

DR MOHSEN BAKOURI
PROFESSOR
IEEE SENIOR MEMBER

Doctor of Science in Biomedical Engineering
Department of Medical Equipment Technology
College of Applied Medical Sciences
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PERSONAL INFORMATION

Summary: Dr. Bakouri (**IEEE senior member**) received a Ph.D. degree in Biomedical Engineering (Systems and Control) from the University of New South Wales (UNSW), Sydney, N.S.W., Australia, in 2014. He is currently an Associate Professor in the Department of Biomedical Equipment Technology, at Majmaah University, Saudi Arabia. His research interests include modeling and automated control systems and other mathematical modeling techniques. He has authored or co-authored more than 60 papers and abstracts in international journals and conferences. This research has been multidisciplinary, involving techniques ranging from designing sophisticated control applications in Biomedical engineering to computational modeling and systems identification and bio-signal processing.

Familiar with ABET accreditation. Officially certified as an academic accreditation reviewer of academic programs from the Saudi National Commission for Academic Accreditation and Assessment (NCAAA).

EDUCATION

DOCTOR OF PHILOSOPHY (PHD), IN BIOMEDICAL ENGINEERING

School of Electrical Engineering and Telecommunications (EE&T), The University of New South Wales (UNSW), Sydney, NSW (2052), Australia, 2014

Dissertation Title: *Sensorless Physiological Control of Implantable Rotary Blood Pumps for Heart Failure Patients Using Modern Control Techniques.*

MASTER OF SCIENCE (MSc.) IN AUTOMATIC CONTROL AND INSTRUMENTATION

School of Electrical Engineering and Telecommunications, Libyan Academy, Libya, 2006

BACHELOR OF SCIENCE (B.Sc.) IN ELECTRICAL ENGINEERING

Department of Electrical and Electronic *Engineering*, Nalut University, Libya, 1998

AREAS OF RESEARCH INTEREST

1. Biomedical Engineering applications.
2. Systems and Control applications.
3. Signal processing application.
4. Mathematical Modeling and Simulations.

LINK TO ORCID, GOOGLE SCHOLAR, AND RESEARCH GATE

ORCID ID: <https://orcid.org/0000-0001-7244-2949>

Google Scholar Citations: <https://scholar.google.com/citations?user=oc5Et5AAAAAJ=en&user=oc5Et5AAAAAJ>

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=55903484700>

WEB OF SCIENCE ID: <https://publons.com/researcher/2149071/dr-mohsen-bakouri>

JOURNAL INTERVIEW

- ◆ <https://ietresearch.onlinelibrary.wiley.com/doi/10.1049/el.2015.0986>

Source: Electronics Letters, Volume 51, Issue 8, 16 April 2015, page 590
DOI: 10.1049/el.2015.0986 , Print ISSN 0013-5194, Online ISSN 1350-911X

JOURNAL EDITOR

Served as an academic editor in The PLOS ONE journal (ISI-Q1):

https://journals.plos.org/plosone/static/editorial-board?ae_name=Mohsen+Bakouri

ACCREDITATION ACTIVITIES

- ◆ Involvement in Quality Assurance (QA) in Your Institution: Chair of the Quality Assurance Committee at Medical Equipment Technology Department, Majmaah University, responsible for overseeing accreditation processes and ensuring compliance with educational standards.
 - ◆ Involvement in Quality Assurance Internationally: participating in training and workshops for international peer reviews and accreditation assessments.
 - ◆ QA Involvement in Kingdom of Saudi Arabia: Consultant for QA processes at Almaarefa University and participated in accreditation activities with the NCAAA to evaluate Biomedical Technology program at INAYA Medical College in Saudi Arabia.
 - ◆ Standards Most Capable of and Comfortable With: Experienced with ISO 9001, ABET accreditation standards, and NCAAA standards.
 - ◆ Holds Senior Position in or Associated with an Educational Accreditation Organization and/or Certification Organization for a Specialty: officially certified as an academic accreditation reviewer with NCAAA, contributing to the development of accreditation criteria for medical and engineering programs.
Responsible for Curriculum Development in Specialty Area: Led the development of a new curriculum for the Master of Sciences in Biomedical Engineering program at Majmaah University, aligning it with international standards and industry needs.
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GRANTS

1. King Salman center For Disability Research for funding through Research Group no KSRG-2023-166, with 150K SR under title ***Using Neural Network Techniques to Design and Develop a Wheelchair Control System for People with Physical Disabilities*** ". (Completed)
2. Majmaah University: Awarded grant No. R-2023-466 with 12000 SR, in the title of project "***Predicting thermophysical properties enhancement of metal-based phase change materials using various machine learning algorithms***". (Completed)
3. Majmaah University: Awarded grant No. IFP-2022-21 with 72400 SR, in the title of project "***Towards the use of voice recognition and convolutional neural network (CNN) technologies to guide the visually impaired***". (In progress)
4. Majmaah University: Awarded grant No. IFP-2020-31 with 78400 SR, in the title of project "***Medical Technology and Prevention Injury for People with Special Needs***". (Completed)
5. Majmaah University research group: Awarded grant No. RGP-2019-33 with 38400 SR, in the title of project "***Biomedical Technologies to improve clinical diagnosis and Support Healthcare Industries***". (Completed)

6. Majmaah University research group: Awarded grant No. RGP-2019-17 with 50400 SR, in the title of project "**Heat transfer research group**". (Completed)
7. Majmaah University: Awarded grant No. 1440-39 with 26400 SR, in the title of project "**Intrinsic Investigation of Physiological Interaction for Pulsatile Rotary Blood Pumps**". (Completed)
8. Majmaah University: Awarded grant No. R-1441-121 with 9600 SR, in the title of project "**Cytokines Blood Filtration Responses in COVID-19**". (Completed)
9. Majmaah University: Awarded grant No. 1440-39 with 10000 SR, in the title of project "**Heat transfer and turbulent simulation of nanomaterial due to compound turbulator including irreversibility analysis**". (Completed)
10. Majmaah University: Awarded grant No. 38/149 with 10000 SR, in the title of project "**Stability Analysis of Darcy-Forchheimer Flow of Casson Type Nanofluid Over an Exponential Sheet: Investigation of Critical Points**". (Completed)
11. Majmaah University: Awarded grant No. 37/84 with 14600 SR, in the title of project "**Non-linear modelling and physiological control algorithm design for implantable rotary blood pump**". (Completed)
12. Majmaah University: Awarded grant No. 39/12 with 12000 SR, in the title of project "**Developing of Non-linear Tracking Control Algorithm for An Implantable Rotary Blood Pumps for Heart Failure Patients**". (Completed)

BOOK CHAPTER

Title	Doi link
SYMMETRY AND FLUID MECHANIC	https://doi.org/10.3390/books978-3-03928-427-6 ISBN 978-3-03928-427-6 (PDF)
SOLAR ENERGY APPLICATIONS IN HOUSES, SMART CITIES AND MICROGRIDS	https://doi.org/10.3390/books978-3-03928-069-8 ISBN 978-3-03928-069-8 (PDF)

RECENT PUBLICATIONS

Journal Articles					
Date	Doi Link	Journal Rank	Journal Name	Publisher	Title
2025	https://doi.org/10.2147/JHL.S532533	ISI-Q1	Journal of Healthcare Leadership	Taylor & Francis	A Metrics-Driven Approach to Develop a Hybrid Model of Staffing and Workload Balance in the NGHAs Hospitals
2025	https://doi.org/10.1016/j.jrras.2025.101441	ISI-Q2	Journal of Radiation Research and Applied Sciences	ELSEVIER	Modeling and design considerations for heat and mass transfer with diamond-cobalt oxide/ethylene glycol booger hybrid nanofluid in industrial systems
2025	https://doi.org/10.1109/ACCESS.2025.3541796	ISI-Q2	IEEE Access	IEEE	An Auto-Adjusting Algorithm to Enhance Indoor Localization Accuracy: a Real-Time Experimental Analysis
2025	https://doi.org/10.3991/ijoe.v21i03.52269	ISI-Q3	International Journal of Online and Biomedical	Online-Journals	Analysis of Autonomous Wheelchair Navigation Technologies in the

			Engineering (iJOE)		Past Five Years: A Systematic Review
2025	https://doi.org/10.3934/math.2025141	ISI-Q1	AIMS Mathematics	AIMS press	A study of dynamical features and novel soliton structures of complex-coupled Maccari's system
2025	https://doi.org/10.3934/math.2025186	ISI-Q1	AIMS Mathematics	AIMS press	On the Stochastic Modeling and Forecasting of the SV IR Epidemic Dynamic Model under Environmental White Noise
2025	https://doi.org/10.1016/j.ibmed.2025.100220	Scopus -Q2	Intelligence-Based Medicine	ELSEVIER	Comparative analysis of deep learning and machine learning techniques for forecasting new malaria cases in Cameroon's Adamaoua region
2025	https://doi.org/10.1002/zamm.202300873	ISI-Q1	ZAMM - Journal of Applied Mathematics and Mechanics	Wily	Newtonian heating effects on Casson nanofluid flow at lower stagnation point of a solid sphere
2025	https://doi.org/10.1016/j.jrras.2024.101212	ISI-Q2	Journal of Radiation Research and Applied Sciences	ELSEVIER	Significance of thermal radiation on peristaltic flow of Phan-Thien-Tanner MHD nanofluid containing gold nanoparticles with applications in cancer medications
2024	https://doi.org/10.3934/math.20241526	ISI-Q1	AIMS Mathematics	AIMS press	Optimizing cancer treatment using optimal control theory
2024	https://doi.org/10.1016/j.jrras.2024.101173	ISI-Q2	Journal of Radiation Research and Applied Sciences	ELSEVIER	Effects of thermal radiation on TiO ₂ -Cu/water hybrid nanofluid: A finite difference discretization
2024	https://doi.org/10.1016/j.cscm.2024.e03874	ISI-Q1	Case Studies in Construction Materials	ELSEVIER	Carbon Dioxide Emission Evaluation of Biochar Based Vegetation Concrete for Ecological Restoration Projects
2024	https://doi.org/10.1016/j.jrras.2024.101139	ISI-Q2	Journal of Radiation Research and Applied Sciences	ELSEVIER	Cattaneo-christov heat flux theory in tangent hyperbolic hybrid nanofluids with thermal radiation for renewable energy applications

2024	https://doi.org/10.1109/ACCESS.2024.3434595	ISI-Q2	IEEE Access	IEEE	Optimization of a Compact Wearable LoRa Patch Antenna for Vital Sign Monitoring in WBAN Medical Applications using Machine Learning
2024	http://dx.doi.org/10.5455/mjhs.2024.02.007	Scopus	Majmaah Journal of Health Sciences	College of Applied Medical Sciences/ Majmaah University	Improving Outdoor Sound Distance Navigation for Visually Impaired People Using BLSTM and CRF
2024	DOI: 10.57197/JDR-2024-0041	Scopus	Journal of Disability Research	ScienceOpen	Evaluation of Conventional and Smart Wheelchair Technologies in the Kingdom of Saudi Arabia
2023	https://doi.org/10.3390/asi6060097	Scopus -Q1	EISI-Scopus	Applied System Innovation	An Advanced Physiological Control Algorithm for Left Ventricular Assist Devices
2023	https://doi.org/10.3934/math.20231373	ISI-Q1	AIMS Mathematics	AIMS press	Robust dynamic control algorithm for uncertain powered wheelchairs based on sliding neural network approach
2023	https://doi.org/10.1016/j.jtice.2023.104934	ISI-Q1	Journal of the Taiwan Institute of Chemical Engineers	ELSEVIER	Predicting thermophysical properties enhancement of metal-based phase change materials using various machine learning algorithms
2023	https://doi.org/10.3390/s23084033	ISI-Q2	Sensors	MDPI	Sound-Based Localization Using LSTM Networks for Visually Impaired Navigation
2022	https://doi.org/10.3390/app122211537	ISI-Q2	Applied Sciences – Basel	MDPI	In Silico Evaluation of a Physiological Controller for a Rotary Blood Pump Based on a Sensorless Estimator
2022	https://doi.org/10.3390/s22197235	ISI-Q2	Sensors	MDPI	Slotted Monopole Patch Antenna for Microwave-Based Head Imaging Applications
2022	https://doi.org/10.3390/math10132251	ISI-Q1	mathematics	MDPI	A Feasible Method to Control Left Ventricular Assist Devices for Heart Failure Patients: A Numerical Study
2022	https://doi.org/10.1002/cnm.3616	ISI-Q2	Numerical Methods in	Wiley	A varying-radius cable equation for

			Biomedical Engineering		the modelling of impulse propagation in excitable fibres
2022	https://doi.org/10.32604/cmc.2022.025106	ISI-Q2	CMC- Computers, Materials & Continua	Tech science Press	Development of Voice Control Algorithm for Robotic Wheelchair Using NIN and LSTM models
2022	https://doi.org/10.1007/s12206-022-0616-6	ISI-Q2	Journal of Mechanical Science and Technology	Springer	A comparative study of mechanical behavior of ABS material based on UVC Sterilization for medical usage
2022	https://doi.org/10.3390/math10050731	ISI-Q1	mathematics	MDPI	An Optimal H-Infinity Controller for Left Ventricular Assist Devices Based on a Starling-like Controller: A Simulation Study
2022	https://doi.org/10.1016/j.chaos.2022.111918	ISI-Q1	Chaos, Solitons & Fractals	ELSEVIER	Barrier function-based adaptive nonsingular sliding mode control of disturbed nonlinear systems: a linear matrix inequality approach
2022	https://doi.org/10.3390/math10050690	ISI-Q1	mathematics	MDPI	Generalized type-2 fuzzy control for type-I diabetes: Analytical robust system
2022	https://doi.org/10.3390/en15051705	ISI-Q1	Energies	MDPI	A Type-2 Fuzzy Controller for Floating Tension-Leg Platforms in Wind Turbines
2022	https://doi.org/10.3390/s22030909	ISI-Q1	Sensors	MDPI	Barrier Function Adaptive Nonsingular Terminal Sliding Mode Control Approach for Quad-Rotor Unmanned Aerial Vehicles
2022	https://doi.org/10.3390/electronics11010168	ISI-Q3	electronics	MDPI	Steering a Robotic Wheelchair Based on Voice Recognition System Using Convolutional Neural Networks
2021	10.1016/j.jiph.2021.06.005	ISI-Q1	Journal of Infection and Public Health	ELSEVIER	Clinical characteristics and predictors of mortality among COVID-19 patients in Saudi Arabia
2021	https://doi.org/10.1177/09544089211013317	ISI-Q3	Proceedings of the Institution of Mechanical Engineers,	SAGE Journals	Towards the exact solutions of Burger's fluid flow through arteries with fractional time

			Part E: Journal of Process Mechanical Engineering		derivative magnetic field and thermal radiation effects
2021	https://doi.org/10.4491/eer.2020.182	ISI-Q2	Environmental Engineering Research	Korean Society of Environmental Engineers	Investigation of flow dynamic characteristics of inverse fluidized bed biofilm reactor for degrading pharmaceutical based biomedical wastewater
2020	https://doi.org/10.1142/S0219519420500426	ISI-Q4	Journal of Mechanics in Medicine and Biology	World Scientific	NUMERICAL INVESTIGATION ON PRELOAD AND AFTERLOAD SENSITIVITY FOR USING VENTRICULAR ASSIST DEVICE ON HEART FAILURE PATIENTS
2020	https://www.mdpi.com/2076-3417/10/17/5895/htm	ISI-Q2	Applied Sciences – Basel	MDPI	Epidemiological Modeling of COVID-19 in Saudi Arabia: Spread Projection, Awareness, and Impact of Treatment,
2020	https://doi.org/10.1159/000508278	ISI-Q2	Blood Purification	Karger	Cytokines Blood Filtration Responses in COVID-19
2020	https://doi.org/10.1007/s12652-020-01939-7	ISI-Q2	Journal of Ambient Intelligence and Humanized Computing	Springer	Different loading condition and angle measurement of human lumbar spine MRI image using ANSYSE.
2019	https://doi.org/10.3390/app9214593	ISI-Q2	Applied Sciences – Basel	MDPI	Physiological Control Law for Rotary Blood Pumps with Full-State Feedback Method.
2019	https://doi.org/10.1016/j.ijheatmasstransfer.2019.04.030	ISI-Q1	International Journal of Heat and Mass Transfer	ELSEVIER	Heat transfer and turbulent simulation of nanomaterial due to compound turbulator including irreversibility analysis
2019	https://doi.org/10.3390/sym11030412	ISI-Q2	Symmetry	MDPI	Stability Analysis of Darcy-Forchheimer Flow of Casson Type Nanofluid Over an Exponential Sheet: Investigation of Critical Points.
2019	https://doi.org/10.3390/app9102101	ISI-Q2	Applied Sciences – Basel	MDPI	Thermal evaluation of graphene nanoplatelets nanofluid in a fast-responding HP with

					the potential use in solar systems in smart cities.
2019	https://doi.org/10.1016/j.physa.2019.122146	ISI-Q2	Physica A: Statistical Mechanics and its Applications	ELSEVIER	Smart optimization of a thermosyphon heat pipe for an evacuated tube solar collector using response surface methodology (RSM)
2018	DOI: 10.1049/iet-syb.2017.0052	ISI-Q3	Systems Biology	IET	Evaluation of an advanced model reference sliding mode control method for cardiac assist device using a numerical model.
2015	DOI: 10.1049/el.2014.4330	ISI-Q2	Electronics Letters	IET	Nonlinear modelling and control of left ventricular assist device.
2014	https://doi.org/10.1111/aor.12223	ISI-Q2	Artificial Organs	Wily	A Sliding Mode-Based Starling-Like Controller for Implantable Rotary Blood Pumps.

Local Journal Within University Research Centers				
Date	Link	Journal Name	Publisher	Paper title
2019	http://www.mjhs-mu.org/index.php?mno=43312	Majmaah Journal of Health Sciences	College of Applied Medical Sciences/ Majmaah University	Intrinsic Investigations of Physiological Interaction for Pulsatile Rotary Blood Pumps. Accepted to publish in Majmaah Journal of Health Sciences. 2019
2019	https://m.mu.edu.sa/en/departments/journal-engineering-and-applied-sciences	Journal of Engineering and Applied Sciences	College of Engineering/ Majmaah University	Flow Pulsatility of Heart Pump: State Space Modelling and Control

International Proceeding Conferences						
Conference Date	Doi Link	Rank	Publisher	Place	Conference Name	Paper Title
March 29-31, 2022	DOI: 10.1109/ICAAID51067.2022.9799509	ISI	IEEE Xplore	Hail, KSA	4 th International Conference on Applied Automation and Industrial Diagnostics (ICAAID 2022)	Developing a Feedback Physiological Control for Ventricular Assist Devices: a Simulation Study
Jun 25-28, 2019	DOI: 10.23919/ECC.2019.8795740	ISI	IEEE Xplore	Napoli, Italy	18 th European Control Conference (ECC) IEEE	Physiological Control Approach for Heart Pump.
15-17, April, 2019	DOI: 10.1109/ICMSAO.2019.8880448	ISI	IEEE Xplore	Manama, Bahrain	8 th International Conference on Modelling, Simulation and	Numerical Modeling and Simulation of a Carotid Artery with Dynamic Growth of Aneurysm.

					Applied Optimization	
31 May-3 June 2015	DOI: 10.1109/ASC.C.2015.7244808	ISI	IEEE Xplore	Kota Kinabalu, Malaysia	10th Asian Control Conference (ASCC)	A method for physiological control of a cardiac assist device
8-10 Oct. 2014	DOI: 10.1109/CCA.2014.6981468	ISI	IEEE Xplore	Juan Les Antibes, France	IEEE Conference on Control Applications (CCA)	Sensorless physiological control algorithm for left ventricular assist device for heart failure patients
23-26 June 2013	DOI: 10.1109/ASCC.2013.6606105	ISI	IEEE Xplore	Istanbul, Turkey	9th Asian Control Conference (ASCC)	Feasible approach to control the operation of implantable rotary blood pumps for heart failure patients
3-7 July 2013	DOI: 10.1109/EMBC.2013.6609590	ISI	IEEE Xplore	Osaka, Japan	35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)	Physiological control of implantable rotary blood pumps for heart failure patients.

Reports in arXiv

Submitted Date	Link	Author	Paper title
10 May 2014	https://arxiv.org/abs/1405.2419	M. A. Bakouri	Sensorless Physiological Control of Implantable Rotary Blood Pumps for Heart Failure Patients Using Modern Control Techniques

Local Conferences - KSA

Conference Date	Link	Type of Contribution	Place	Conference Name	Author	Paper title
25-27, Sep 2018	https://www.sfda.gov.sa/En/Pages/default.aspx	Abstract	Riyadh, Saudi Arabia	SFDA CE18	M. A. Bakouri	Validation of Physiological Controller for Cardiac Assist Devices
4-5 May 2016	https://www.mu.edu.sa/ar/node/44616	Abstract	Majmaah University	in Injuries Symposium Prevention and Methods of Treatment & Rehabilitation	Mohsen A. Bakouri	Feedback Pulsatility Flow controller for Cardiac Assist Devices

M.Sc. THESIS SUPERVISION

Student name	Thesis Title	status	
Khaled Al-Harbi	An Optimal Control Algorithm for Regulating Blood Flow in Cardiac Assist Devices for Heart Failure Patients	Supervisor	On going
Meshari Al-Abdulkarim	Developing a Metrics-Driven Approach to Improve Staffing and Workload Balance in Biomedical Engineering Department at National Guard Hospitals	Supervisor	On going
Abdulrahman AlGhanim	A Dynamic Decision-Making Model Development for Medical Equipment Replacement in National Guard Hospitals	Supervisor	On going
Salem Alshuthaili	Innovative Design of Prosthetic Hand by Integrating EMG Sensors and 3D Printing to Improve Usability for Children	Supervisor	On going
Mishari Al Shathri	Pediatric Power Wheelchairs in Saudi Arabia Then and Now: a Survey of Services Provider	Supervisor	On going
Abdullah Musa Al-Qarni	Evaluating Control Strategies Applied to Autonomous Wheelchairs	Supervisor	Completed Spring - 2024
Sultan Alanazi	Evaluation of the Current State and Conceptual Framework of Wheelchair Technology in Saudi Arabia	Supervisor	Completed Spring - 2024
ABDULRAHMAN ABDULAZIZ ALASIM	Simulation And Evaluation of Biopotential Electrodes Using Axon Model	Supervisor	Completed Spring - 2023
AWADH SAAD SAEED ALSHAHRANI	The association between nursing management and reduction of work conflicts among nurses In Aseer Hospitals	Supervisor	Completed Spring - 2023
MOHAMMED MASAD SAAD ALMUTAIRI	Impact of Job Stress on the quality of care of Nursing Leaders in the Second Health Cluster, Riyadh	Supervisor	Completed Spring - 2024
Nayef Naji Al-Otaibi	The Effective Strategies and Management for Nurse Managers to Manage Nursing Issues	Supervisor	Completed Fall - 2023
Ziad Al-Otaibi	Towards diagnosing COVID-19 using 3D CT scans and deep learning techniques	Supervisor	Completed Spring - 2023
Nashmi Al Harbi	Short- and Long-Term Impacts of COVID-19 on the Biomedical Equipment Sector	Supervisor	Completed Spring - 2022
Naif Eid Alghamdi	H infinity Control of Implantable Rotary Blood Pumps for Heart Failure Patients Using the Relationship Between Cardiac Output and Pump Flow Pulsatility	Supervisor	Completed Fall 2020
Khaled Gasin Alotaibi	Intrinsic Investigation into Physiological Controllers for Cardiac Assist Devices	Supervisor	Completed Fall 2020
Ahmed Ayman A Almedhun	Wall Shear Stress Estimation of Human Carotid Artery Bifurcation Region in Stroke Patients	Co-supervisor	Completed Spring - 2019

Majed Zaid almaymuni	Numerical Investigation of Cancer Tumor Treatment using microwave ablation	Co-supervisor	Completed Spring - 2021
Mishari awad alotibi	Design of Ultra-wideband Microwave Antenna Array for Biomedical applications Detection of Cancer Tumors	Co-supervisor	Completed Fall 2020
NAIF ALYAMI	Design and Evaluation of Ultrasound Network Sensors to Guide Blinds	Supervisor	Completed Spring - 2021
MOHAMMED ALSEHAIMI	CONTROL THE MOVEMENT OF A WHEELCHAIR FOR THE PEOPLE WITH SPECIAL NEEDS THROUGH SMARTPHONE	Supervisor	Completed Spring - 2021
Reshodi Ahmad Alreshoodi	A feasible evaluation and investigation of the implanted pacemaker for patients with heart disease	Supervisor	Completed Spring - 2021
Sulyman Alhayzani	INVENTORY MANAGEMENT SYSTEM FOR NATIONAL BLOOD BANKS IN THE KINGDOM OF SAUDI ARABIA	Co-supervisor	Completed Fall 2021

ACADEMIC RECORD

Job Rank	Place and Address of Work			Date
Professor	Department of Medical Equipment Technology	College of Applied Medical Sciences, Majmaah University	Majmaah, Saudi Arabia	May 2024 - Ongoing
Associate Professor	Department of Medical Equipment Technology	College of Applied Medical Sciences, Majmaah University	Majmaah, Saudi Arabia	Jun 2020 - Ongoing
Assistant Professor	Department of Medical Equipment Technology	College of Applied Medical Sciences, Majmaah University	Majmaah, Saudi Arabia	Jan 2016 - Jun 2020
Research Assistant	School of Electrical Engineering and Telecommunications, and Graduate School of Biomedical Engineering	Faculty of Engineering, The University of New South Wales (UNSW)	Sydney, NSW, Australia	May 2011 - Sep 2014
Lecturer	Department of Physics	Sebha University, College of Sciences, Taraghen	Taraghen, Libya	Feb 2007 - Feb 2011
Adjunct lecturer	Department of Electrical Engineering	Sebha Higher Institute of polytechnic	Sebha Libya	Sep - 2009 to Feb - 2010
Adjunct lecturer	Department of Electrical Engineering	Oum Alaranib Higher Institute of polytechnic	Oum Alaranib Libya	Feb - 2008 to Feb - 2011

ADMINISTRATION RECORD

Job Rank	Place and Address of Work	Date
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Head of Development and Planning Unit	College of Applied Medical Sciences,	Majmaah University	Majmaah, Saudi Arabia	March 2019 - Oct 2023
Head of Scientific Research Committee	Department of Medical Equipment Technology	College of Applied Medical Sciences, Majmaah University	Majmaah, Saudi Arabia	Sep 2021 - Ongoing
Head of Committee for the development of curricula and study plans	Department of Medical Equipment Technology	College of Applied Medical Sciences, Majmaah University	Majmaah, Saudi Arabia	Dec 2018 - Ongoing
Head of scientific Committee	Department of Medical Equipment Technology	College of Applied Medical Sciences, Majmaah University	Majmaah, Saudi Arabia	Sep 2018 - October 2020
Secretary Department	Department of Medical Equipment Technology	College of Applied Medical Sciences, Majmaah University	Majmaah, Saudi Arabia	Jan 2018 - Ongoing
Head of internship unit	College of Applied Medical Sciences,	Majmaah University	Majmaah, Saudi Arabia	Sep 2017 - Oct 2018
Director of academic studies and examinations	College of Sciences, Taraghen	Sebha University,	Taraghen, Libya	May 2008 – Feb 2011

MEMBERSHIP OF SCIENCE, COUNCILS, AND PROFESSIONAL SOCIETIES

- ◆ IEEE senior member, 2022 to present
- ◆ Member of the Institute of Electrical and Electronics Engineers (IEEE), 2014 – 2022
- ◆ IEEE Engineering in Medicine and Biology Society, 2017 to present.
- ◆ IEEE Control Systems Society, 2017 to present.
- ◆ Graduate Student member of Institute of Electrical and Electronics Engineers (IEEE), 2011-2014
- ◆ Mentoring new IEEE members at UNSW, 2011-2014
- ◆ IEEE Nanotechnology Council, 2017 to 2018
- ◆ IEEE Sensors Council, 2017 to 2018
- ◆ IEEE Systems Council, 2017 to 2018
- ◆ IEEE Council on Electronic Design Automation, 2017 to 2018
- ◆ Saudi Medical Sensors Association, 2022 to Present

TEACHING PHILOSOPHY

I believe that my responsibility is to use my knowledge and performance to deliver high-quality education to my students. This fact comes through finding that my teaching pedagogy concentrates on providing multiple ways of learning the courses materials, necessary tools, and suitable environment. In addition to that, it is my responsibility to help the students understand the principle concepts and apply them to solve engineering problems.

Developing and using various educational technology resources is essential to employ adequate and creative instruction methodologies. Using a practical, applied approach, teaches courses in line with course and program goals to meet the student's and community's needs and aspirations. Therefore, in the classroom, I present class materials in a variety of formats to help make sure the entire class learns the material. For this reason, I use lectures notes, visual learning aids, computer exercises, and diagrams. Although not everyone can learn all the material during class time, more office hours are always available.

I always apply strategies to ensure that effective student learning is achieved and provide continuous feedback on student progress through various assessment tools, including tests, projects, assignments, and other evaluation instruments. During examinations, I usually used multiple assessment methods, including tests, quizzes, short writing assignments, oral presentations, and self-assessment. Tests always include multiple-choice questions, quick answers, as well as an engineering case study. In addition, applied research should consist of an essential part of the method of teaching. Finally, I always seek feedback from my students on my teaching performance and then enhance my teaching methods to meet their needs.

COURSES TAUGHT

1. College of Applied Medical Science, Majmaah University, Al Majmaah, Saudi Arabia

a) Master's degree Courses:

No	Course Name	code	Semester
1.	Research Methods: This course offers the students to learn how research is being done, and to put that knowledge into practice. Students will learn how to apply several statistical techniques and methods, draw conclusions from those, and determine what statistical technique would be suitable for a given dataset and/or research question. It will emphasize on interpreting results and communicating those to the world at large. It will provide essential insights into research conducted through the improvement of research language, approaches, and ethics. Additionally, it will cover the required of the main elements within quantitative, qualitative, and mixed methods to perform successful scientific research.	BME 615	Fall 2017 to Present
2.	Research Project: In this course, the individual students cover the skills on writing the research proposal and developing skills in publications and performing an oral speech.	BME 625	Fall 2018 to Present
3.	Physiological modelling: This course study the physiological control systems and mathematical modelling techniques to evaluate the structure and function of physiological systems through the analysis of their dynamic behaviour. It includes the major physiological control systems of the human body such as blood flow in the cardiovascular, air exchange in the lungs, urea secretion in the kidney, modelling of the glucose-insulin metabolic system. Furthermore, the course will use principles, tools to analyse and develop the physiological modelling.	BME 623	Fall 2021 to Present
3.	Design Standards and Regulations for Medical Devices: This course introduces students to a systematic approach in medical device design/development, standards, and regulations. The course emphasizes engineering/design methodology. This course will describe the nature of medical device safety as a risk management process that must encompass the life span of medical devices from their conception to disposal. Course topics will include understanding the U.S. FDA 510K, PMA, IDE, and European CE marking (93/42/EEC, 90/385/EEC, and 98/79/EEC), medical device risk management (ISO 14971), and design	BME 633	Fall 2019 to Present

	control and quality system implementation (21 CFR Part 820 and ISO 13485).		
4.	Mathematical Methods for Biomedical Engineers: The course cover mathematical techniques needed to solve advanced problems encountered in biomedical engineering. Fundamental concepts are presented with emphasis placed on applications of these techniques to biomedical engineering problems. Topics include the solution of ordinary differential equations using the Laplace transformation, Fourier series, and integrals, solution of partial differential equations including the use of Bessel functions and Legendre polynomials, and an introduction to complex analysis.	BME 611	Spring 2019 to Present
5.	Biomedical Sensors and Instrumentation: This course gives an understanding of the principles of biomedical sensors and knowledge on how bio-signals are registered, amplified, and analysed. The science and technology that goes into the plethora of sensors, although highly interdisciplinary, mainly derives from basic principles in physics and electrical engineering. This course will (re)introduce these principles and illustrate the application of these principles in several classes of medical sensors. It will also review some of the basic ideas and constraints that go into the making of a medical device and finally touch upon a few nontechnical principles in the applications of medical devices.	BME 614	Fall 2020 to Present
6.	Biostatistics: The emphasis of this course is on the nature and characteristics of the most commonly used statistical techniques (descriptive statistics, correlation and linear regression, factor analysis, and elementary hypothesis testing), and their applicability to specific health care problems within the context of filed Students will develop skills and knowledge in the use of computing software and to reinforce learning through assignments, including the analysis of data and interpret computer output.	CLS 603	Spring 2019 to Present

b) Bachelor's degree Courses

No	Course Name	code	Semester
1.	Electromechanical & Pneumatic Controls	MET 364	Fall 2019 to Present
1.	Biophysics	MET 234	Fall 2016 to 2018
2.	Physics for Medical Equipment	MET 242	Spring 2016 to 2019
3.	Digital signal processing	MET 471	Fall 2016 to present
4.	Electrical Circuits	MET 243	Spring 2016 to present
5.	Lab of Electrical Circuits	MET 243	Spring 2016 to present
6.	Biomedical Control System	MET 593	Fall 2016 to present
7.	Lab of Biomedical Control System	BMTS491	Fall 2016 to present
8.	Basic Mathematical	MET 233	Spring 2016 to Present
8.	Applied Mathematical 1	MET 241	Spring 2019 to Present
9.	Biostatistics	CAMS 233	Fall 2017 to Present
10.	Analog medical signal processing	MET 361	Fall 2018 to Present

2. Department of Physics, Faculty of science, SEBHA University, Libya

No	Subject Name	Subject code	Semester
1	Fundamentals of Physics	PH-101	Spring-2008; Spring-2010
2	LAB of Physics	PH-102	Spring-2008
3	Electrical of Physics	PH-302	Fall-2008; Spring-2009; Spring-2010
4	Electromagnetics of Physics	PH-402	Fall-2008; Spring-2009
5	Mathematical tools for Physics	PH-603	Spring-2009; Fall-2009
6	Foundations of Statistical	ST-101	Fall-2009

3. Department of Electrical Engineering, Higher Institute of polytechnic, Oum Alaranib, Libya

No	Course Name	Course code	Semester
1	Control System and Instrumentation	EE-101	Fall-2008; Spring-2009; Fall-2009; Spring-2010, Fall 2010.
2	Power System I	EE-102	Fall-2008; Spring-2009; Fall-2009; Spring-2010, Fall 2010.

4. Department of Electrical Engineering, Higher Institute of polytechnic, Sebha, Libya

No	Course Name	Course code	Semester
1.	Control System and Instrumentation, I	EE-101	Fall-2009
3.	Protection System	EE-412	Fall-2009

STUDENT ADVISING

Beginning in 2016, when I began working at Majmaah University, I became actively involved in the academic counseling of students, which continues until they graduate from the university. I worked as an academic advisor for a group of twenty students from the 2016 cohort. Most of these pupils have completed their studies at the university level. Now, I am advising 15 students from the 2019 cohort.

INDUSTRY EXPERIENCE

WA ELECTRICAL PTY LTD, SYDNEY, AUSTRALIA
Construction Electrical Engineer Jul - 2015 to Dec 2015

HANNA BAL ENGINEERING CONSULTANCY TRAGHEN, LIBYA
Consultant Electrical Engineer Sep - 2008 to Dec - 2011

GMR (GREAT MAN-MADE RIVER) WATER SUPPLY PROJECT, LIBYA**Project Engineer**, Jan - 2005 to Jan – 2007**GMR (GREAT MAN-MADE RIVER) WATER SUPPLY PROJECT, LIBYA****Senior Electrical Engineer**, Feb - 2003 to Dec – 2004**BROWN & ROOT NA LTD COMPANY (BRNA - WATER SUPPLY PROJECT), LIBYA****Consultant Electrical Engineer**, Jan - 2000 to Feb – 2003**GECOL COMPANY, LIBYA****Electrical Engineer**, May - 1998 to May – 1999**PROFESSIONAL SERVICE**

- ◆ Serving as a reviewer for Journal of General Internal Medicine. Since 2021
- ◆ Serving as a reviewer for Artificial Organs journal. Since 2013
- ◆ Serving as a reviewer for Medical & Biological Engineering & Computing. Since 2013
- ◆ Serving as a reviewer for Cardiovascular Engineering and Technology journal. Since 2020
- ◆ Serving as a reviewer for Journal of Intelligent & Fuzzy Systems. Since 2020
- ◆ Serving as a reviewer for Journal of Applied Sciences - mdpi. Since 2021
- ◆ Serving as a reviewer for Journal of Frontiers in Cardiovascular Medicine. Since 2022
- ◆ Designated reviewer in Conferences:
 - 8th International Conference on Modeling, Simulation and Applied Optimization (ICMSAO), Bahrain, IEEE, April 15-17, 2019.
 - 3rd SMART CITIES SYMPOSIUM & HACHATHON 12-14 APRIL 2020, University of Bahrain.

TECHNICAL SKILLS

- ◆ Applications/Tools: MATLAB, Labview, Lab chart, Python, SPSS, Labview, C++, AutoCAD, MS Office Suite.
- ◆ Operating Systems: Windows, OS X.

PRESENTATIONS AND TALKS

- ◆ “Developing a Feedback Physiological Control for Ventricular Assist Devices: a Simulation Study”. In **4th International Conference on Applied Automation and Industrial Diagnostics (ICAAID 2022), March 29-31, 2022**
- ◆ “Physiological Control Approach for Heart Pump”. In **2019 18th European Control Conference (ECC) Jun 25, 2019**
- ◆ “Feasible Approach to Control the Operation of an Implantable Rotary Blood Pumps for Heart Failure Patients,” **9th Asian Control Conference, Istanbul, Turkey, June 23-26, 2013.**
- ◆ “Physiological Control of Implantable Rotary Blood Pumps for Heart Failure Patients,” **35th IEEE Engineering in Medicine and Biology Society, Osaka, Japan, July 3-7, 2013.**
- ◆ “Sensorless physiological controller for an implantable rotary blood pump for heart failure patients,” **2014 IEEE Multi-Conference on Systems and Control (IEEE MSC 2014), Nice, France.**
- ◆ “Feedback Pulsatility Flow controller for Cardiac Assis Devices" in **Injuries Symposium Prevention and Methods of Treatment & Rehabilitation, Majmaah University 4-5 May 2016.**
- ◆ “Validation of Physiological Controller for Cardiac Assist Devices " **2ed SFDA Annual Conference and Exhibition (SFDA CE18), Riyadh, Saudi Arabia, 25-27, Sep 2018.**

AWARDS AND HONOURS

- ◆ Achievement of Dean's Award for Academic Excellence, 2021/2022.
- ◆ Achievement of Dean's Award for Academic Excellence, 2019/2020.

- ◆ Awarded Post-Graduate Research Student Support (PRSS) travel grant that jointly offered by The Graduate Research School and The Faculty of Engineering, The University of New South Wales, to present a paper at 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC2013), **Osaka, Japan**.
- ◆ Best Application Paper Award at the 9th IEEE Asian Control Conference (ASCC), 23-26 June 2013, Istanbul, Turkey.
- ◆ Selected for the 2012 Dean's Award for Excellence in Postgraduate Research. The Award was established to recognize outstanding research in engineering and applied sciences being conducted by postgraduate research students in the Faculty of Engineering at UNSW Sydney and UNSW Canberra.
- ◆ Selected for 3-Minute Thesis Competition by the Faculty of Engineering at UNSW, 29th July 2013.

SERVICE TO THE UNIVERSITY

- ◆ Member of Department Council, Majmaah University, Department of Medical Equipment Technology, College of Applied Medical Science, 02/01/2016 (Ongoing).
- ◆ Committee member of Management Research Scientific Committee, Majmaah University, Department of Medical Equipment Technology, College of Applied Medical Science, 01/03/2016 (Ongoing). My role is to preparation mechanism to assist faculty members to conduct joint research with colleagues at other institutions in the world and provide adequate budget and financing the necessary facilities and devices for scientific research and Panel discussions held with the program team and other programs.
- ◆ Committee member of Quality Assurance Tasks, Majmaah University, Department of Medical Equipment Technology, College of Applied Medical Science, 01/03/2017 (Ongoing). My role is to review quality assurance system program and preparing quality reports in coordination with quality management team.
- ◆ Head of training Committee, Majmaah University, Department of Medical Equipment Technology, College of Applied Medical Science, 01/09/2016 (Ongoing). My role is to direct supervise the graduate students in hospital and hold a forum graduate recruitment.
- ◆ Committee member of preparation the proposal for Master of Sciences in Biomedical Engineering, Majmaah University, Department of Medical Equipment Technology, College of Applied Medical Science, 01/02/2017 (Ongoing). My role is to provide the courses curriculum for the whole courses.
- ◆ Committee member of Assessment & Statistics Committee, Majmaah University, Department of Medical Equipment Technology, College of Applied Medical Science, 01/5/2016 (completed). My role is to prepare sessions to train faculty members on ways to determine the desired learning outcomes and description of courses depending on these products and review the learning outcomes for each curriculum program.
- ◆ Member of Department Council, Sebha University, Department of Physics, College of Science, 01/07/2007 (Completed). My role is to prepare mechanism to assist faculty members to conduct joint research with colleagues at other institutions in the world.
- ◆ Committee member of Equipment and Lab committee, Sebha University, Department of Physics, College of Science, 01/10/2008 (Completed). My role is to prepare a study on the modernization of laboratory equipment program.
- ◆ Committee member of Quality Assurance Tasks, Sebha University, Department of Physics, College of Science, 01/01/2015 (Completed). My role is to review quality assurance system program and preparing a workshop on how to implement the program of quality assurance management system.

REFERENCES

Name: Prof. Andrey V. Savkin
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Phone: + 61 2 9385 6359

Name: Dr. Husham Saied
Institute: Prince Sultan Military College of Health Sciences, Saudi Arabia
Position: Assistant Professor, Department of Biomedical Engineering,
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Name: Dr. Omar Smida Institute: Majmaah University, Al majmaah, Saudi Arabia Position: Assistant Professor, Department of Medical Equipment Technology, Phone: + 966 531 953 935 E-Mail: a.smida@mu.edu.sa	Name: Dr. Ahmed Alassaf Institute: Majmaah University, Al majmaah, Saudi Arabia Position: Assistant Professor, Department of Medical Equipment Technology, Phone: + 966 503691911 E-Mail: am.alassaf@mu.edu.sa
<i>More professional and personal referees will be available upon request</i>	