CURRICULUM VITAE

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1. Education

St. Ives High School, Sydney Australia	Higher School Certificate1 1984	
University of New South Wales (UNSW), Sydney Australia.	Bachelor of Engineering (Mechanical)	1985-1989
Loughborough University, United Kingdom.	Master of Science 1995-1996 (Mechatronics and Optical Engineering)	
Loughborough University, United Kingdom.	Doctor of Philosophy (Mechatronics)	2000-2004

2. Employment

2.1 Dean

Universiti Teknologi MARA, Shah Alam, Selangor Malaysia. Faculty of Mechanical Engineering	Dean	2017-present
Jurutera Consultant (South East Asia) Sdn Bhd Kuala Lumpur, Mechanical Section.	Design Engineer	1990
Snowy Mountain Hydro Electric Authority, Cooma, Canberra Australia, Mechanical Engineering Division.	Trainee Engineer	1988-1989

2.2 Deputy Dean (Students & Resources), Faculty of Mechanical Engineering, Universiti Teknologi MARA, Shah Alam, Selangor Malaysia. September 2004- January 2007.

2.3 Deputy Dean (Quality & Research), Faculty of Mechanical Engineering, Universiti Teknologi MARA, Shah Alam, Selangor Malaysia. February 2007 – January 2009.

2.4 Head of Humanoid Robotic and Bio-sensors Center (HUROBs), Faculty of Mechanical Engineering, UiTM Shah Alam . March 2009 – December 2011.

2.5 Head of Mechatronics and Intelligent System
Faculty of Mechanical Engineering, UiTM Shah Alam. March 2015 – present.

2.6 Industrial attachment with Texas Instrument (M) Sdn. Bhd. March 1999 – November 1999

2.7 Industrial attachment with Motorola (M) Sdn. Bhd. September 1998 - February. 1999

3. Research Interests

Control System Engineering, Design And Modeling Of Mechatronic Systems, Visual Servo Control, Industrial Automation, Machine Vision, Mechatronics and Robotics System, Engineering Education.

4. Invited/Keynote Lectures

- Invited speakers for International conference on advances in Mechanical Engineering ICAME 2015 Bali Indonesia
- Invited speakers for UNiKL Research Grant Workshop, Genting Highland 2010
- Invited Speaker for Outcome Based Education Workshop UiTM, 2009.
- Keynote Lecture for Real-time Control, Robotics and Haptic Seminar sponsored by Quanser Consulting Inc., Canada. December 2006
- Invited Speaker for Awareness on Outcome Based Education Seminar at Faculty of Chemical Engineering, UiTMMay 2005
- Keynotes Lecture for National Conference on Linear Motor Technology organised by Sodick Engineering Pty. Ltd. Singapore and Faculty of Mechanical Engineering UiTM. August 2004
- Invited Speaker for Research Colloquium at Faculty of Mechanical Engineering, UiTM April 2001

5. Membership of Professional Societies

- Professional Engineer with Practicing Certificate, Board of Engineers Malaysia
- Corporate Member, Institution of Engineers Malaysia.

6. Professional Activities

6.1. Past editorial duties

- Editorial Committee for International Conference on Advances in Mechanical Engineering ICAME21017.
- Editorial Committee of Journal of Engineering, UiTM Shah Alam , 1992-1993
- Editorial Committee of Journal of Institution of Engineers Malaysia (IEM). 2005-2006, 2006-2009.
- Chief Editorial Committee of Journal of Institution of Engineers Malaysia (IEM). 2009-2010.
- Advisor of Editorial Committee of Journal of Institution of Engineers Malaysia (IEM). 2010-2012
- Editorial Committee for the International Conference on Mechatronics (ICOM 2005), Kuala Lumpur organized by International Islamic University of Malaysia, Institution of Engineers Malaysia and IEEE.
- Editorial Committee for International Conference on Advances in Mechanical Engineering ICAME21015.

6.2. Current editorial duties

Editorial Committee, IEEE EmergiTech 2016 International Conference on Emerging Technologies and Innovative Business Practices for the Transformation of Societies.

6.3. Professional committees and External examiner

- Panel for Engineering Accrediation Council EAC, Board of Engineer Malaysia BEM.
- Member of the Accreditation Committee for Public Service Department of Malaysia Committee. 2004
- Principle Interviewer for Professional engineer via Corporate member of IEM
- External Examiner for MSc. Programme, Universiti Teknikal Tun Hussein On Malaysia Johor
- External Examiner for Diploma Programme, Universiti Tenaga National Putrajaya Malaysia
- External Examiner for Bachelor of Engineering, Universiti Pertahanan National Malaysia
- External examiner for MSc. and PhD Thesis, University Tun Hussein Onn Malaysia UTHM Batu Pahat Johor.
- External examiner for MSc. and PhD Thesis, University Teknologi Malaysia UTM Skudai Johor.

6.4. Conferences organized

- Chairman for International Conference on Mechatronics and Intelligent System Engineering April ICOMISE2017, organized by Advanced Computation and Communication(ACC-CORE) UiTM and Institution of Engineers Malaysia.
- Deputy Chairman of the International National Conference on Advances in Mechanical Engineering (ICAME 2005, 2010) organised by Faculty of Mechanical Engineering UiTM and Institution of Engineers Malaysia.
- Chairman for the planetary session of the International the International Conference on Mechatronics (ICOM 2003), Loughborough UK organised by IMechE UK and Loughborough University. 2003
- Chairman for the planetary session of the National Conference on Advances in Mechanical Engineering (NAME 2005) Cititel Mid Valley Kuala Lumpur organised by Faculty of Mechanical Engineering UiTM and Institution of Engineers Malaysia.
- Member of organizing committee of the International Conference on Mechatronics (ICOM 2003), Loughborough UK organised by IMechE UK and Loughborough University. 2003

7. Teaching and Supervision for the past five years

7.1. Courses taught for the Bachelor of Mechanical Engineering (Hons) include:

Adaptive control, System Dynamics and Control Engineering, Design of Mechatronic Products, Mechanical Engineering Design II, Industrial Automation, Dynamic of Rigid Body, Robotic and Automation.

7.3 PhD/MSc. Students Supervised/Graduated:

- *Azmi b. Mohammad* , PhD. Non-contact approach for roundness inspection for machined parts.
- *Bakri bin Ali*, PhD. A Novel Vision- Based Tactile Sensor for Real-Time Measuring of Surface Traction Kinetics
- *Mohd Hazny Aziz*, MSc. Experimental Investigation on the Effect of Forces and Torque to the Feed Rate and Drill
- *Ahmad Zulhilmi bin Mohd Ziyadi*, MSc. An In-process Robot Calibration of Serial Link Manipulator Arm Based on a 3-D Machine Vision for Minimal Invasive Orthopedic Surgery Operation
- *Aminuddin bin Hamid*, MSc. Modelling and Performance Characterization of a New Dynamic Ankle Foot Orthosis
- *Abdul Halim bin Esa*, MSc. A New Technique and Algorithm of Real Time Optical Based Silicone Tactile Sensor for Soft Tissue Characterization
- *Nurul Hanna Haji Mas'ud* , MSc. An Analysis of Changes in Upper Trapezius Muscle Activity due to Vibration Exposure to the Workers in an Automative Industry
- *Amir Abdul Latif* MSc., Optical Tactile Sensor For Robotic Assisted Surface Characterization

- *Nurul Fathiah Mohammed Rosli*, MSc. A Real-time Algorithm of Optical Tactile Sensor for Surface Characterization
- *Mohd Shafiq Azni*, MSc. Three dimensional model of dental system
- *Nur Izzah Lina Azaman*, MSc. Investigation on quantum tunneling effect for tactile sensor applications
- *Nur Amirah Busu. MSc.* Adaptive Control system for Friction Stir Welding
- *Haszerul Mohd Salleh, MSc*. Development of Brain Sensor For Prosthesis Finger Mechanism
- *Hizzul Hamli MSc.* Development of GUI for EEG Application

8. Research and Consultancy

8.1 Past research projects

- Machine vision: On-line inspection process.
- Further development of advanced laser cutting machine
- Machine vision: Pattern-recognition for highly deformable patterns or shapes.
- Design and fabrication of material handling system: Adaptive control of web tensioning.
- Design and fabrication of robot arm for pick and place operation.
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- Automated sorting of oil palm using laser sensor

8.2 Current research projects

- Model reference Adaptive control
- Modeling and Simulation of Unmanned Ground Vehicle
- Machine vision for the quality control of automotive parts
- Design and development of a novel robotic system for agriculture industry.
- Integrating Mechatronics Engineering with the entrepreneurship in Outcome-based education in Malaysia
- Calibration of robot system using machine vision. Fund from Ministry of Science, Technology and Environment.

8.3 Research collaborations and consultations

- Oil & Gas High Resolution Pipe Inspection using Mechatronics Approach with Majestic Offshore Sdn Bhd and Malaysian Technology Development Corporation (MTDC)-2014
- Energy optimum trajectory planning of robotic system. Research collaboration with Hannover University German. 2006-2008
- Finite Element Analysis of the curtain wall Design for high rise building under dynamic Wind Loading. Research consultation with Glass Wall (M) Sdn Bhd. April 2006 .
- Consultant for the Workshop on sample preparation Method & Microstructural analysis. 2006
- Robot assisted othorpeadic surgery. Research collaboration with University Malaya and Hospital University. April 2001 –Nov 2001
- Analysis and design of automation mechanism for plastic injection molding. Research collaboration with Azman Hamzah Plastic Sdn. Bhd. March 1997-Mei 1998
- An on-line computer aided quality control using vision or laser guided inspection system SIRIM Shah Alam. 1994

8.4 Completed and current research grants

- Six (6) Research Grants from PUBLIC-PRIVATE RESEARCH NETWORK (PPRN)
- Safety Augmentation of Human-Robot Interaction based on Real-Time Visual and Force Servoing Control Information, Grant Ministry of Higher Education (FRGS) RM101.400
- Friction Stir Modeling, Grant Ministry of Higher Education (FRGS) RM120.000
- A New Optical Tactile Sensor for Soft Tissue Sensorization, MOSTI FRGS RM78,000 2011-2013

- Robot assisted orthopedic surgery, MOSTI Escience Fund, RM243,000, 2008-2010
- Modeling and Simulation Analysis of Unmanned Ground Vehicle, URDC, UiTM, RM 18,500, June 2005 – present.
- Integrating Mechatronics Engineering with the entrepreneurship in Outcome-based education in Malaysia, (Co-resercher), URDC, UiTM, RM 11,944, Nov.2005.
- Design and Fabrication of a robotic arm for material handling system. BRC, UiTM RM50,000.
- Development and Design of A Novel Test-rig for PC-Based Machine Vision, BRC, UiTM RM88,500. Jan. 1992–August 1995.

8.5 Awards

- National Instrument Academic Research Award Program 2017
- NI Awards Innovate Malaysia Design Competition 2016
- Highly Commendable Journal Paper, Emerald Literati Network Awards for Excellence 2013, United Kingdom
- Best Mechatronics Paper Award. International Conference On Control, Instrumentation And Mechatronics Engineering 2007, CIMM2007 Universiti Teknologi Malaysia Johor.
- Loughborough University and FESTO PTY. LTD (UK) research award FESTO (UK) £20.000 (RM130,000) 2003.
- Bronze Medal. International, Invention, Innovation & Technology Exhibition ITEX 2007, An In-process Mechatronic Approach to Complex Profile Measurement.
- Gold Medal. Inventions, Innovations & Design Exhibition IID 2007, Mobile robotic system for intensive aquaculture industry, UiTM Malaysia.
- Silver Medal. International, Invention, Innovation & Technology Exhibition ITEX 2008, An automated quality assessment of oil palm fruits.
- Bronze Medal. International Trade Fair IENA 2008, Nuremberg Germany 2008. An automated grading of oil palm fruits.
- Gold Medal. Inventions, Innovations & Design Exhibition IID 2008, An automated quality assessment of oil palm fruits, . UiTM Malaysia.
- Silver Medal, A New Mobile Robotic System for Intensive Aquaculture farm industry.MTE2007.
- Gold Medal. Inventions, Innovations & Design Exhibition IID 2009, An Intelligent handling of Flexible Fabric materials, UiTM Malaysia.
- Silver Medal. International, Invention, Innovation & Technology Exhibition Malaysia Trade Exibition 2009, An Intelligent handling of Flexible Fabric materials, Kuala Lumpur Malaysia.
- Silver Medal EUREKA2009, An Intelligent handling of Flexible Fabric materials, Brussels Belgium
- Gold Medal IIDex2014, Implant cap miniscrew for dental application, IIDex2015 UiTM
- Platinum Medal RISE2015, Implant cap for orthodontic application, Research Innovation Symposium & Exposition , UiTM.

8.6 Patent

- PI 20094874 Automated Grading of Oil Palm Fruits
- Implant cap for orthodontic application (In-process of patenting)

9.0 Publications

9.1 Selected Referred publications

i. MAA Kasim, CY Low, MA Ayub, NAC Zakaria, MHM Salleh, K Johar (2017) . User-Friendly LabVIEW GUI for Prosthetic Hand Control Using Emotiv EEG Headset, Procedia Computer Science 105, 276-281

ii. Nur Izzah Lina Azaman, Muhammad Azmi Ayub, Ahsana Aqilah Ahmad (2016). Characteristic and sensitivity of Quantum Tunneling Composite (QTC) material for tactile device applications. Control and System Graduate Research Colloquium (ICSGRC), 2016 7th IEEE

iii. Ayub MA., Fathiah R, Amir L., Esa A.B.,(2015), Calibration Of Silicone-Based Tactile Sensor, Jurnal Teknologi (Sciences & Engineering), 76(8) pp65-69 , Penerbit Universiti Teknologi Malaysia Press ISSN 2180-3722 (2015)

iv. Muhammad Azmi Ayub, Sahril Kushairi and Amir Abdul Latif (2015). A New Mobile Robotic System for Intensive Aquaculture Industries, Journal of Applied Science and Agriculture.

v. Nurul Fathiah Mohamed Rosli, Ir. Dr. Muhammad Azmi Ayub (2014). Roseleena Jaafar. Characteristics of Optical Silicone Tactile Sensor Journal – The Institution of Engineers, Malaysia (Vol. 75, No. 2,Dec 2014)

vi. Ayub MA, Azmi M, (2014), In-line Inspection of Roundness Using Machine Vision, Elservier Ltd, Procedia Technology, pp808-817, ISBN 2212-0173 (2014)

vii. M. Hany and M.A.Ayub (2013). Force Control Algorithm for Detection of Break-Through Bone Drilling, Journal of Mechanical Engineering, an international journal, Vol.9, No.2, pp93-107, ISSN 1823-5514 (2013)

viii. Ramli H, Ab. Patar A. Haider A. Ayub MA.(2013) A New Neural-Active Force Control Architecture in High Precision SCARA System, Latest Advances in Systems Science and Computational Intelligence, pp86-90, Publisher WSEAS publications, USA, ISBN 978-1-61804-094-7,

ix. M.A.Ayub, T.Tajuddin, M.R.Jackson (2012).”Intelligent gripper for flexible material”, Journal of assembly Automation”, Issue 3 2102, Emerald Group Publishing Limited, ISSN 0144-5154

x. Aminnudin H, Ab Patar, ayub MA. Force Sensor Detection and Performance Evaluation of New Active System Ankle Foot Orthosis, Elservier Ltd, Procedia Engineering 41, pp510-515, ISSN 1877-7058 (2012)

xi. Esa AB. Ali B. Ayub MA., Normal Force Calibration for Optical Based Silicone Tactile Sensor, Elservier Ltd, Procedia Engineering 41, pp210-215, ISSN: 1877-7058 (2012)

xii. M. Hany and M.A.Ayub (2012). Real-time Algorithm for Detection of Breakthrough Bone Drilling, Elservier Ltd, Procedia Engineering 41, pp352-359, ISSN: 1877-7058 (2012)

xiii. Esa AB. Ali B. Ayub MA.(2012), Image analysis for deformation behavior of optical based silicone tactile sensor, Signal Processing and its Applications (CSPA), 2012 IEEE 8th International Colloquium on, pp23-28, ISBN: 978-1-4673-0961-5 (2012)

xiv. B. Ali, H. Yusoff and M.A.Ayub (2011). “Characteristics of a New Optical Tactile Sensor for Interactive Robot Fingers” International Journal of Social Robotics12369-011-0129-4 Springer-Verlag New York

xv. M. Hany and M.A.Ayub (2011). “Measurement Of Forces And Torques During Non-Homogeneous Material Drilling Operation” International Journal of Advanced Science, Engineering and Information Technology, ISSN: 2088-5334,INSIGHT - Indonesian Society for Knowledge and Human Development

xvi. M.A.A Ayub, P.Hynek, and M.R. Jackson (2011). “Modelling of Belt-Driven High-speed laser Beam Manipulator”, An international Journal of mechanical engineering, University Publication (UPENA)

xvii. M. A. Ayub, R. Jaafar, and Z. A. Majid (2011).”Embedding technopreneurship with mechatronics engineering in outcome-based curriculum development for postgraduate education in Malaysia”, Volume 13, Number 3, 2011 Global Journal of Engineering Education

xviii. M. Hany and M.A.Ayub (2011). “Calibration Of Forces And Torques During Bone Drilling Operation” , Journal Of Mechanics Engineering And Automation, ISBN / ISSN 2159-5275 David Publishing Company, USA

xix. B. Ali, R. Othman, R. Deraman and M.A. Ayub (2011). “A New Approach in Design and Operating Principle of Silicone Tactile Sensor”, International Journal of Computer Science 1549-3636 Science Publications

xx. M. Hany and M.A.Ayub (2011). “Measurement Of Forces And Torques During Non-Homogeneous Material Drilling Operation”, Journal Of Mechanics Engineering And Automation, Vol.1, No.2, pp139-146, ISSN2159-5275 (2011)

xxi. Ayub MA, Roseleena J, Yupiter M. “Robot-Assisted Orthopaedic Surgery: In-process Calibration and Measurement”, LAMBERT Academic Publishing,German, ISBN978-8465-3269-0 (2011)

xxii. Suzana R. Aminuddin B., Ayub MA, Abdul Talib S, et. al , “Potential Renewable Energy From Sewage Sludge (Case Study Malaysia), New Perspectives of Sustainable Management in Different Worlds, CHAPTER(s) IN BOOK, ISBN 978-3-8325-2926-0 Verlag Berlin GmbH (2011)

xxiii. Azmi M, Abdul Halim E, Ayub MA, Non-contact approach to roundness measurement, Signal Processing and its Applications (CSPA), 2011 IEEE 7th International Colloquium on, ISBN 978-1-61284-414-5, (2011)

xxiv. Azmi M, Abdul Halim E, Ayub MA, Roundness measurement of cylindrical part by machine vision, Electrical, Control and Computer Engineering (INECCE), 2011 International Conference on , pp486 – 490, ISBN 978-1-61284-228-8 (2011)

xxv. M. A. Ayub and C.Y. Low (2010). “ A Study on Steerability of Tracked Unmanned Ground Vehicles”, Proceedings Paper for International Symposium on Robotics and Intelligent Sensors (IRIS2010) , School of Information Science, Nagoya University, Japan. ISBN / ISSN 978-4-9905048-0-9

xxvi. H. Hanafiah, Ohka M. Omar A.R. , Ayub M.A. “Determination of object stiffness control parameters in robot manipulation using a prototype optical three-axis tactile sensor”, Sensors, 2008 IEEE, pp992-995, ISSN 4244-2581 (2008)

xxvii. Suzana R. Aminuddin B., Ayub MA, Abdul Talib S, et. al. Renewable Energy from Biogas Generated by Sewage Sludge Relationship between Sludge Volume and Power Generate, Scientific Research Journal, Vol.5 No.2, ISSN1675-7009 IRDC & UPENA, UiTM (2008)

xxviii. Development of an optical three-axis tactile sensor with 3-DOF Robotic arm towards application in humanoid robot. Proceeding of International conference on control, instrumentation and mechatronics engineering organized by Universiti Teknologi Malaysia. May 2007

xxix. Integrating Mechatronics Engineering with the entrepreneurship in Outcome-based education in Malaysia Proceeding of the 2nd. International Conference on Engineering Education and Training (ICEET), Kuwait organised by American Society for Engineering Education and Kuwait University. April 2007

xxx. Modeling and Simulation analysis of Tracked Unmanned Ground Vehicle.3rd. International conference on Artificial Intelligent in engineering and Technology, Nexus-Karambunai Sabah, IET United Kingdom, IEM Malaysia, Malaysian Communication and Multimedia Commision and University Malaysia Sabah. (November 2006)

xxxi. Visual Servo System For Controlling Tension Of Non-Linear-Elastic Web Deformation. Proceeding of International Workshop on Advanced Motion Control Technology AMC'06, Istanbul Turkey Sabanci University Istanbul, IEEE, IEE Japan, The Society of Instrument and Control Engineers, The Scientific & Technical Research Council Turkey ISBN 0-7803-9512-3 (March 2006)

xxxii. A Mechatronic Approach To High Speed Cutting ProcessProceeding of International Conference on Automation and Robotic, Kuala LumpurIEM, IEEE , USAEP & UPM.(ISBN 967-960-093-9)

xxxiii. Rapid prototyping for cutting two-dimensional patterned shapes web materials. Proceeding of international conference on Mechatronic Engineering Kuala Lumpur. ICOM 2005 UIAM dan IEM MalaysiaISBN: 983-2957-57-5

xxxiv. Intelligent Handling System For Deformable Web Materials. Proceeding of International conference on mechatronics and Technology, ICMT2005 Kuala Lumpur Malaysia. Universiti Teknologi Malaysia, IEEE and IEM Malaysia

xxxv. Machines Vision and Intelligent Machines, proceeding of International Conference on Mechatronics Technology, Hanoi, Vietnam. ICMT'04 ISBN 92-2-013302-3 Vietnamese Academy of science and Technology (VAST) and University of Technology-Vietnam National Universty.

xxxvi. Automated handling system for Elastic Web materials, Proceeding of Mechatronics & Robotic, (MECHROB)Aachen Germany. ISBN 3-935433-54-9 IEEE, European Centre for Mechatronics and Industrial Electronic Society

xxxvii. Image Processing Techniques for the Identification of two-dimensional Patterned shape of Non-rigid web materials. Proceeding of International conference on Mechatronics, ICOM United Kingdom. ISBN 1860584209 Institute of Control and Measurement UK , Loughborough University

xxxviii. Simulation of Vision Driven On-line Trajectory Planning for Cutting 2D-Patterned Shape of Elastic Web Fabric. Proceeding of 8th IEEE International Conference on Method and Models in Automation and Robotics, MMAR2002, Szczecin, Poland. ISBN 88764-66-7 Polish Academic of Sciences Warsaw, IEEE Robotics and automation Society, control System society and Technical University of Szczecin

xxxix. 2D-Patterned Shape Cutting of Elastic Web Fabrics Using Vision Directed Laser Cutting: Design and Realiasation. Proceeding of International Mechatronic Conference, Enschede, Netherlands. ISBN 90365-17664 IEE, EEC mechatronics forum and University of Twente the Netherlands.

xl. Performance of High Speed Twin-Mirror Laser Cutting Machine. Proceeding of National science & Technology Conference, Subang Jaya Malaysian Scientific Association (MSA), COSTAM

xli. On-line Computer Aided Inspection System, Journal of engineering UiTMKajian Kejuruteraan, UiTM, 1995.

xlii. P.N. Rao, Anuar Ahmad, Abdul Rahman Omar , Muhammad Azmi B Ayub. Design and Fabrication of a Robotic Arm for Material handling Scientific Research Journal University Publication Center, UiTM 2005.

9.2 Non-referred publications

- Automated Two-Dimensional Patterned Shape Cutting Of Elastic Web Materials, PhD Thesis 2004.
- Vision directed laser cutting of web materials. Leicestershire Exhibition Center, Leicester UK. August 2003
- High-speed of cutting web materials using laser. Paper presented at the post graduate conference, Faculty of Engineering, Loughborough University. 2002.
- Design and Fabrication of a robotic arm for material handling. BRC UiTM. 1998
- Further development of an advanced laser cutting machine. MSc. Thesis 1996
- Development of Software for PC-based Machine Vision. Proceeding of BRC, UiTM 1995.
- Visual PC-Based Sorting System, B.Eng(Mechanical) UNSW Thesis 1989.

10. Community/Society Services

- Penghulu Masyarakat Melayu Loughborough United Kingdom 2002
- Committee Member of Publication, Institution of Engineers Malaysia (IEM). 2005-2011.
- Committee Member Admission and Training, Institution of Engineers Malaysia (IEM). 2015-present.