

DR. MOHD FAIRUZ BIN SHAMSUDIN

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PROFESSIONAL PROFILE

Fairuz has broad experience in engineering research and application. In his research, Fairuz developed a structural health monitoring technique for fatigue cracks assessment using acoustic emission and machine learning techniques. Fairuz has over 10 years of experience in consultancy. He used to work BMT Fluid Mechanics, a consultancy-based company in Teddington, a researcher at the National Structural Integrity Research Centre, Cambridge, United Kingdom, and currently a researcher at University Teknologi Malaysia. Fairuz has broad experience in technical aspects. He has consulted engineers, technicians, and students related to the acoustic emission technique and numerical modeling. In his career, he had significant involvement in research and development, project management as well business development.

EDUCATION

Brunel University London, United Kingdom

2015-2019

Awarded: PhD in Mechanical Engineering

The University of Manchester, United Kingdom

2005 -2009

Awarded: MEng (Hons) Aerospace Engineering

PROFESSIONAL EXPERIENCE

Universiti Teknologi Malaysia

2019 to date - Senior lecturer

Fairuz joined UTM as a senior lecturer in the Aeronautic, Automotive, and Marine Department. In his role, Fairuz teaches undergraduate and postgraduate students mainly engineering design, dynamics which include noise and vibration, and finite element methods. He has published journals and proceedings in numerous publications. Apart from being actively involved in academics, Fairuz also provides consultation to many industries.

AEE Services Sdn. Bhd.

2018 to 2019 - Consultant

Fairuz worked as an engineering consultant in the area of structural health monitoring. He has headed the state-of-the-art project *Advanced Diagnostic and Prognosis Technology (ADAPT)* for one of the Petronas refineries. The contribution of the project is to facilitate plant operation and maintenance programs using online monitoring data to monitor cracks identified at the hot combine feed exchanger (HCFE) unit that operates at high temperatures above 500degC.

National Structural Integrity Institute/TWI

2015 to 2019 – Researcher

BMT Fluid Mechanics Limited

2011 - 2014 Senior Project Engineer

2010 - 2011 Project Engineer

Fairuz was a senior project engineer at BMT Fluid Mechanics Limited. In this role, he was responsible to supervise various projects related to CFD, Quantified Risk Analysis (QRA), and fire and explosion, predominantly the oil and gas and marine industries. He was also actively engaged with client liaison and business development for various projects internationally.

Perodua Manufacturing Sdn Bhd

2009 - 2010 CAE – FEA/CFD Engineer

Fairuz joined Perodua Manufacturing Sdn Bhd (automotive company) as a CAE engineer. His role was mainly to carry out FEA and CFD analysis mainly in the area of stress and aerodynamics for the early phase development of Myvi Car and Alza cars.

TRAINING/ACHIEVEMENT AND SPECIAL SERVICES

2019 External reviewer on behalf of Research Support at Qatar University for Qatar University internal grants

2015 Acoustic emission and vibration testing (TWI/in-house training)

2015 Awarded MARA scholarship for postgraduate study

2013 The Fundamentals of Process Safety, Kuala Lumpur Malaysia by ICheme

2013 Gas Explosion Hazards on Offshore Facilities, Bergen Norway by CMR Gexcon

2013 The Fundamentals of Oil and Gas, Singapore by the EIC

2010 ANSYS CFD and FLACS training programs in Teddington, London.

2008 Fire Awareness Training, Fire Alarm Validation Training, and Evacuation Marshall Training hosted by Turner Safety certified by Institution of Fire Engineers.

2006 Qualified for EDEXEL level 2 BTEC award indoor supervision and conflict management hosted by Security Industry Authority (SIA)

2006 Flight Laboratory Course associated with Cranfield University given by the National Flying Laboratory Centre. A flight test was done on Scottish Aviation Bulldog Trainer Aircraft

2005 Awarded MARA scholarship for undergraduate study

SELECTED PUBLICATIONS

1. Detection of Vibration Induced Fatigue Crack Propagation Using a Hybrid Method MF Shamsudin, TH Gan - Key Engineering Materials, 2022
2. Shamsudin, M. F., Mares, C., Johnston, C., Edwards, G., & Gan, T. -H. Vibration and Acoustic Emission Monitoring of a Girth Weld during a Resonance Fatigue Test. *In 24th International Congress on Sound and Vibration 23-27 July, 2017*. London.
3. Shamsudin, M. F., Mares, C., Gan, T. -H., & Edwards, G. (2017). Bayesian Estimation for Crack Monitoring of a Resonant Pipe using Acoustic Emission Method. *In International Conference on Structural Engineering Dynamics*. Ericeira, Portugal
4. Shamsudin, M. F., Mares, C., Johnston, C., Lage, Y., Edwards, G., & Gan, T. H. (2019). Application of Bayesian estimation to structural health monitoring of fatigue cracks in welded steel pipe. *Mechanical Systems and Signal Processing*, 121, 112-123.