

Curriculum Vitae

Ahmad Shahrizan Abdul Ghani, PhD
Graduate Engineer (BEM)

Innovative Manufacturing, Mechatronics, and Sports Lab (IMAMS)
Faculty of Manufacturing Engineering,
Universiti Malaysia Pahang,
Malaysia.

Tel: (+60) 019 633 9803
e-mail: shahrizan29@yahoo.de
shahrizan@ump.edu.my



Working experience

2016-now: Lecturer - University Malaysia Pahang (UMP), Pahang, Malaysia. Innovative Manufacturing, Mechatronics, and Sports Lab (IMAMS), Faculty of Manufacturing Engineering.

2013: Industrial Attachment: Assistant to Software Engineer, Vitrox Corporation Bhd., Penang, Malaysia. Printed Circuit-Board Assembly (PCA) - Develop algorithm to enhance contrast and restore x-ray image for Automated X-Ray Inspection (AXI) machine. Testing the PCA board, get the projection image.

2009-2016: Lecturer - TATI University College (TATIUC), Terengganu, Malaysia. Faculty of Electrical and Automation Engineering Technology.

2008: Dissertation at University of Applied Sciences Augsburg, Germany - "High Efficiency Constant Current Source for High Power LED" - SOLUX e.V.

2008: Employee at ABB Service GmbH Bobingen, Germany. Employee of a project Nuclear Power Station (in Finland) together with the company Areva from France in the section Material/Quality Test (Project management).

2007: Internship at AUTEFA Automation GmbH, Germany - Process Design and Control/Instrumentation - Automation and Visualization, Programmable Logic Control (PLC) - Simatic Step 7

2006: Internship at Burgmann Industrie GmbH Co. & KG, Germany

2003: Pre-Practical at German-Malaysian Institute (GMI), Kuala Lumpur

Education Background

2015: Universiti Sains Malaysia (USM), Penang, Malaysia - PhD: Image Processing and Computer Vision System

2009: University of Applied Sciences Augsburg, Germany - Master of Engineering in Mechatronics.

2003: Georg-Simon-Ohm Hochschule Nürnberg, Germany - Technical German Language Course

2003: German-Malaysia Institute (GMI), Kuala Lumpur - A-Level Cambridge, Test Deutsch als Fremdsprache (TestDaf)

2000: Mara Junior Science College (MRSM) Muadzam Shah, Pahang.

Areas of Expertise & Teaching Subjects

- Automation, Pneumatics and Hydraulics, Electro-pneumatic/hydraulic, Sensors, Instrumentation and Actuators
- Automation, Industry Robot, KUKA Robot/YASKAWA
- Automation, Programmable Logic Controller (PLC)
- Electrical Technology & Electronics, Electrical Components & Devices
- Image Processing, Underwater Image Processing, Enhancement
- Fluid Drive System (Pneumatic & Hydraulic)
- Mechatronics System
- Sensors and Instrumentation Systems

Interest

- Image processing / Vision System
- Arduino/Raspberry/National Instrument (NI) MyRio application
- Application/Simulation Software - Computer Aided Engineering / Design Software (CAE & CAD)
- PLC and automation
- Photovoltaic, sustainable and regenerative energy
- Repair and installation of electrical devices

Areas of Research Interest

- Color image processing / Underwater image
- Computer vision system, Intelligent System
- Object tracking, detection/recognition
- High Efficiency Constant Current Source
- Mobile Robot
- Mechatronics, Sensors and Instrumentation System
- Automation, Pneumatic/Hydraulic/Programmable Logic Controller

Research Grant / Current Research Area

- Development of Multi-Vision guided obstacle avoidance system for ground vehicle.
- Automatic vision-based system for detection and classification of harmful algae.
- Vehicle Locator System for Multi-Storage Car Park Management (University Research Grant: RDU1703159). 06/2017 - 06/2019. - Member
- Dual Image Fusion Technique for Enhancement of Underwater Image Contrast (University Research Grant: RDU170392) (15/05/2017 - 14/05/2019) - Principle Leader
- Laser thickness measuring system for thin strip alloy (University Research Grant: RDU170390) (25/05/2017 - 24/05/2019) - Member
- The Development of an Intelligent Hybrid Active Force Controller for Upper-Limb Exoskeleton (University Research Grant: RDU160375) (15/06/2016 - 14/06/2018) - Principle Leader
- Elucidation of Light Attenuation in Water Medium for Enhancement of Underwater Image Contrast and Color. Ministry of Higher Education - Fundamental Research Grant Scheme (FRGS). Ref: FRGS/1/2015/TK04/TATI/02/1 (02/11/2015 - 31/08/2016) - Principle Leader
- Elucidation of Light Attenuation in Water Medium for Enhancement of Underwater Image Contrast and Color. Fundamental Research Grant Scheme (FRGS). Ref: FRGS/1/2015/TK04/TATI/02/1 (01/09/2016 - 01/11/2017) - Member

Reviewer

- 2017 - Elsevier: Applied Soft Computing Journal, June 2017.
- Institute of Engineering Technology (IET) Image Processing - ScholarOne. May, July 2017.
- Elsevier - International Journal of Ocean Engineering. May 2017.
- International Conference on Soft Computing in Data Science (SCDS2017). July 2017.
- International Journal of Engineering Research & Technology (IJERT). April, May, July, Sept. 2017.
- 2016 - Elsevier - International Journal of Electronics and Communications. November 2016.
- Springer - Journal of Ocean University of China. September 2016.
- International Conference on Engineering Technology (ICET 2016). 06-07 August 2016. Kemaman, Malaysia.
- Elsevier - International Journal of Ocean Engineering. June 2016.
- *International Conference on Soft Computing in Data Science (SCDS)*. 21-22 September 2016. Kuala Lumpur.
- Elsevier Journal of Computers and Electronics in Agriculture. Mac 2016.
- 2015 - *International Conference on Soft Computing in Data Science (SCDS)*. 2-3 September 2015. Putrajaya, Malaysia.
- *International Conferences on Electrical, Control and Computer Engineering (InECCE2015)*. ARPN Journal of Engineering and Applied Sciences (Scopus index). 27-28 October 2015. Kuantan, Malaysia.

List of Journal

- **A.S Abdul Ghani** and N. A. Mat Isa. Image Contrast Enhancement using Integration of Recursive-overlapped CLAHS and Dual-Images Wavelet Fusion for High Visibility of Deep Underwater Image. *Elsevier: Ocean Engineering Journal*. - under review
- A.Fakhri A. Nasir, M. Nordin A. Rahman, Nashriyah Mat, A. Rasid Mamat, **A.S. Abdul Ghani**. 2017. Ficusdeltoidea (Jack) Moraceae Varietal Identification Using Statistical Recognition Approach. *World Appl. Sci. J.*, 35 (New Advancement of Research & Development in Computer Science): 82-88, 2017. (Scopus) DOI: 10.5829/idosi/wasj.2017.82.88
- **A.S. Abdul Ghani** and N.A. Mat Isa. 2017. Automatic System for Improving Underwater Image Contrast and Color through Recursive Adaptive Histogram Modification. *Computer and Electronics in Agriculture* 141, (2017). Pp. 181-195. (ISI) IF: 2.201 - <https://doi.org/10.1016/j.compag.2017.07.021>.
- R. S. N. A. Raja Aris, **A. S. Abdul Ghani**, M. L. Muhd Zain. 2016. The Enhancement of Variable Speed Brushless DC Motor Using Neural Network. *Indian Journal of Science and Technology (INDJST)*. Vol 9(14), DOI: 10.17485/ijst/2016/v9i14/88728 (Q1) Impact Factor: 1.30
- M. F. Abu Hassan, S. A. Suandi, **A. S. Abdul Ghani**, R. Dhanesh, A. Radman. 2016. Enhancement of Under-Exposed Image for Object Tracking Algorithm through Homomorphic Filtering and Mean Histogram Matching. Published in *Advanced Science Letters (ASL)*. (Scopus) Impact Factor: 0.14
- **A.S. Abdul Ghani**, N. A. Mat Isa. 2015. Homomorphic Filtering with Image Fusion for Enhancement of Details and Homogeneous Contrast of Underwater Image - Special Issue. *Indian Journal of Geo-Marine Sciences (IJMS)*. Vol 44(12), pp. 1904-1919 (ISI-Q4). <http://nopr.niscair.res.in/handle/123456789/34939>. Impact Factor: 0.316
- **A.S. Abdul Ghani**, R.S.N.A. Raja Aris, M.L. Muhd Zain. 2015. Unsupervised Contrast Correction for Underwater Image Quality Enhancement through Integrated-Intensity Stretched-Rayleigh Histograms. *International Conference on Machine Learning and Signal Processing (MALSIP)*. 15-17 December 2015, Melaka, Malaysia. Published in *Journal of Telecommunication, Electronic and Computer Engineering (JTEC)*. Vol. 8, No. 3. Print ISSN 2180-1843, eISSN No. 2289-8131. Scopus (Q4).
- **A.S. Abdul Ghani** and N.A. Mat Isa. 2015. Enhancement of Low Quality Underwater Image through Integrated Global and Local Contrast Correction. *Elsevier: Applied Soft Computing Journal*. December 2015. Vol. 37, pp. 332-344. doi: [10.1016/j.asoc.2015.08.033](https://doi.org/10.1016/j.asoc.2015.08.033) (ISI-Q1) Impact Factor: 3.541

- **A.S. Abdul Ghani** and N.A. Mat Isa. 2014. Underwater Image Quality Enhancement through Composition of Dual-Intensity Images and Rayleigh-stretching. December 2014, *SpringerPlus* 2014, 3:757, (Q2) IF: 0.982. doi:10.1186/2193-1801-3-757
- **A.S. Abdul Ghani** and N.A. Mat Isa. 2014. Underwater Image Quality Enhancement through Integrated Color Model with Rayleigh distribution. *Elsevier: Applied Soft Computing Journal*. November 2014. Vol. 27, pp. 219-230. doi:10.1016/j.asoc.2014.11.020 (ISI-Q1) Impact Factor: 3.541
- **A.S. Abdul Ghani** and N.A. Mat Isa. 2014. Underwater image quality enhancement through Rayleigh-stretching and averaging image planes. *International Journal of Naval Architecture and Ocean Engineering*. 6(4). doi: 10.2478/ijnaoe-2013-0217 (Scopus-Q2) Impact Factor: 0.606

List of Conference and Proceeding

- **A.S. Abdul Ghani**, A.F.Ab. Nasir, W.F. Wan Tarmizi. 2017. Integration of Enhanced Background Filtering and Wavelet Fusion for High Visibility and Detection Rate of Deep Sea Underwater Image of Underwater Vehicle. The 5th International Conference on Information and Communication Technology (IColCT 2017). 17-19 May 2017, Malacca, Malaysia. Pp. 220-225. Scopus indexed.
- M. F. Abu Hassan, S. A. Suandi, **A. S. Abdul Ghani**, R. Dhanesh, A. Radman. 2016. Enhancement of Under-Exposed Image for Object Tracking Algorithm through Homomorphic Filtering and Mean Histogram Matching. International Conference on Computational Science and Engineering 2016 (ICCSE2016). 28-30 November 2016, Kota Kinabalu, Malaysia.
- **A.S. Abdul Ghani**, R.S.N.A. Raja Aris, M.L. Muhd Zain. 2015. Unsupervised Contrast Correction for Underwater Image Quality Enhancement through Integrated-Intensity Stretched-Rayleigh Histograms. International Conference on Machine Learning and Signal Processing (MALSIP). 15-17 December 2015, Melaka, Malaysia. Scopus (Q4).
- **A.S. Abdul Ghani** and N.A. Mat Isa. 2015. Integration of Stretched-Dual-Images and Adaptive Local Histogram specification for Enhancement of Underwater Image Quality. 5th Postgraduate Colloquium of School of Electrical and Electronics Engineering USM. 9-11 February 2015, Kedah, Malaysia. DOI: 10.13140/RG.2.1.5183.3683
- **A.S. Abdul Ghani** and N.A. Mat Isa. 2013. Underwater image contrast enhancement through multilevel histogram modification. 4th Postgraduate Colloquium of School of Electrical and Electronics Engineering USM. 18-20 August 2013, Pangkor Island, Perak, Malaysia. DOI: 10.13140/RG.2.1.2037.6405
- **A.S. A. Ghani** and N.A. M. Isa. 2014. Underwater Image Quality Enhancement through Composition of Dual-Intensity Images and Rayleigh-stretching. IEEE Fourth International Conference on Consumer Electronics. 7-10 September 2014. Berlin. Pp 219-220. doi: 10.1109/ICCE-Berlin.2014.7034265

Supervision

PHD:

- **PhD**, Mohd Azraai Mohd Razman, Elucidation of fish appetite behavior through a hybrid integration of object-group detection and sonar techniques with multi-class support vector machine for automatic classification. April 2017, on going. - Co-supervisor.
- **PhD**, Kamil Zakwan Mohd Azmi, Improvement of blue-green Illumination of underwater image for high visibility quality rate with PSO implementation. April 2017, on going. - Main supervisor.
- **PhD**, Wan Muhammad Syahrir Wan Hussin, Adaptive Fuzzy Contrast Factor Enhancement Integrated Color Model for Producing an Improved Underwater Image Quality. September 2015, on going. - Co-supervisor.

Industrial Bachelor Thesis (Dwi Program UMP-Hochschule Karlsruhe (HsKA)):

- **Industrial Bachelor Thesis** (Dual Degree Bachelor Mechatronic-Hochschule Karlsruhe), Aimi Diyana Abu Othman. Improvement in the Epoxy Application Process for Common Mode Choke Model. TT Electronic Company. October 2016, completed. - University Supervisor.
- **Industrial Bachelor Thesis** (Dual Degree Bachelor Mechatronic-Hochschule Karlsruhe), Usamah Shamsuddin. Implementation of a Quality-focused Organizational Structure through Shop Floor Management. October 2016, completed. - University Supervisor.

Bachelor:

- **Bachelor Mechatronics Engineering**, Yong Zong Wei, Autonomous Mobile Robot Using National Instrument MyRio, 2017, Supervisor - completed.
- **Bachelor Mechatronics Engineering**, Cheow Shek Hong, Development of Electronic Kit for Respiratory for detecting Asthma, 2017, Supervisor - completed.
- **Bachelor Mechatronics Engineering**, Fook Wei Jian, Weather Station Analysis Using Microcontroller with Internet of Thing (IoT), 2017, Supervisor - completed.
- Bachelor Mechatronics, Nur Arif Naquiuddin Bin Busra, Improvement of Face detection method, 2015, completed.
- Bachelor Mechatronics, Muhammad Ashraf Bin Osman, Improved method for enhancement of underwater image contrast, 2015, completed.
- Bachelor Mechatronics, Muhammad Afif Shamsuri, Automatic bulb remover, 2015, complete.
- Bachelor Mechatronics, Muhammad Zikri Hakim Bin Sallehuddin, Wireless controlled mobile robot with android interface, 2015, completed.
- Bachelor Mechatronics, Muhammad Hafizzakwan Bin Mohd Zaid, Small scale automatic fabric cutter, 2015, completed
- Bachelor Mechatronics, Ahmad Zharfan Bin Mohd Nazeri (11B03010), Automated path-finder mobile robot, 2015, completed
- Bachelor Mechatronics, Ahmad Husna Mustapha Kamal, Microcontroller Based Motor Speed Control, 2011, Completed

Diploma:

- Diploma Electrical, Celestine Sigai Usau Anak Christopher and Khairunnizam B. Kamaruzaman, Twin-power light warming controlled barn with temperature sensor, 2015, completed
- Diploma Mechatronics, Curtain System Controlled by Visual Basic, 2010, completed
- Diploma Mechatronics, Automatic Window Blinder, 2010, completed
- Diploma Mechatronics, Power Source by Solar Panel, 2010, completed
- Diploma Mechatronics, Umami & Nurul Amirah, Tamiya Motor Based Biped Walker Robot, 2011, completed