

SALMIAH BT. AHMAD



- KULLIYAH OF ENGINEERING
- IIUM Gombak Campus
- Email address:
salmiah@iium.edu.my

ACADEMIC QUALIFICATION

- Doctor of Philosophy in Automatic Control and Systems Engineering
- Master in Engineering Science (Electrical Engineering)
- Bachelor Degree in Mechatronics

TEACHING RESPONSIBILITIES

CONTROL SYSTEMS	2012/2013 2019/2020 2020/2021
ENGINEERING INDUSTRIAL TRAINING	2011/2012 2012/2013
INSTRUMENTATION AND AVIONICS	2019/2020 2020/2021
INSTRUMENTATION AND CONTROL	2011/2012 2014/2015 2015/2016 2016/2017
INSTRUMENTATION AND MEASUREMENTS	2010/2011 2011/2012 2012/2013
INSTRUMENTATIONS AND MEASUREMENTS	2019/2020
MECHATRONICS ENGINEERING LAB I	2010/2011 2011/2012
MECHATRONICS WORKSHOP	2010/2011 2011/2012 2012/2013 2013/2014 2014/2015 2015/2016
MODELING AND SIMULATION	2014/2015
MODERN CONTROL SYSTEMS	2019/2020
PROJECT 1	2010/2011
PROJECT II	2019/2020 2020/2021
SEMINAR	2004/2005 2005/2006
SENSORS AND ACTUATORS	2013/2014
SYSTEM DYNAMICS	2012/2013 2013/2014
SYSTEMS DYNAMICS AND CONTROL	2012/2013 2013/2014 2014/2015 2015/2016 2016/2017

RESEARCH PROJECTS

In Progress

- 2020 - Present** Artificial Intelligence-Based Speed Control and Range Optimisation for an Electric 3-Wheeler
- 2019 - Present** Prototyping of Artificial Intelligent Embedded IoT based Driveline for Electric Coaster
- 2019 - Present** Investigation of the correlation between thermal pattern from multi-view face images and the affective states of ASD children (Project 1)
- 2017 - Present** Gait Identification Modelling for a hybrid amphi-underwater robot with exponential momentum ant colony algorithm
- 2017 - Present** RoBlind for visually impaired people: Prototype Upscaling and Field Testing
- 2015 - Present** An Online Computational Modeling for EcoS Feature Selection in Traffic Volumes Prediction
- 2014 - Present** AUTONOMOUS SYSTEMS AND ROBOTICS RESEARCH UNIT

Completed

- 2017 - 2020** RoBlind for visually impaired people: Prototype Upscaling and Field Testing
- 2017 - 2020** Gait Identification Modelling for a hybrid amphi-underwater robot with exponential momentum ant colony algorithm
- 2016 - 2019** Assistive Mobility Aids (AMA) for Visually Impaired Person: A Quasi-Interactive Identification and Analysis with Variable Agility Course
- 2016 - -1** Development of Battery Monitoring System for Electric Motorbike
- 2015 - 2019** An Online Computational Modeling for EcoS Feature Selection in Traffic Volumes Prediction
- 2015 - 2020** Multisensory Analysis of the Correct Quranic Pronunciation for Automatic and Self-Learning System Tajweed Teaching And Learning
- 2015 - 2017** Robust FLC-PSO Battery Controller System Implementation to Green Electric Motorbike for Pumar Marketing Sdn. Bhd
- 2015 - 2019** Upscaling, Testing and Optimization of a Rolling Bouncing Spherical Robot for Surveillance and Monitoring
- 2015 - 2017** Design and Development of Motorized Adjustable Vertical Platform for Satellite Assembly, Integration and Test Facility
- 2015 - 2020** Multisensory Analysis of the Correct Quranic Pronunciation for Automatic and Self-Learning System Tajweed Teaching And Learning
- 2015 - 2017** Development of Battery Charging System for Electric Motobike

- 2014 - 2017** Parametric Modelling and Development of Battery Cell Balancing for Energy Optimisation in Electric Vehicle (EV)
- 2014 - 2016** Investigation and Modeling of Human Speech Organs in Generating a Unique Representation of Qurani Letters for Tajweed Teaching and Learning
- 2014 - 2016** Nature-Inspired Parametric Analysis of Driver's Spinal Response to Steering Vibration Impact for Electric Vehicle Steering System
- 2014 - 2017** Investigation of Thumb-tip Force Prediction Based on Hill's Muscle Model using Noninvasive Electromyography and Ultrasound Signals
- 2014 - 2016** Design and Development of Shoe-Tying Robotic Hands for Prosthetics and Humanoid Application
- 2014 - 2018** Neuro-Navigational Computational Model of Affect for Profiling Maritime Pilot
- 2014 - 2016** Formulation of Swarm-like Interaction Algorithm for Visually Impaired People with Nature-Inspired Techniques
- 2013 - 2016** Novel Modeling and Investigation of Rolling Mechanism with Bouncing Capability using Natural Phenomena-based Algorithm
- 2013 - 2016** Prototype Upscaling of Robot-Assisted Rehabilitation Platform for Upper Extremity
- 2013 - 2017** Formulation of Novel Controller Strategies for Vehicle Suspension Actuators
- 2013 - 2014** System Identification, Modelling and Validation : Towards Islamic Practical Knowledge
- 2013 - 2016** Parametric Investigation to Optimize Dynamic Range of Magnetorheological Damper for Prosthetic Limbs
- 2012 - 2015** Modeling of in the loop emotion recognizer for robot assisted rehabilitation control
- 2012 - 2014** Parametric Modelling and Intelligent Control for Vehicle Electrical Loads (VEL) using Fuzzy Logic Control and Particle Swarm Optimisation (FLC-PSO)
- 2012 - 2014** Design and Development of Intelligent Two-Wheeled Wheelchair for Disabled
- 2011 - 2013** RU 2011: Design and Development of Double Link Two-Wheeled Mobile Robot
- 2011 - 2012** Contract Research on Matlab/Simulink for PROTON BERHAD ? Phase 1 Customized training
- 2011 - 2012** Contract Research on Non-Propulsion Electrical Loads Control Strategy (NoPELCS) for PROTON BERHAD ? Phase 1 and 2
- 2010 - 2012** Offset reduction technique for motion control of two wheeled wheelchair

PUBLICATIONS

Article

- 2019** [Analysis and practical validation on a multi-linkage scissor platform's drive system for the satellite test facilities.](#) International Journal of Heavy Vehicle Systems
- 2017** [Swarm-intelligence tuned current reduction for power assisted steering control in electric vehicle.](#) IEEE Transactions on Industrial Electronics , PP (99) pp.1-9
- 2017** [Lips tracking identification of a correct pronunciation of Quranic alphabets for tajweed teaching and learning.](#) IIUM Engineering Journal , 18 (1) pp.177-191
- 2017** [Input significance analysis: feature ranking through synaptic weights manipulation for ANNS-based classifiers.](#) Journal of Fundamental and Applied Sciences , 9 (4S) pp.639-662
- 2017** [Lips tracking identification of a correct Quranic letters pronunciation for tajweed teaching and learning.](#) IIUM Engineering Journal , 18 (1) pp.177-191
- 2017** [Analysis of formant frequencies of the correct pronunciation of Quranic alphabets between kids and adults.](#) Middle-East Journal of Scientific Research , 25 (6) pp.1370-1379
- 2017** [Input significance analysis: Feature selection through synaptic weights manipulation for EFuNNs classifier.](#) Journal of Fundamental and Applied Sciences , 9 (4S) pp.681-709
- 2016** [Towards authentication of beef, chicken and lard using micro near-infrared spectrometer based on support vector machine classification.](#) ARPN Journal of Engineering and Applied Sciences , 11 (6) pp.4130-4136
- 2016** [Integrated modelling and design for realizing a two-wheeled wheelchair for disabled.](#) Assistive Technology: The Official Journal of RESNA pp.1-53
- 2016** [Power reduction optimization with swarm based technique in electric power assist steering system.](#) Energy , 102 pp.444-452
- 2015** [Modelling and investigation on bouncing mechanism of a sphere robot.](#) Procedia Computer Science , 76 pp.296-301
- 2015** [Electric vehicle battery modelling and performance comparison in relation to range anxiety.](#) Procedia Computer Science , 76 pp.250-256
- 2015** [Design and development of a solar based air conditioning blower system for vehicle .](#) Advanced Material Research , 1115 pp.446-449
- 2015** [Fuzzy-based classifier design for determining the eye movement data as an input reference in wheelchair motion control.](#) Jurnal Teknologi , 76 (8) pp.71-75
- 2014** [Implementation of wheelchair motion control based on electrooculography using simulation and experimental performance testing.](#) Applied Mechanics and Materials , 554 pp.551-555
- 2014** [Low pass filter with hybrid fuzzy design for balancing the two-wheeled mobile robot application.](#) International Journal of Robotics and Mechatronics , 1 (4) pp.133-137
- 2014** [Energy consumption optimization with PSO scheme for electric power steering system.](#) International Journal of Computer Theory and Engineering , 7 (4) pp.297-301

- 2014** [Modelling and simulation of double-link scenario in a two-wheeled wheelchair.](#) Integrated Computer-Aided Engineering , 21 (2) pp.119-132
- 2014** [Implementation of fuzzy logic controller for wheelchair motion control based on EOG data.](#) Applied Mechanics and Materials , 661 pp.183-189
- 2013** [Steering motion control enhancement scheme of two wheeled wheelchair in confined space.](#) International Journal of Automation and Control Engineering , 2 (4) pp.179-189
- 2013** [Parametric system identification of thermoelectric cooler for single photon avalanche diode application .](#) Research Journal of Applied Sciences, Engineering and Technology , 6 (4) pp.712-719
- 2013** [Analysis of different level of EOG signal from eye movement for wheelchair control.](#) International Journal of Biomedical Engineering and Technology , 11 (2) pp.175-196
- 2013** [Hybrid pid and pso-based control for electric power assist steering system for electric vehicle.](#) IOP Conference Series: Materials Science and Engineering , 53 pp.012039-1
- 2012** [Control of a stair climbing wheelchair.](#) International Journal of Robotics and Automation (IJRA) , 1 (4) pp.203-213
- 2012** [Evolutionary tuning of modular fuzzy controller for two-wheeled wheelchair.](#) International Journal of Computational Intelligence and Applications , 11 (2) pp.1250009 (1)-1250009 (23)
- 2012** [Fuzzy-based temperature and humidity control for HV AC of electric vehicle.](#) Procedia Engineering , 41 pp.904-910
- 2012** [Development of control strategy on segregation of HVAC energy efficiency as non propulsion Electrical Hotel Load in EV.](#) Journal of Engineering pp.14-20
- 2011** [Modelling and simulation of two-wheeled wheelchair.](#) Journal of mathematical and computer modelling of dynamical system
- 2011** [A modular fuzzy control approach for two-wheeled wheelchair.](#) Journal of Intelligent & Robotic Systems , 64 (3) pp.401-426

Conference or Workshop Item

- 2020** [Optimizing PD-type fuzzy logic controller for position control of spherical robot.](#) In: **7th International Conference on Mechatronics Engineering (ICOM) 2019**
- 2019** [Exploiting UAV as NOMA based Relay for Coverage Extension.](#) In: **2019 2nd International Conference on Computer Applications & Information Security (ICCAIS)**
- 2019** [Exploiting UAV as NOMA based relay for coverage extension.](#) In: **International conference on Computer Applications & Information Security, ICCAIS'2019.**
- 2019** [Features identification and classification of alphabet \(ro\) in leaning \(Al-Inhiraf\) and repetition \(Al-Takrir\) characteristics.](#) In: **"2019 IEEE International Conference on Automatic Control and Intelligent Systems, I2CACIS 2019"**

- 2019 [The modeling of the Quranic alphabets' correct pronunciation for adults and children experts.](#) In: **2019 2nd International Conference on Computer Applications & Information Security (ICCAIS)**
- 2018 [Analysis of two adjacent articulation Quranic letters based on MFCC and DTW.](#) In: **2018 7th International Conference on Computer and Communication Engineering (ICCCE)**
- 2017 [Classification of the correct Quranic letters pronunciation of male and female reciters.](#) In: **6th International Conference on Mechatronics (ICOM'17)**
- 2017 [Investigation on the maximum power point in solar panel characteristics due to irradiance changes.](#) In: **3rd International Conference on Mechanical, Automotive and Aerospace Engineering, ICMAAE 2016**
- 2017 [Modelling and control of base plate loading subsystem for the motorized adjustable vertical platform.](#) In: **3rd International Conference on Mechanical, Automotive and Aerospace Engineering (ICMAAE 2016)**
- 2017 [Modelling and simulation analysis of rolling motion of spherical robot.](#) In: **6th International Conference on Mechatronics - ICOM'17**
- 2016 [Cascade control of robotic fingers with anthropomorphic inspiration.](#) In: **2016 IEEE International Conference on Automatic Control and Intelligent Systems (I2CACIS)**
- 2016 [Modeling and simulation for heavy-duty mecanum wheel platform using model predictive control.](#) In: **3rd International Conference on Mechanical, Automotive and Aerospace Engineering 2016 (ICMAAE'16)**
- 2015 [Mathematical Modelling of Hexacopter System: A Port-Hamiltonion Approach.](#) In: **11th International Conference on Intelligent Unmanned Systems**
- 2015 [Quranic letter pronunciation analysis based on spectrogram technique: case study on Qalqalah letters .](#) In: **The 11th International Conference on Artificial Intelligence Applications and Innovations (AIAI'15)**
- 2015 [Design and material analysis of spherical mobile robot for bouncing mechanism.](#) In: **11th IFIP WG 12.5 International Conference, AIAI 2015**
- 2015 [Performance comparison between PD-Fuzzy and PID controller towards the stability of the extendable double-link two-wheeled mobile robot.](#) In: **2015 10th Asian Control Conference (ASCC 2015)**
- 2015 [PSO-based state feedback regulator for stabilizing a two-wheeled wheelchair in balancing mode.](#) In: **2015 10th Asian Control Conference (ASCC 2015)**
- 2015 [Particle swarm optimization: based identification of a bouncing spherical robot.](#) In: **2015 10th Asian Control Conference (ASCC 2015)**
- 2015 [Performance analysis of an electrooculography-based on intelligent wheelchair motion control.](#) In: **2015 10th Asian Control Conference (ASCC 2015)**
- 2015 [Design and development of eye movement data acquisition kit.](#) In: **2015 IEEE International Conference on Computer, Communication, and Control Technology**

- 2014 [Feature ranking through weights manipulations for artificial neural networks-based classifiers.](#) In: **2014 Fifth International Conference on Intelligent Systems, Modelling and Simulation (ISMS 2014)**
- 2013 [PID-Ant Colony Optimization \(ACO\) control for electric power assist steering system for electric vehicle.](#) In: **2013 IEEE International Conference on Smart Instrumentation, Measurement and Applications**
- 2013 [Integrated modeling and analysis of an extendable double-link two wheeled mobile robot.](#) In: **IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM'13),**
- 2013 [Integrated design, modelling and analysis of two-wheeled wheelchair for disabled.](#) In: **16th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR'13)**
- 2013 [Towards port-hamiltonian approach for modeling and control of two-wheeled wheelchair.](#) In: **5th International Conference on Mechatronics (ICOM'13)**
- 2013 [Centre of Gravity \(C.O.G\)-based analysis on the dynamics of the extendable Double-Link Two-Wheeled Mobile Robot.](#) In: **5th International Conference on Mechatronics (ICOM'13)**
- 2013 [Mechanical design and simulation of two-wheeled wheelchair using solidworks.](#) In: **5th International Conference on Mechatronics (ICOM'13)**
- 2013 [Development of automatic adjustment rear view mirror .](#) In: **IUM Research, Invention and Innovation Exhibition 2013**
- 2013 [Integrated design, modeling and analysis of a two-wheeled wheelchair for disabled .](#) In: **IUM Research, Invention and Innovation Exhibition 2013**
- 2013 [Industrial training outcomes: Kulliyah of Engineering practice as a case study .](#) In: **International Conference on Engineering Education 2013**
- 2012 [Modular hybrid control for double-link two-wheeled mobile robot.](#) In: **International Conference on Computer and Communication Engineering (ICCCE 2012)**
- 2012 [Simulation analysis of different strength levels of EOG signals.](#) In: **International Conference on Computer and Communication Engineering (ICCCE 2012)**
- 2010 [Modular fuzzy control with input shaping technique for transformation of two-wheeled wheelchair to four-wheeled mode.](#) In: **2010 IEEE Symposium Industrial Electronics & Applications (ISIEA)**
- 2010 [A new configuration of two wheeled vehicles: towards a more workspace and motion flexibility.](#) In: **2010 4th Annual IEEE Systems Conference**
- 2009 [Height extension of chair on two-wheeled wheelchair.](#) In: **12th international conference on climbing and walking robots and the support technologies for mobile machine(CLAWAR'09)**
- 2009 [Effect of inclined rowing machine on FES-assisted indoor rowing exercise performance.](#) In: **Third Asia International Conference on Modelling & Simulation, 2009. AMS '09.**

- 2009 [Genetic algorithm optimisation for fuzzy control of wheelchair lifting and balancing.](#) In: **2009 Third UKSim Symposium on Computer Modeling and Simulation (EMS 2009)**
- 2009 [Rejection of yaw disturbance in a two-wheeled wheelchair system.](#) In: **Third Asia International Conference on Modelling & Simulation, AMS '09.**
- 2008 [Modelling and control of a wheelchair on two wheels.](#) In: **Second Asia International Conference on Modeling & Simulation, 2008. AICMS 08.**
- 2008 [Forward and backward motion control of wheelchair on two wheels.](#) In: **3rd IEEE Conference on Industrial Electronics and Applications, 2008. ICIEA 2008.**

Book

- 2017 [Online feature selection based on input significance analysis \(Isa\) for evolving connectionist systems \(Ecos\).](#) IIUM Press, International Islamic University Malaysia . ISBN 978-967-418-688-3

Book Section

- 2012 [Modular fuzzy logic controller for motion control of two-wheeled wheelchair.](#) In: **Fuzzy Logic - Controls, Concepts, Theories and Applications** In Tech . ISBN ISBN 978-953-51-0396-7 , pp.37-58
- 2011 [Virtual modeling of two-wheeled wheelchair using MSc Visual Nastran 4D.](#) In: **Mechatronics book series system design and signal processing** IIUM Press . ISBN 9789674181734 , pp.231-242
- 2011 [Cooling techniques for single photon avalanche diode.](#) In: **Selected topics in advanced electronics** IIUM Press . ISBN 9789674181536 , pp.243-255
- 2011 [Fuzzy logic based temperature control of thermoelectric cooler for single photon avalanche diode application.](#) In: **Principle of Transducer Devices and Components** IIUM Press . ISBN 978-967-418-172-7 , pp.311-315
- 2011 [A review on control of two-wheeled wheelchair system.](#) In: **Mechatronics book series: control and intelligent systems** IIUM Press . ISBN 9789674181765 , pp.112-120
- 2011 [Ibn Sina on aromatherapy.](#) In: **Contributions of Muslim Scientists to Medicine and Related Sciences** IIUM Press . ISBN 978-967-418-155-0 , pp.76-80
- 2011 [An electrooculogram signal acquisition for wheelchair motion control.](#) In: **Mechatronics book series system design and signal processing** IIUM Press . ISBN 9789674181734 , pp.163-170