ABDULLAH A. ALSHAYA

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RESEARCH AREAS

Biomechanics, Thermal Stresses, Hybrid-Method, Radial Basis Function Method, Digital Image Correlation, Inverse Method, Material Characterization, Sloshing Suppression, Command Shaping.

ACADEMIC EMPLOYMENT

Assistant Professor, Kuwait University 2017-present

EDUCATION

Ph.D. Mechanical Engineering, University of Wisconsin-Madison 2013-2016
M.A. Mathematics, University of Wisconsin-Madison 2013-2015
M.S. Engineering Mechanics, University of Wisconsin-Madison 2012-2013
M.S. Mechanical Engineering, University of Wisconsin-Madison 2011-2012
B.S. Mechanical Engineering, Kuwait University 2004-2008

ACADEMIC EXPERIENCE

College of Engineering and Petroleum, Kuwait University
Director of Research Office 2019-2020

RESEARCH EXPERIENCE

University of Wisconsin-Madison
Graduate Research Assistant, Experimental Mechanics Lab 2013-2016
Dissertation title: Experimental, Analytical and Numerical Analyses of Orthotropic Materials and Biomechanics Application

Project Research Assistant, Biomechanics Lab 2013-2014
Project: Validation of Multiple Musculoskeletal Thumb Models with Collected Experimental Data

Graduate Research Assistant, Polymer Engineering Center 2011-2012
Project: Alternate Method For Measuring the Friction Coefficient of Polymers Using Timoshenko and Van Karman Device

TEACHING EXPERIENCE

Kuwait University
Instructor, Mechanical Engineering Department 2017-present

Undergraduate: Core Courses
ENG 203: Dynamics
ENG 307: Applied Numerical Methods and Programming in Engineering
ENG 308: Numerical Methods in Engineering

Mechanical Engineering
ME 351: Mechanical Design I
ME 448: Advanced Strength of Material
ME 450: Mechanical Vibrations
ME 483: Biomechanics

Graduate: Core Courses
ENG 512: Advanced Engineering Mathematics I

Mechanical Engineering
ME 512: Mechanical Vibrations

University of Wisconsin-Madison
Teaching Assistant, Mathematics Department Fall 2016
Math 112: College Algebra

Tutor, Undergraduate Learning Center and Mathematics Department 2013-2016
Provide private and drop-in tutoring sessions for Math and Mechanical Engineering classes.

Grader, Engineering Mechanics and Mathematics Department 2013-2016
EMA-547/8 Engineering Analysis I/II and MATH-431 Theory of Probability

PROFESSIONAL EXPERIENCE

Well Surveillance Engineer, Kuwait Oil Company (KOC), Kuwait 2009-2011
Witnessing, Developing, and Optimizing Well Production

Green Belt in Six Sigma Methodologies, Six Sigma Academy 2011
Six Sigma Project: Reduce the failed jobs which are requested by Field Development Engineers to 70% in a six month period by guiding the Well Surveillance Engineers to perform the requested jobs more professionally and effectively while keeping the cost and operation time as low as possible

Power Plant Engineer, Ministry of Electricity and Water, Kuwait 2009
Developing and Designing a Power Plant

JOURNAL PUBLICATIONS

9 **Alshaya A**, Considine J. Inverse Identification of Elastic Constants using Airy Stress Function: Theory and Application. *Meccanica*. **2021** (Accepted)

8 **Alshaya A**, Alshayji A. Robust Multi-Steps Input Command for Liquid Sloshing Control. *Journal of Vibration and Control*. **2021** (Accepted)

7 **Alshaya A**, Almujarrab D. Smooth Polynomial Shaped Command for Sloshing Suppression of a Suspended Liquid Container. *Transactions of the Institute of Measurement and Control*. **2020**, 0142-3312

6 **Alshaya A**, Alghanim K. Command-Shaping for Sloshing Suppression of a Suspended Liquid Container. *Journal of Dynamic Systems, Measurement and Control*. **2020**, 142, 121003.

5 **Alshaya A**, Lin S J. Hybrid Stress Analysis of a Near-Surface Circular Hole in Finite Structures. *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*. **2020**, 234 (7), p. 1366 - 1381

4 Kalayciogli B, **Alshaya A**, Rowlands R. Experimental Stress Analysis of an Arbitrary Geometry containing Irregularly Shaped Hole. *Strain*. **2019**, 55 (3), e12306.

3 **Alshaya A**, Rowlands R. Experimental Stress Analysis of a Notched Finite Composite Tensile Plate. *Composite Science and Technology*, **2017**, 144, p. 89 - 99.

2 **Alshaya A**, Shai X, Rowlands R. Thermoelastic Stress Analysis of a Finite Orthotropic Composite Containing an Elliptical Hole. *Experimental Mechanics*, **2016**, 56 (8), p. 1373-1384.

1 **Alshaya A**, John H, Rowlands R. Stresses and Strains in Thick Perforated Orthotropic Plates. *ASCE Journal of Engineering Mechanics*, **2016**, 142 (11), p. 4016082.

PROCEEDING & CONFERENCE PAPERS

12 Alazmi A, **Alshaya A**, Alhazza K. Natural Frequencies and Mode Shapes of Mechanically-Connected Beams [abstract]. In: *Proceedings of the First International Nonlinear Dynamics Conference*; **2019**; Rome, Italy.

11 **Alshaya A**, Majeed M, Alhazza K. Time-delay Control of Cantilever Beams [abstract]. In: *Proceedings of the First International Nonlinear Dynamics Conference*; **2019**; Rome, Italy.

10 **Alshaya A**, Considine J. Determination of Constitutive Parameters in Inverse Problem Using Thermoelastic Data. In: *Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques and Inverse Problems, Volume 7: Proceedings of the 2018 Annual Conference on Experimental and Applied Mechanics*; **2019**, pp. 25-34.

9 **Alshaya A**, Bourisli R, Considine J. Determination of Constitutive Properties Using DIC-Displacement Data and U-FEM. In: *Proceedings of the 2018 COMSOL Conference*; **2018** October; Lausanne, Switzerland.

8 **Alshaya A**, Considine J, Rowlands R. Determination of Constitutive Properties in Inverse Problem Using Airy Stress Function. In: *Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques and Inverse Problems, Volume 8: Proceedings of the 2017 Annual Conference on Experimental and Applied Mechanics*; **2018**, pp. 73-81.

7 Kalayciogli B, **Alshaya A**, Rowlands R. Experimental Stress Analysis of Unsymmetrical, Irregularly Shaped Structure containing an Arbitrarily-Shaped Hole. In: *Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques and Inverse Problems, Volume 8: Proceedings of the 2017 Annual Conference on Experimental and Applied Mechanics*; **2018**, pp. 9-12.

6 **Alshaya A**, Kalayciogli B, Rowlands, R. Extending DIC to Stress Analysis Arbitrarily-Shaped Structure Containing an Irregularly-Shaped Hole [abstract]. In: *Annual International Digital Image Correlation Conference*; **2017** November; Barcelona, Spain.

5 **Alshaya A**, Samad W, Rowlands R. Desirable Features of Processing DIC Data with a Stress Function. In: *International Digital Imaging Correlation Society: Proceedings of the 2016 First Annual Conference*, **2017**, pp. 241-242.

4 **Alshaya A**, Shai X, Rowlands R. Stresses Analysis of a Finite Orthotropic Plate Containing an Elliptical Hole From Recorded Temperature Data. In: *Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques and Inverse Problems, Volume 9: Proceedings of the 2016 Annual Conference on Experimental and Applied Mechanics*; **2016**, pp. 47-56.

3 **Alshaya A**, Rowlands R. Determination of Stress Concentration in Orthotropic Composites Using Mapping Collocation Techniques. In: *Proceedings of the ANTEC, Annual Technical Conference*, **2016** May; Indianapolis, IN, pp. 354-361.

2 **Alshaya A**, Rowlands R. Reducing Stress Concentration in a Side Notched Finite-Width Composite Plate. In: *Proceedings of the ANTEC, Annual Technical Conference*, **2014** April; Las Vegas, NE, pp. 2671-2678.

1 **Alshaya A**, Petzold S, Eriten M, Osswald,T. Friction Coefficient Measurements Using Timoshenko and Van Karman Device: Bulk Polymers. In: *Proceedings of the ANTEC, Annual Technical Conference*; **2013** April; Cincinnati, Ohio, pp. 1900-1907.

TECHNICAL PRESENTATION

2 **Alshaya A**, Rowlands R. Hybrid Full-Field Stress Analysis of Finite Structures Subjected to a Concentrated Load Using Mapping-Collocation Technique. In: *Midwest Experimental Mechanics Graduate Student Symposium*; **2016** April; Urbana, IL.

1 **Alshaya A**, Rowlands R. The Stress and Strain Analysis in an Infinite Orthotropic Sitka Spruce Plate with Finite Thickness. In: *Midwest Experimental Mechanics Graduate Student Symposium*; **2015** March; Madison, WI.

PEER REVIEW

Journal of the Brazilian Society of Mechanical Sciences and Engineering (1)
Complexity (1)
Transactions of the Institute of Measurement and Control (4)

STUDENT SUPERVISION

Undergraduate
Dima Almujarrab. Smooth-Polynomial Command-Shaping for Sloshing Suppression of a Suspended Liquid Container. **2019** December.

Graduate
Abdulaziz Aldhubaibi. Inverse-Problem of Diametrically Loaded Disk using Digital Image Correlation. **2021** August.

COMMITTEES

Timetable Committee, member	2020-2021
Scholarship Committee, member	2019-2020
Student Advising Committee, coordinator	2018-2021
Dynamics and Control TAG, coordinator	2018-2020

AWARDS AND HONORS

Student Research Travel Grant - Conference Presentation Funds	November 2016
Academic Achievement Award from University of Wisconsin-Madison	May 2013-2016
Honor Society of Phi Kappa Phi, Member Board	April 2013
Kuwait University Scholarship	2010

Amir (Prince of Kuwait) Honor Reward (The best two students in each Colleges) 2009
Kuwait University Excellence Student (The best two students in each Colleges) 2007-2008
Deans Honor List 2006-2009

MEMBERSHIP

American Mathematical Society (AMS) November 2014
Society of Plastics Engineers (SPE) November 2012
Society of Petroleum Engineers (SPE) May 2011

SOCIAL ACTIVITIES

Coordinator of ASME chapter in Kuwait University, Mechanical Engineering Department 2017-2018
Provide MATLAB short courses (Introductory, Intermediate, and Advanced Level)

SKILLS

Global Languages: Fluent in English and Arabic languages
Computer Programs: MATLAB, EES, ANSYS, COMSOL
Software & Tools: LaTeX, Word, Excel, PowerPoint