Curriculum Vitae

Dr. Ermira Junita Abdullah

Contact Details

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Work Experienc

Senior Lecturer Universiti Putra Malaysia	2012 - Present
Lecturer Universiti Putra Malaysia	2004 - 2012
Tutor Universiti Putra Malaysia	2001 - 2004

Research Areas

Flight Dynamics and Control, Morphing Wing, Shape Memory Alloy Actuator, System Integration

Education

Level	Year	Field	University
PhD	2012	Aerospace Engineering	Royal Melbourne Institute of Technology, Australia
MSc	2004	Aeronautics and Astronautics (Major: Dynamics and Control, Minor: Design)	Purdue University, United States of America
BEng	2001	Aerospace Engineering	Universiti Putra Malaysia, Malaysia

Teaching Experience (Postgraduate – Master of Innovation and Engineering Design)

1. Systems Engineering
2. Advanced Design Technique

Teaching Experience (Undergraduate – Bachelor of Aerospace Engineering)

1. Flight Dynamics
2. Aircraft Stability and Control
3. Control Systems
4. Fortran Programming
5. Aircraft Design
6. Vibration
7. Aerospace Laboratory – Control Systems

Research Grants

Project Title	Role	Year	Fund	Status
High Altitude Balloon and Glider System	Project Leader	2020	University of South Australia	Ongoing
Enhancement of Engineering Skills of Students of All Levels for Application of Evidence Based Sustainable Renewable Energy Solutions in The Built Environment / SKYBELT	National Coordinator	2019 - 2022	Erasmus+ Capacity Building in Higher Education, European Commission	Ongoing
Development of Shape Memory Alloy Actuator for Specific Application[1]	Project Leader	2019	Centro Stirling, Spain	Completed
A Door Lock System	Project Leader	2018	Product Promotion Fund, UPM	Completed
Optimal Feedback Control Shape Memory Alloy Actuated Morphing Wing System	Recipient	2018-2019	National Instruments, USA	Completed
High Actuation Frequency using Shape Memory Alloy	Project Leader	2018 - 2020	Research University Grant Scheme, UPM	Ongoing
Aeromechanics of Micro Air Vehicle Flapping	Project Leader	2017 - 2019	Research University Grant	Completed

[1] Version March 2020

Wing at Low Reynolds Number			Scheme, UPM	
Optimal Feedback Control Shape Memory Alloy Actuated Morphing Wing System	Project leader	2017-2019	Research University Grant Scheme, UPM	Completed
Aerospace Analysis and Experimentation Services Supporting Flapping Wing Hackathon	Project leader	2017-2018	University of South Australia	Completed
Design of Wing Control Surface Using Shape Memory Alloy Actuator with Resistance Feedback Control	Project leader	2016-2018	Research University Grant Scheme, UPM	Completed
Design and Control of Smart Structure using Embedded Shape Memory Alloy (SMA) Actuators fo Aerospace Applications	Project leader	2011 - 2013	Research University Grant Scheme, UPM	Completed
Effects of Aspect Ratio on Dynamics Stability of Hybrid Composite UAV	Project leader	2006 - 2007	UPM	Completed

Awards

Name of Award	Title of Invention/Project	Year
Silver Medal 29th International Invention & Innovation Exhibition (ITEX) 2018	A Door Lock System	2018
Bronze Medal International Engineering Invention and Innovation Exhibition (i-ENVEX)	Smart Composite Plate	2013

Patent Filed

1. A Peeling Tool, PI 2018700210, 2018.

2. A Door Lock System, UI 2017701918, 2017.

Consultation and Training

1. Training - Development of Shape Memory Alloy Actuator for Specific Application, Centro Stirling, Spain, 2019.

2. Training - Strain Measurement: Data Acquisition System Module, CAIDMARK and Aerospace Society Malaysia, 16-18 July 2018.

3. Consultation and Training – Junior Aerospace Scientist Workshop, March 2018.

4. Consultation and Training – Junior Aerospace Scientist Workshop, March 2017.

Publications

1. N. Azid, D. Abdul Manan, W. T. Ng, E. J. Abdullah, D. L. Abdul Majid. "Design Fabrication of Adaptive Wing Structure," International Journal of Innovative Technology and Exploring Engineering, Vol. 9 (3), 2020.
2. E. J. Abdullah, N. Azid, S. Abidin, W. T. Ng, D. L. Abdul Majid, A. S. Mohd Rafie. "Aerodynamics and Structure Measurement Subsystem for a Shape Memory Alloy Actuated Adaptive Airfoil." Volume 10970, 2019, Article number 1097012, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2019; Denver; United States; 4 March 2019 through 7 March 2019.
3. E. J. Abdullah, P. S. Gaikwad, N. Azid, D. L. A. Majid, A. S. M. Rafie, Temperature and Strain Feedback Control for Shape Memory Alloy Actuated Composite Plate. Sensors and Actuators A: Physical, Vol. 283, pp. 134-140, 2018.
4. N. A. Jumat and E. J. Abdullah, Development of an Aircraft Load Planning System for Distribution of Passenger Baggage. International Journal of Engineering and Technology, Vol. 7 (4), pp. 95-98, 2018.
5. N. M. Rouyan, R. Varatharajoo, S. Eshghi, E. J. Abdullah and S. Suzuki, Aircraft Pitch Control Tracking with Sliding Mode Control. International Journal of Engineering and Technology, Vol. 7 (4), pp. 62-65, 2018.
6. D. M. Baitab, D. L. A. Majid, E. J. Abdullah and M. F. A. Hamid. Review of Techniques for Embedding Shape Memory Alloy (SMA) Wires in Smart Woven Composites. International Journal of Engineering and Technology, Vol. 7 (4), pp. 62-65, 2018.
7. N. A. Jumat, E. J. Abdullah and N. Mazlan, Effect of Polydimethylsiloxane (PDMS) Coating on the Behaviour of Shape Memory Alloy (SMA) Actuator. 2nd ASIA International Multidisciplinary Conference 2018 (AIMC2018), 12-13 May 2018, UTM, Johor.
8. E. J. Abdullah, P. S. Gaikwad, D. L. A. Majid and A. S. M. Rafie, Effect of Sensor Location of Smart Composite Plate System on Feedback Control Performance. Electronics Science Technology and Application, 2018.
9. W. T. Ng, M. F. Sedan, E. J. Abdullah, S. Azrad and A. S. M. Harithuddin, Shape Memory Alloy Resistance Behaviour at High Altitude for Feedback Control. IOP Conference Series: Materials Science and Engineering 270 (1), 012030, 2017.
10. N. F. Kamaruzaman and E. J. Abdullah, Design and Testing of Shape Memory Alloy Actuation Mechanism for Flapping Wing Micro Unmanned Aerial Vehicles, IOP Conference Series: Materials Science and Engineering 270 (1), 012017, 2017.
11. M. I. F. Ali and E. J. Abdullah, Design of Automatic Rotor Blades Folding System using Niti Shape Memory Alloy Actuator. IOP Conference Series: Materials Science and Engineering 152 (1), 012016, 2016.

12. T. T. Ogunwa and E. J. Abdullah, Flight Dynamics and Control Modelling of Damaged Asymmetric Aircraft. IOP Conference Series: Materials Science and Engineering 152 (1), 012022, 2016.
13. A. M. H. Hussein, D. L. A. Majid and E. J. Abdullah, Shape Memory Alloy Actuation Effect on Subsonic Static Aeroelastic Deformation of Composite Cantilever Plate. IOP Conference Series: Materials Science and Engineering 152 (1), 012010, 2016.
14. E. J. Abdullah, D. L. Majid, F. I. Romli, Priyanka S. Gaikwad, L. G. Yuan and N. F. Harun. Active Control of Strain in a Composite Plate using Shape Memory Alloy Actuators. International Journal of Mechanics and Materials in Design, Vol. 11(1), pp.25-39, 2015.
15. P.S. Gaikwad, E. J Abdullah, D. L. Majid and A. Shakrine M. Rafie. Experimental Study on Variable Deflection Control of SMA Actuated Composite Plate. Applied Mechanics and Materials, Vol. 629, pp. 235-239, 2014.
16. N. Marimuthu, E. J. Abdullah, D. L. A. Majid and F. I. Romli. Conceptual Design of Flapping Wing Using Shape Memory Alloy Actuator for Micro Unmanned Aerial Vehicle. Applied Mechanics and Materials, Vol. 629, pp.152-157, 2014.
17. Z. A. C. Saffry, D. L. Majid, F. I. Romli, F. Mustapha and E. J. Abdullah. Identification of Modal Properties of Composite Thin Plate using OMA in Wind Tunnel Environment. Applied Mechanics and Material Vol. 446 pp. 606-610, 2014.
18. C. Bil, K. Massey and E. J. Abdullah, Wing Morphing Control with Shape Memory Alloy Actuators, Journal of Intelligent Material Systems and Structures, Vol. 24(7), pp. 879-898, 2013.
19. E. J. Abdullah, D. L. Majid, L. G. Yuan and N. F. Harun, Performance Analysis of Smart Composite Structure using Shape Memory Alloy Actuators, Applied Mechanics and Materials, Vol. 225, 2012.
20. D.L. Majid, E.J. Abdullah, N.F. Harun, G.Y. Lim and B.T.H.T. Baharudin, Effect of Fiber Orientation on the Structural Response of a Smart Composite Structure, Procedia Engineering, Vol. 50, pg. 445-452, 2012.
21. A. Attaran, D. L. Majid, S. Basri, A. S. Mohd Rafie, and E. J. Abdullah, Structural Optimization of an Aeroelastically Tailored Composite Flat Plate Made of Woven Fiberglass/Epoxy, Acta Mechanica, Vol. 196, Issue 3-4, pp. 161-173, 2008.
22. E. Mahdi, A. S. Mokhtar, N. A. Asari and E. J. Abdullah, Nonlinear Finite Element Analysis of Axially Crushed Cotton Fibre Composite Corrugated Tubes, International Journal of Composite Structures, 2006.
23. E. J. Abdullah, M. R. Ajir, M. T. Ahmad and M. N. Filipski, Effect of Aspect Ratios on Longitudinal and Lateral Motions of Unmanned Aerial Vehicle, International Journal of Engineering and Technology, 3(2): 201-213, 2006.
24. M. A. Badie, A. Mahdi, A. R. Abu Talib, E. J. Abdullah and R. Yunus, Automotive Composite Driveshafts: Investigation of the Design Variables Effects, International Journal of Engineering and Technology, 3(2): 227-237, 2006.
25. M. N. Filipski and E. J. Abdullah, Nanosatellite Navigation with the WMM2005 Geomagnetic Field Model, Turkish Journal of Engineering and Earth Science, 2005.

Books and Chapters

1. R. Varatharajoo, E. J. Abdullah, D. L. Majid, F. I. Romli, A. S. Mohd Rafie and K. Ahmad, AEROTECH – IV: Recent Advances in Aerospace Technologies, Applied Mechanics and Materials, Vol. 225, 2012.

2. E. J. Abdullah, C. Bil and S. Watkins, Chapter 21: Adaptive Airfoil Control System Using Shape Memory Alloy Actuator for Unmanned Aerial Vehicle. Incorporating Sustainable Practice in Mechanics and Structures of Materials, CRC Press 2011.

3. A.S Mokhtar, E.J Abdullah, N.M Adam, A.R Abu Talib, N.A Abdul Jalil, R. Zahari, W.M.I Hassan and Z.A Zulkefli, Proceedings, World Engineering Congress, Mechanical and Aerospace Engineering Conference, Penang, Malaysia, ISBN 978-983-43571-1-5, FEIIC, 2007.

4. S. Basri, R. Varatharajoo, A. A. Jaafar, A. A, R. Zahari, H. Harun, **E. J.** N. A. Othman, Proceedings of Aerotech II-2007, Putrajaya, Malaysia, ISBN 978-983-42130-1-5, Universiti Putra Malaysia, 2007.

Other Publications

1. E. J. Abdullah, A Rose Among Thorns in Aircraft Maintenance. Conversion, Inclusion and Diversity, JURUTERA The Monthly Bulletin of The Institution of Engineers, Malaysia, pp. 18-20, ISSN 1026-9909, April 2018.

2. E. J. Abdullah, C. Bil and S. Watkins, Material: Adaptive Airfoil Control for UAVs using Smart Materials, Aerospace Engineering and Manufacturing, Society of Automotive Engineers Vol. 2 Issue 13 pp. 9-10, 2010.

Postgraduate Supervision

Name	Programme	Supervisory Role	Title
Nuramirah Azid	MSc (Research) Waiting for Viva	Main Supervisor	Design of Wing Control Surface Using Shape Memory Alloy Actuator with Resistance Feedback Control
Nurkhairunisa Awang Jumat	MSc (Research) Completed Viva February 2020 (Pass)	Main Supervisor	Design of High Frequency Shape Memory Alloy Flapping Wing System
Priyanka Subhash Gaikwad	MSc (Research) Graduated	Main Supervisor	Establishing Sensing Parameters Affecting Shape Memory Alloy Actuated Composite Plate

			under External Disturbances
Titilayo Tolulope Ogunwa	PhD at University of South Australia Ongoing	Committee Member	Flapping Wing Dynamics and Control
Danish Mahmood Baitab	PhD Ongoing	Committee Member	Smart Woven Composites with Embedded Shape Memory Alloy (SMA) Wires
Noor Ashikin Mohd Razali	PhD Ongoing	Committee Member	Hybrid Propulsion System for Fixed Wing Mini UAV
Nurhana Mohmad Rouyan	PhD Ongoing	Committee Member	Sliding Mode Control for High Angle of Attack Aircraft
Nur Hidayah Ariffin	PhD Ongoing	Committee Member	Automated Carry-On Luggage System
Zetty Azleen Che Saffry	MSc (Research) Graduated	Committee Member	Operational Modal Analysis of Aeroelasticity Induced Wind Tunnel Model
Abdullah Saad Mahmud	MSc (Research) Graduated	Committee Member	Lift Augmentation Due to Change in Surface Roughness at the Trailing Edge of an Airfoil
Mohamed Abdel Badie Mohamed	MSc (Research) Graduated	Committee Member	Design and Finite Element Analysis of Hybrid Carbon/Glass Fiber – Reinforced Epoxy Composite Automotive Drive Shaft
Sheikh Ezamuddin Sheikh Mohd Mustaffa	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Development of Transitory Parcel Reception Station Using Web Apps and Android Mobile Apps
Nur Farhana Kamaruzaman	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Design and Testing of Flapping Actuation Mechanism for MAV
Anuar Abdullah	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Design and Development of Baby Corn Processing Hand Tool
Muhammad Irwan Fazli Ali@Ghazali	Master of Innovation and Engineering Design (Coursework)	Main Supervisor	Smart Automatic Rotor Blade Folding System (ARBF) for RMN Super Lynx MK 100

	Graduated		
Azhar Zainal	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Smart Locking Mechanism for Fire Escape using SMA Material
Mardiana Asmuni	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Shape Memory Alloy Linear Actuator
Muhammad Aslam Abu Bakar	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Cooling Technique for Shape Memory Alloy Actuator
Syahidah Nurani	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Dispensing System using Shape Memory Alloy Actuator
Navanitha Marimuthu	Master of Innovation and Engineering Design (Coursework) Graduated	Main Supervisor	Flapping MAV Control System with SMA Actuation

Administrative Responsibilities

Coordinator of Master of Aerospace Systems Design Engineering Program	2017 - 2018
Coordinator of Postgraduate Studies	2012 - 2017
Coordinator of Vibration and Control Laboratory	2012 - Present

Professional Services

Organization	Position	Start Date	End Date
AEROS Conference and Networking Meeting	Chairperson	2019	2019
Global I-Lead STEM Camp 2017	Facilitator	2018	2018
Global I-Lead STEM Camp 2017	Judge	2017	2017
Aerospace Society Malaysia	Secretary	2017	2020

AEROTECH VII Conference 2018, Malaysia	Co - Chairman	2017	2018
AEROS Conference 2017	Organizing Committee	2017	2017
AEROS Student Awards 2017	Head of Program	2017	2017
High Altitude Stratocaching Workshop and Competition	Organizing Committee	2017	2017
AEROTECH VI Conference 2016, Malaysia	Organizing Committee	2015	2016
AEROTECH V Conference 2014, Malaysia	Organizing Committee	2013	2014
AEROTECH IV Conference 2012, Malaysia	Secretary	2011	2012

Scientific Experience and Specialization

Organization	Role	Start Date	Expertise
Journal of Physics D: Applied Physics	Journal Reviewer	27/3/2018	Shape Memory Alloy Actuator
Thin-Walled Structures	Journal Reviewer	21/7/2017	Shape Memory Alloy Actuator
IEEE Transactions on Aerospace and Electronic Systems	Journal Reviewer	1/5/2016	Flight Dynamics and Control
Smart Materials and Structures	Journal Reviewer	12/11/2015	Shape Memory Alloy Actuator
Advances in Mechanical Engineering	Journal Reviewer	5/2/2016	Shape Memory Alloy Actuator
The Pertanika Journal of Scholarly Research Reviews	Journal Reviewer	24/4/2016	Flight Dynamics and Control