



## Zulkifli bin Ahmad @ Manap



Lecturer  
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<http://scholar.google.com/citations?user=hMxeI5AAAAAJ&hl=en>

### Academic Qualification

1. M.Sc. (Mechanical Engineering), UKM, 2012
2. B.Eng. (Hons) Mechanical Engineering, UTM, 2008.

### Working Experiences

- |                          |   |
|--------------------------|---|
| 1. July 2012 ~ current   | Lecturer, Faculty of Mechanical Engineering (FKM), Universiti Malaysia Pahang.      |
| 2. June 2008 ~ June 2012 | Tutor, Faculty of Mechanical Engineering (FKM), Universiti Malaysia Pahang.         |
| 3. Apr 2008 ~ June 2008  | Design Engineer, Perusahaan Otomobil Nasional Berhad (PROTON), Shah Alam, Selangor. |

### Expert Area

Biomechanics, Probabilistic Finite Element Analysis; Sports Engineering

### Research Interest

Applied and Computational Mechanics, Biomechanics, and Finite Element Method.

### Research Project/ Grant

- |                   |  |
|-------------------|--|
| <b>RDU100373</b>  | Development of Probabilistic Finite Element Analysis for Lumbar Spine Biomechanics – <b>Leader</b>                     |
| <b>RDU1303108</b> | Development and Analysis of Bow and Arrow for Malaysian Athlete ( <b>Leader</b> )                                      |
| <b>RDU1303107</b> | Modeling of Vehicle Seat for Human Comfort of a Small Size Passenger Car (K-Car) ( <b>Member</b> )                     |
| <b>RDU1303110</b> | Three-Dimensional (3D) Modeling of Human Airway using Fluid Structure Interaction (FSI) Technique ( <b>Member</b> )    |
| <b>RDU110331</b>  | Biomechanical Analysis and Prediction on Heart Valve Behaviour by Fluid Structure Interaction Approach – <b>Member</b> |
| <b>RDU110702</b>  | Development of High Performance Sports Shoes and Knee Pad for Malaysian Athletes - <b>Member</b>                       |

### Professional Qualification / Membership / Affiliation / Experience

#### Membership of Professional Body

1. Graduate Engineer, Board of Engineers, Malaysia. (BEM) – 56668A

### Teaching Experience

DMM3623	Hydraulic & Pneumatic Technology	53 students	2008/2009/1
BMM1113	Engineering Mathematics	(Tutorial)	2008/2009/1
DMM1532	Statics	38 students	2008/2009/2
BMM1553	Dynamics	(Tutorial)	2008/2009/2
DMM2513	Solid Mechanics	31 students	2011/2012/1
DMM2932	Mechanical Technology Lab 3	28 students	2011/2012/1
DMM3663	CNC Technology	38 students	2011/2012/1

DMM2513	Solid Mechanics (Repeater)	2 students	2011/2012/2
DMM1523	Engineering Materials	55 students	2011/2012/2
DMM2942	Mechanical Technology Lab 4	28 students	2011/2012/2
DMM2513	Solid Mechanics	92 students	2012/2013/1
DMM2931	Mechanical Technology Lab 3	90 students	2012/2013/1
BMM3562	Finite Element Method	60 students	2012/2013/2
DMM2941	Mechanical Technology Lab 4	100 students	2012/2013/2
BMM2613	Computer Aided Design	33 students	2013/2014/1
BMM3562/3	Finite Element Method	49 students	2013/2014/1

## Supervision

Name	Title	Year
Vorathin a/l epin	Design and fabrication of smart mouse trap	2011
Sigithasan a/l nagantheram	Design and fabrication of smart rack gadget	2011
Roslina bt Abdul Jalil	Design and fabrication of knee walker for disable	2011
Nurul Ariffah bt Hamidi	Design and fabrication of walker for elderly	2011
Mohd Zulkefley bin Ibrahim	Design and fabrication of elderly and disable seat	2011
Ahmad Aiman bin Azmi	Design and develop a multi touch key board screen	2011
Muhammad Aminuddin bin Pi Remli	Experimental setup and finite element analysis of established design for soccer boot	2012
Mohd Haziq Rashid bin Husin	Finite element modeling of foot impact during kicking the ball	2012
Mohd Faizfikri bin Mat Ghani	Finite element analysis of soccer ball	2012
Muhammad Fakhurur-Razi B. Abd. Rahim	The effect of weightlifting on spine physiology	2012
Nursyuhada bt Hassan	Design and material study on archery equipment: Arrow simulation using CFD	2012
Nurul Jasmie bt Che Ahamed	Optimizing of stud configuration for soccer boot: A finite element method	2012
Mohd Riduan bin Kasim	Design and fabricate test rig for kicking soccer ball	2013
Nur Akashah binti Hasanuddin	Development of Arrow	2013
Shahren bin Manap	Development of portable Biomechanics Desk	2013
Mohd Faizfikri bin Mat Ghani	Finite element analysis of soccer ball	2014
Mohd Haziq Rashid bin Husin	Finite element modeling of foot impact during kicking the ball	2014
Muhammad Aminuddin bin Pi Remli	Experimental setup and finite element analysis of established design for soccer boot	2014
Mohamed Nizar Bin Zainal Abidin	Development of sprint test timing gate using Arduino	2014
Muhammad Syafiq bin Mohd Zaki	Improvement of Low Cost Foot 3D Scanner	2014
Mohd Razlan bin Azizan	Development of instrumented insole to monitoring the body balance	2014
Liyana Binti Baddar Khan	Finite Element Analysis of the Foot Pressure Distribution on Athlete Gait	2014

## List of Publications

### A) International and National Journal

1. A. Zulkifli, Ahmad K. Ariffin, M.R.M. Akramin, 2014, "Probabilistic Model of Surface Crack on the Lumbar Vertebra", *Applied Mechanics and Materials*, Vol. 471, pp. 299-305, 10.4028/www.scientific.net/AMM.471.299. (SCOPUS).
2. Zahari Taha, Mohd Azri Aris, Zulkifli Ahmad, Mohd Hasnun Arif Hassan, Nina Nadia Sahim, 2014 "A Low Cost 3D Foot Scanner for Custom-Made Sports Shoes", *Applied Mechanics and Materials*, Vol. 440, pp. 369-372, 10.4028/www.scientific.net/AMM.440.369. (SCOPUS)
3. Zulkifli Ahmad, Zahari Taha, Hasnun Arif Hassan, Mohd Azrul Hisham, Nasrul Hadi Johari, and Kumaran Kadirgama, 2014, "Biomechanics Measurements in Archery", *Journal of Mechanical Engineering and Sciences*, Volume 6, pp. 771-780, ISSN (Print): 2289-4659; e-ISSN: 2231-8380.
4. **A. Zulkifli** and A.K. Ariffin, 2012, "Hybrid of Probabilistic and Finite Element Analysis in Biological Structure Failure: A Review" *International Review of Mechanical Engineering*, Vol. 6, N. 4, pp. 927-933. ISSN: 1970-8734. (Q4)
5. Mohd Azrul Hisham Mohd Adib, Mohd Fadhlan Yusof, **Zulkifli Ahmad**, and Nur Hazreen Mohd Hasni, 2012, "Detection of Cardiac Geometry via Difference Intensity of Echocardiogram Images", *Journal of Integrative Bioinformatics*, Vol. 9(2), pp. 1-6. ISSN: 1613-4516, doi:10.2390/biecoll-jib-2012-195. (Q1)
6. **A. Zulkifli** and A.K. Ariffin, "Monte Carlo Analysis of the Human Vertebra based on Compressive Loading", 2012, *International Journal of Mechanical & Mechatronics*
7. **A. Zulkifli**, A.K. Ariffin, and M.M. Rahman. "Probabilistic Finite Element Analysis of Vertebrae of the Lumbar Spine under hyperextension loading", *International Journal of Automotive and Mechanical Engineering*. Vols. 3 (2011) pp. 256-264. ISSN: 1985-9325.
8. **A. Zulkifli**, A.K. Ariffin, A.E. Ismail, R. Daud, and M.R.M. Akramin "Stress and probabilistic study of the lumbar vertebra under compression loading", *Applied Mechanics and Materials Vols. 52-54 (2011) pp 1394-1399*, ISSN 1660-9336.
9. M.R.M. Akramin, **A. Zulkifli** and M. Mazwan Mahat, "Reliability Analysis of Uncertain Input Variables for Cracked Structures", *Applied Mechanics and Materials Vols. 52-54 (2011) pp 1358-1363*, ISSN 1660-9336.
10. R. Daud, A.K. Ariffin, S. Abdullah, A.E. Ismail, **A. Zulkifli**, "Computation of Stress Intensity Factor for Multiple Cracks using Singular Finite Element" *Advanced Materials Research Vol. 214 (2011) pp 75-79*.
11. A.E Ismail, A.K Ariffin, S. Abdullah, M.J Ghazali, R. Daud, M. Abdulrazzaq, and **A. Zulkifli**, "J-Integral Analysis of Surface Cracks in Round Bars under Tension Loadings" *Applied Mechanics and Materials Vols. 52-54 (2011) pp 37-42*, ISSN 1660-9336.

### B) International and National Conference Papers

1. Zulkifli Ahmad and Mohd Azri Aris, 2013, "Relationship of the young athlete foot anthropometry measurement and kicking ball velocity", *International Conference on Computing, Mathematics and Statistics (iCMS2013)*, Penang, Malaysia.
2. **A. Zulkifli**, A.K. Ariffin, A.R. Ismail, M.A. Hisham, and N.H. Johari, 2012, Probabilistic Analysis of the Human Vertebra under Compressive Loading, 2nd Regional Conference on Applied and Engineering Mathematics (RCAEM-II 2012), 30-31 May 2012, Penang.
3. **A. Zulkifli**, Z. Taha, N.H. Johari, K. Kadirgama, A.R. Ismail, M.A. Hisham, Z. Anuar, M.H. Ariff, N. Saadah, 2012, "Correlation between football boot design material and ball speed", *Asean University Sports Council International Conference (AUSCIC2012)*, 13-14 Dec 2012, Vientiane, Laos.
4. Ahmad Rasdan Ismail, Mohd Azrul Hisham Mohd Adib, K.Kadirgama, Nasrul Hadi Johari, **Zulkifli Ahmad@Manap**, Hadi Abdul Salaam, Zulfika Anuar, Nor Saadah N. Azmi, 2011, *Review on Biomechanics: A Potential Research*, Proceeding of Malaysian Technical Universities International Conference on Engineering and Technology 2011 (MUiCET 2011), 13 -15 November 2011, Batu Pahat, Johor.
5. **A. Zulkifli**, A.K. Ariffin, "Biomechanical analysis of the lumbar spine under physiological loading", *Numerical Analysis of Engineering (NAE2011)*, Manado, Sumatera, Indonesia. 19-21 May 2011.
6. **Z. Ahmad**, A.K. Ariffin, and M.R.M. Akramin, "Probabilistic Stress Analysis of the Human Lumbar Spine Extended Finite Element Method", *11<sup>th</sup> Asia Pacific Industrial Engineering & Management Systems Conference 2010 (APIEMS2010)*, 7-10 Disember 2010, Melaka, Malaysia.
7. **A. Zulkifli**, A.K. Ariffin, A.E. Ismail, and R. Daud, "Effect of Extreme Condition on Pedicle Lumbar Spine: A Three Dimensional Finite Element Analysis", *2<sup>nd</sup> National Conference in Mechanical Engineering for Research & Postgraduate Studies (NCMER2010)*, 3-4 Disember 2010, Pekan, Pahang, Malaysia.
8. **Z. Ahmad**, A.K. Ariffin, R. Daud, L.A. Hamid, and A.E Ismail, "Probabilistic Analysis of the Human Lumbar Spine Associated Finite Element Model", *Regional Engineering Postgraduate Conference 2010 (EPC2010)*, 28-29 September 2010, Bangi, Selangor, Malaysia.

9. A.E Ismail, A.K Ariffin, S. Abdullah, M.J. Ghazali and **Z. Ahmad**, “Analisis Kamiran-J pada bar yang mengandungi retak permukaan kenaan momen lentur”, *Regional Engineering Postgraduate Conference 2010 (EPC2010)*, 28-29 September 2010, Bangi, Selangor, Malaysia.
10. M.R.M. Akramin, **Zulkifli Ahmad** & AK Ariffin. “Finite Element and Monte Carlo Analysis of Cracked Structure”. *Proceedings of ACE-X 2010, 4<sup>TH</sup> International Conference on Advanced Computational Engineering and Experimenting, July 8-9, 2010, Paris, France, pp.106.*
11. M.R.M. Akramin,
12. **Zulkifli Ahmad**, M. Mazwan Mahat, A.R. Amir and A. Juliawati. “A Physical Probabilistic Model to Predict Failure Rates”. *EnCon2010, 3<sup>rd</sup> Engineering Conference on Advancement in Mechanical and Manufacturing for Sustainable Environment, April 14-16, 2010, Kuching, Sarawak, Malaysia ISBN 978-967-5418-10-5.*

### List of Books

1. Biomechanical Analysis of Weightlifting, LAP Lambert, 2013

### Awards / Research / Achievement

1. Instrumented Shoe Insole with Android Interface, GOLD in CiTREX2014
2. Development of Table Tennis Launcher, GOLD in CiTREX2014
3. Automated Sprint Timing Gate, GOLD in CiTREX2014
4. Development of the archery test rig for Malaysian athlete, GOLD in CiTREX2013 , BRONZE in i-ENVEX2013
5. National SolidWork Student Design Competition 2013, 2nd runner up
6. Proton Green Mobility Challenge at Sepang International Circuit, 1st runner up in PGMC2012

### List of Course / Conference Attended

Date	Program	Status
4 Sept 2012	Meeting with Terengganu Sports Council	Participant
27 April 2012	Roadmap meeting and Formation for Centre for Sports Engineering with KPT in MS Garden Hotel, Kuantan	Participant
19 Apr 2012	Conducted an experiment of Sports Engineering in Universiti Malaya	Participant
20-22 Sept 2011	Delmia Software Training	Participant
18-20 July 2011	LS-Dyna Software Training	Participant
2-4 July 2011	Outcome Based Curriculum Design & Constructively Aligned Teaching & Learning Activities Workshop	Participant
19 April 2011	Institut Sukan Negara Lecture Series 3/2011	Participant
14-15 April 2011	Workshop “Measurements and Analysis in Health Science Research”	Participant
7-10 Dec 2010	11 <sup>th</sup> Asia Pacific industrial Engineering & Management Systems Conference (APIEMS2010), Melaka.	Presenter
3-4 Dec 2010	2 <sup>nd</sup> National Conference in Mechanical Engineering for Research & Postgraduate Studies (NCMER2010), Pekan.	Presenter
28 Sept. 2010	Regional Engineering Postgraduate Conference (EPC2010), Bangi.	Presenter
July 2010	Fracture of Strength Mechanics (FEOFS) conference	Committee
7 March 2010	1 Malaysia Paper Plane Fun Contest 2010 at Dewan Pusat Sukan, UPM	Participant
4 March 2010	Kursus Penulisan Jurnal, UMP	Participant
13-15 Nov 2009	Finite Elements Method in Engineering & MATLAB: A Comprehensive Reference for Engineers	Participant
1 July 2009	Bio-Modeling and Numerical Applications Training	Participant
16-17 June 2009	Learner Guide to MATLAB & SIMULINK	Participant
21-23 May 2009 & 4-5 June 2009	MS ISO/IEC 17025:2005 “General Requirements for the Competence of Testing and Calibration Laboratories”	Participant
12-18 April 2009	RESEARCH METHODOLOGY COURSE	Participant
2009	Field work at Tasik Kenyir Hydro Turbine	Participant

21 July 2008

LS-18001-23 (Series/Parallel) Pump Test Set Training Course by Lotus Scientific (M)  
Sdn. Bhd.

Participant