Member	RM30,000
6	Intelligent Machine Learning Technique for Predicting the Moisture Distribution and Provide Quantification Assessment using Deep Convolutional Neural Network	TRGS	2019-2022	Member	RM145,000
7	Formulation of Microgrid Energy Management of Energy Internet Using Fuzzy Based Model Predictive Control	FRGS	2019-2021	Member (UMP)	RM60,450
8	A New Multimodal Classification-based Method for 3D Point Cloud Big Data Management in Heritage Building Preservation	FRGS	2017-2020	Member	RM69,000

Completed Grant (Total = RM966,000):

No.	Title	Grant	Duration	Status	Amount
1	Design of an Artificial Intelligent Diagnostic System for Tuberculosis Infection	Sc Fund	2007-2009	Member	RM155,000
2	Development of Ultrasonic Tomographic Imaging Instrument for Measuring Oxygen Transfer Rate in Bioreactor	Sc Fund	2007-2009	Member	RM205,000
3	Fundamental Study and Investigation of Intelligent Algorithm for Autonomous Multi-Terrain Mobile Robot Control and Navigation in Large Scale Plantations	FRGS	2007-2009	Leader	RM100,000
4	A Study of An Intelligent Control System for Lower Limb Rehabilitation	FRGS	2007-2009	Member	RM72,000
5	Attitude Control System Project for Innosat	ATSB	2006-2010	Member	RM118,000
6	Fundamental Study on The Development of Tactile Sensory Aid for Hearing Impaired	FRGS	2008-2010	Member	RM101,000
7	Memristor based Silicone Brain–Enabling Instantaneous Artificial Neural Network Performing Pattern Recognition	ERGS	2013-2015	Leader	RM120,000

8	Early Detection System for Indoor Biological and Gas Contaminants	PRGS	2015-2017	Member	RM85,000
9	Prediction of Solar Energy and Average Clearness Index at North Malaysia Region	STG	2006-2007	Member	RM10,000

INDUSTRIAL COLLABORATIONS AND RESEARCH CONSULTATIONS

1. Collaboration on Ground Penetrating Radar at Agency Nuclear Malaysia (Scope: Artificial Intelligence) (**2021**)
2. Collaboration on the Design and Development of Automatic Waterjet Fruit Peeling and Cutting Machine at Walta Engineering Sdn. Bhd. (**2020**) – *Funded* (**RM30,000**)
3. Collaboration on the Design and Development of Fully Integrated IR4.0 Manufacturing Line for Surgical Blades at PGMedic (M) Sdn. Bhd. (**2020**)
4. Research Collaboration for a Study Lower Limb Muscle Effect for High Jump and 400-M Sprinting at Majlis Sukan Negeri Perlis (**2018**)
5. Research Consultant for Blades Manufacturing Processes: Robotics for Rod Pick and Place at Walta Engineering Sdn. Bhd. (**2017-2018**)
6. Research Consultant for Machine and Environmental Noise Testing at Peneraju Hijau Sdn. Bhd. (**2016**)

SCIENTIFIC COMMUNITY SERVICES

Program Committees:

1. **Webmaster**, International Virtual Expo of Innovation Product and System Design 2021 (In-ViDE2020)
2. **Webmaster**, International Conference on Man Machine Systems (ICoMMS2021)
3. **Webmaster**, Virtual Expo of Innovation Product and System Design 2020 (ViDE2020)
4. **Technical**, International Conference on Man Machine Systems (ICoMMS2019)
5. **Secretariat**, International Conference on Man Machine Systems (ICoMMS2017)
6. **Secretariat and Webmaster**, The 11th Asian Conference on Chemical Sensor (ACCS2015)

Reviewer (Journal):

1. Computers in Biology and Medicine (**2021**)
2. Pervasive and Mobile Computing (**2020**)
3. Digital Signal Processing (**2017,2018,2019,2020,2021**)
4. Measurement and Control (**2017,2018**)
5. Computers and Electronics in Agriculture (**2017**)
6. Language Research and Evaluation (**2013**)

Reviewer (Conference):

1. International Conference on Signal Processing Systems (ICSPS) (**2016,2018,2019,2020**)
2. International Conference on Man Machine Systems (ICoMMS)(**2017,2019,2021**)
3. International Conference on Biomedical Engineering (ICoBE)(**2019, 2021**)
4. Malaysian Technical Universities Conference on Engineering and Technology (MUCET)(**2017**)
5. IEEE Student Conference on Research and Development (SCoReD) (**2014,2015**)
6. International Colloquium on Science and Technology (ICOST)(**2014**)
7. IEEE Colloquium on Humanities, Science & Engineering Research (CHUSER)(**2014**)
8. IEEE Symposium on Business, Engineering & Industrial Applications (ISBEIA)(**2013**)

9. IEEE Business, Engineering & Industrial Applications Colloquium (BEIAC)(**2013**)
10. IEEE Symposium on Industrial Electronics and Applications (ISIEA)(**2012**)

AWARDS

University Awards:

1. Anugerah Perkhidmatan Cemerlang – **2008**
2. Anugerah Perkhidmatan Cemerlang – **2017**

Competition 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
15	Occupational Noise Exposure Monitoring for Manufacturing Industries	Silver	EREKA	2016
16	Lighting System based on the Human Presence	2nd Place	TGL-CTREST	2017
17	IOT-ACT: An IOT-based Air Conditioning Control for Thermal Comfort	Silver	EREKA	2018

18	Smart Manufacturing: Voice Controlled Automation	1st Place	VINDREC	2018
19	IOT Monitoring System for Effective Harvesting of Stingless Bee Honey	Gold and Best Award	ViDE2020	2020
20	A Cascade Hyperbolic Recognition using Hybrid Feature Extraction in Subsurface Mapping	Bronze	EREKA	2021
21	HA^{2}MS: Honey Harvesting Monitoring System	Silver	EREKA	2021
22	A Cascade Hyperbolic Recognition using Hybrid Feature Extraction in Subsurface Mapping	Gold	iPerlis	2021

PUBLICATIONS

Journal:

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]

2. 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)**

3. 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)**

4. H.A. Yousif, N. Abdul Rahim, A.F. Salleh, A. Zakaria, K.Alfarhan, "Assessment of Muscles Fatigue during 400-Meters Running Strategies Based on the Surface EMG Signals", Journal of Biomimetics, Biomaterials and Biomedical Engineering, Vol. 42, Pages 1-13, **2019**

5. H.A. Yousif, N. Abdul Rahim, A.F. Salleh, A. Zakaria, "Evaluation of Lower Limb Muscles Fatigue and Force during Running 400-Meters Using Learning Machine", Journal of Biomimetics, Biomaterials and Biomedical Engineering, Vol. 43, Pages 39-53, **2019**

6. 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, Pages111-116, **2018**

7. 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**

8. 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**

9. 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**

10. 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 (JTEC), Vol. 10, No. 1-6, Pages 171-175, **2018**

11. 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**

12. 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**

13. 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**

14. 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**

15. 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**

16. N. Abdul Rahim, MP Paulraj, A.H. Adom, S.A. Abdul Shukor, M.J. Masnan, "Homogeneous Multi-Classifier 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)**

17. 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)**

18. 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)**

19. 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**

20. 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.

21. N. Abdul Rahim, Paulraj M P and A.H. Adom, "Classification of Moving Vehicles using Multi-Classifier with Time-Domain Approach", International Journal of Computer Applications, Volume 71, No. 1, Pages 12-17, June **2013** (ISSN: 0975–8887).

22. 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).

23. 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)

24. 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).

25. 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**.

26. 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)
27. 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:

1. H.M. Radzi, A.F. Salleh, N. Abdul Rahim, M.S. Salim, N. Omar, H. Sakeran, S.K. Nair, "Effect of Strength and Conditioning Trainings on Lower Limb Muscles Activity of High-Jumping Athletes, Intelligent Manufacturing and Mechatronics, Lecture Notes in Mechanical Engineering book series (LNME) , Springer, Pages 1127-1135, **2021**
2. M.N. Abu Bakar, A.H. Abdullah, N. Abdul Rahim, H. Yazid, F.S.A. Saad, K. Ahmad, "Development of Ripeness Indicator for Quality Assessment of Harumanis Mango by using Image Processing Technique", IOP Conference Series: Materials Science and Engineering, Vol. 932, Issue 1, **2020**
3. 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**
4. 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**.
5. H.A. Yousif, A. Zakaria, N. Abdul Rahim, A.F. Salleh, M. Mahmood, K.A. Alfarhan, L.M. Kamarudin, S.M. Mamduh, A.M. Hasan and M.K. Hussain, "Assessment of Muscles Fatigue Based on Surface EMG Signals Using Machine Learning and Statistical Approaches: A Review",IOP Conference Series: Materials Science and Engineering, Vol. 705, Issue 1, Pages 1-8 , **2019**
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