



Abdul-Hakeem Alomari, PhD

Assistant Professor of Biomedical Engineering
Head of Biomedical Engineering Department, College of Engineering,
Imam Abdulrahman Bin Faisal University.



Personal Data

Nationality | Australian

Department | Biomedical Engineering

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Language Proficiency

Language	Read	Write	Speak
Arabic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
March 2011	Doctor of Philosophy (PhD)	The University of New South Wales (UNSW).	Australia
March 2008	Masters of Engineering (MSc.),	The University of New South Wales (UNSW).	Australia
June 2002	Bachelor of Science (B.Sc.)	Jordan University of Science and Technology	Jordan

PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

PhD	Non-invasive Modelling and Control of Rotary Blood Pumps for Heart Failure Patients
Master	Spectral analysis of arterial blood pressure and stroke volume variability: the role of calcium channel blockers and sensitizers
Fellowship	Robust Control and Filtering for Regulation of Blood Flow in Implantable Rotary Blood Pumps for Heart Failure Patients



Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work		Date	
Assistant Professor, Chairman	Biomedical Engineering Department, College of Engineering, Imam Abdulrahman Bin Faisal University (IAU),	Dammam, Saudi Arabia.	Sep 2014	Ongoing
Senior Research Fellow Australia Research Council (ARC)	Graduate School of Biomedical Engineering & School of Electrical Engineering and Telecommunications,	Faculty of Engineering, The University of New South Wales (UNSW), Sydney, New South Wales (NSW), Australia	Nov 2013	June 2016
Assistant Professor	Biomedical Engineering Department, College of Engineering, Imam Abdulrahman Bin Faisal University (IAU),.	Dammam, Saudi Arabia.	Jan 2012	Sep 2013
Post-doctoral Research Fellow	School of Electrical Engineering and Telecommunications	Faculty of Engineering, The University of New South Wales (UNSW), Sydney, New South Wales (NSW), Australia	April 2011	Jan 2012
Research Assistant	Graduate School of Biomedical Engineering	Faculty of Engineering, The University of New South Wales (UNSW), Sydney, New South Wales (NSW), Australia	March 2011	Jan 2012
Research Assistant	School of Electrical Engineering and Telecommunications, & Graduate School of Biomedical Engineering,	Faculty of Engineering, The University of New South Wales (UNSW), Sydney, New South Wales (NSW), Australia	March 2009	Dec 2010
Tutor/ Laboratory Demonstrator	Sydney, Australia	School of Electrical Engineering and Telecommunications, The University of New South Wales	Aug 2007	Dec 2007



Administrative Positions Held: (Beginning with the most recent)

Administrative Position	Office	Date
Head, Biomedical Engineering Department , College of Engineering, Imam Abdulrahman Bin Faisal University (IAU),	Tel: 013 333 1703	Sep 2014 – Current

Scientific Achievements

Published Refereed Scientific Researches

(In Chronological Order Beginning with the Most Recent)

#	Name of Investigator(s)	Research Title	Publisher and Date of Publication
1.	M Bakouri, A Alassaf, K Alshareef, S Abdelsalam, H Ismail, A Ganoun, A Alomari	An Optimal H-infinity Control to Left Ventricular Assist Devices Based on Starling-Like Controller: A Simulation Study	Mathematics 2022, 10, 731.
2.	Abdul-Hakeem Alomari, Omer Aga, Lola El Sahmarany, Mariam Hegazi, and Latifah Almulla	Public perception towards medical waste generated in the environment during the COVID-19 pandemic in Eastern Province, Saudi Arabia.	Heliyon, Vol. 7, Issue 11, November 2021, e08363.
3.	S Alduwaish, O Alshakri, R Alamri, R Alfariéh, S Alqahtani, K Hameed, and A Alomari	Automated Humidity Control System for Neonatal Incubator.	J. Physic.: Conf. Ser., 2021, 2071(1): 12029.
4.	M Alomari, R Balasamy, D Almohazey, V Ravinayagam, M AlHamad, D Ababneh, H Bahmdan, A Alomari, Z Mokadem, A Elaissari	Nile Red-Poly (Methyl Methacrylate)/Silica Nanocomposite Particles Increase the Sensitivity of Cervical Cancer Cells to Tamoxifen	Polymers. Vol. 12, Issue. 7: 1516, 2020. Polymers. 2020; 12 (7): 1516.
5.	O Alagha, A Alomari, N Jarrah	Medical Waste Management and Production Rate in the Eastern Province of the Kingdom of Saudi Arabia	Euro-Mediterranean Journal of Environmental Integration. Vol. 3,



			Issue. 35, Pages. 1 – 8, 2018.
6.	Michael C. Stevens, Andrew Stephens, Abdul-Hakeem H. AlOmari, Francesco Moscato	Physiological Control” in Mechanical Circulatory and Respiratory support	ELSEVIER, 2017
7.	M. A. Bakouri, Andrey V. Savkin, Abdul-Hakeem H. AlOmari	Nonlinear Modeling and Control of a Left Ventricular Assist Devices	Electronic Letters, 2015
8.	Abdul-Hakeem H. AlOmari, Andrey V. Savkin, Mohsen A. Bakouri, Robert F. Salamonsen, and Nigel H. Lovell	Non-invasive Model Predictive Control of Pulsatile Flow in a Left Ventricular Assist Device	Artificial Organs,2014
9.	M. A. Bakouri, A. V. Savkin and A. H. AlOmari	Physiological Control of Rotary Blood Pumps for Heart Failure Patients Using Sliding Mode Control Approach	Electronics Letters, , 2014
10.	Mohsen A. Bakouri, Robert F. Salamonsen, Andrey V. Savkin, Abdul-Hakeem H. AlOmari, Einly Lim and Nigel H. Lovell	A Sliding Mode-Based Starling-Like Controller for Implantable Rotary Blood Pumps	Artificial Organs, November, 2013,
11.	Abdul-Hakeem H. AlOmari, Andrey V. Savkin, Michael Stevens, David G. Mason, Daniel L. Timms, Robert F. Salamonsen and Nigel H. Lovell	Developments in control systems for rotary left ventricular assist devices for heart failure patients: a review	Physiological Measurements, Vol. 34, 2013
12.	A. Bakouri, Andrey V. Savkin, Abdul-Hakeem H. AlOmari, Robert F. Salamonsen, Einly Lim and Nigel H. Lovell	A Sensorless Robust Tracking Control of an Implantable Rotary Blood Pump for Heart Failure Patients	World Academy of Science, Engineering and Technology,2012.
13.	Robert F. Salamonsen, Einly Lim, Nicholas Gaddum, Abdul-Hakeem H. AlOmari, Shaun D. Gregory, Michael Stevens, David G. Mason, John F. Fraser, Daniel Timms, Mohan K. Karunanithi and Nigel H. Lovell	Theoretical foundation of a Starling-like controller for rotary blood pumps	Artificial Organs, 2012
14.	J A. H. AlOmari, A. V. Savkin, P. J. Ayre, E. Lim, D.	Non-invasive estimation and control of inlet pressure in an implantable rotary	Physiological Measurement, 2011



	G. Mason, R. F. Salamonsen, J. F. Fraser, and N. H. Lovell	blood pump for heart failure patients	
15.	Einly Lim, Abdul-Hakeem H. AlOmari, Andrey V. Savkin, Socrates Dokos, John F. Fraser, Daniel L. Timms, David G. Mason and N. H. Lovell	A method for control of an implantable rotary blood pump for heart failure patients using non-invasive measurements	Artificial Organs, 2011
13.	A. H. AlOmari, A. V. Savkin, P. J. Ayre, E. Lim, and N. H. Lovell	Sensorless estimation of inlet pressure in implantable rotary blood pump for heart failure patients	Electronics Letters, 2010
14.	A. H. AlOmari, A. V. Savkin, D. M. Karantonis, E. Lim, and N. H. Lovell	Non-invasive estimation of pulsatile flow and differential pressure in an implantable rotary blood pump for heart failure patients	Physiological Measurement, 2009

Scientific Research Papers Presented to Refereed Specialized Scientific Conferences

#	Name of Investigator(s)	Research Title	Conference and Publication Date
1.	M. A. Bakouri, Abdul-Hakeem H. AlOmari, and Andrey V. Savkin	A Method for Control of Cardiac Assist Device	10th IEEE Asian Control Conference (ASCC), Sabah, Malaysia, 31st May - 3rd June 2015
2.	A. Bakouri, Andrey V. Savkin, Abdul-Hakeem H. AlOmari, Robert F. Salamonsen, Einly Lim and Nigel H. Lovell	Feasible Approach to Control the Operation of Implantable Rotary Blood Pumps for Heart Failure Patients	9th IEEE Asian Control Conference, Istanbul, Turkey, June, 2013
3.	M. A. Bakouri, R. F. Salamonsen, A. V. Savkin, A. H. AlOmari, E. Lim and N. H. Lovell	Physiological Control of Implantable Rotary Blood Pumps for Heart Failure Patients	35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS'2013), Osaka, Japan, 2013.
4.	Khalid Alonazi, Abdul-Hakeem H AlOmari, Einly Lim, Socrates Dokos,	Use of an implantable rotary blood pump for sensorless estimation of ECG P-R segment potential in a model of heart failure	34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS'2012), California,



	Andrey Savkin, and Nigel H Lovell		USA, August 28 - September 1, 2012
5.	Abdul-Hakeem H. AlOmari, Andrey V. Savkin, Einly Lim, Robert F. Salamonsen, David G. Mason, John F. Fraser and Nigel H. Lovell	Non-invasive Measurements Based Model Predictive Control of Pulsatile Flow in an Implantable Rotary Blood Pump for Heart Failure Patients	19th Mediterranean Conference on Control and Automation, Corfu, Greece, June 20 – 23, 2011.
6.	Abdul-Hakeem H. AlOmari, Andrey V. Savkin, Peter J. Ayre, Einly Lim, and Nigel H. Lovell	Modeling and control of an implantable rotary blood pump for heart failure patients	American Control Conference (ACC 2010), Baltimore, Maryland, USA, 2010.
7.	X. T. Zhang, A. H. AlOmari, A. V. Savkin, P. J. Ayre, E. Lim, R. F. Salamonsen, F. L. Rosenfeldt, and N. H. Lovell	In Vivo Validation of Pulsatile Flow and Differential Pressure Estimation Models in a Left Ventricular Assist Device	32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS'2010), Buenos Aires, Argentina 2010.
8.	E. Lim, A. H. AlOmari, A. V. Savkin, and N. H. Lovell	Noninvasive deadbeat control of an implantable rotary blood pump: A simulation study	31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS'2009), Minneapolis, Minnesota, USA, 2009.
9.	Abdul-Hakeem H. AlOmari, Andis Graudins, and Andrey V. Savkin	The power spectra responses of stroke volume and arterial blood pressure variability signals to autonomic nervous modulation of the heart	The 2nd International Conference on Bio-inspired Systems and Signal Processing (BIOSIGNALS 2009), Porto, Portugal, 2009.
10.	Abdul-Hakeem H. AlOmari, Andrey V. Savkin, Dean M. Karantonis, Einly Lim, and Nigel H. Lovell,	A Dynamical model for noninvasive estimation of pulsatile flow in an implantable rotary blood pump	The 2nd International Conference on Bio-inspired Systems and Signal Processing (BIOSIGNALS 2009), Porto, Portugal, 2009.

Current Research



#	Research Title	Name of Investigator(s)
	Robust Control and Filtering for Regulation of Flow in Implantable Rotary Blood Pumps.	Abdul-Hakeem AlOmari

Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1.	32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS),	Buenos Aires, Argentina, August, 31 – September, 4, 2010	Presentation/ Research paper
2.	American Control Conference (ACC 2010)	Baltimore, Maryland, USA, June, 30 – July, 2, 2010	Paper accepted

Membership of Scientific and Professional Societies and Organizations

- Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Engineering in Medicine and Biology Society (EMBS)
- Jordanian Engineers Association, Member
- International Collaborator in System and Control, Asian Cardiac Engineering Laboratory, Department of Biomedical Engineering, Faculty of Engineering, University of Malaya, Kuala Lumpur, Malaysia.
- International Collaborator, Innovative Cardiovascular Engineering Technology (ICET) Laboratory, The Prince Charles Hospital, Brisbane, Queensland 4032, Australia.
- Critical Care Research Group, Intensive Care Unit, The Prince Charles hospital, and University of Queensland, Brisbane, Queensland 4032, Australia.
- Biomedical Systems Laboratory (BSL), School of Electrical Engineering and Telecommunications, Graduate School of Biomedical Engineering, UNSW, Sydney, NSW 2052 Australia.

Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1.	Biomaterials	BIOEN 421	2 Credit Hours
2.	Technical Writing	ENG 401	2 Credit Hours
3.	Research Methodology	HUMN 402	1 Credit Hour
4.	Professional Practice and Ethics	HUMN 501	2 Credit Hours



5.	Biomedical Equipment	BIOEN 462	4 Credit Hours
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Brief Description of Undergraduate Courses Taught: (Course Title – Code: Description)

BIOEN 421 - Biomaterials

Course Description: This course surveys materials intended for medical applications. It also covers specific characteristics related to the selection, processing, and testing (*in vitro* and *in vivo*) of biomaterials (e.g. metals, stainless steel, polymers, ceramics, composites and titanium) in dental, orthopedic, and ophthalmic applications. Properties of biomaterials including; physical and mechanical properties will be covered. Moreover, the course will provide an overview about the interactions between the implant material and the physiological environment (biocompatibility) with an overview about host reaction to biomaterials.

BIOEN 462 – Biomedical Equipment

Course Description: This course covers the principles structure, clinical needs, function and operation of a wide range of medical equipment (diagnostic and therapeutic) that can be found in a clinical environment. Topics include diagnostic and therapeutic equipment: electrocardiograph, pacemakers, external defibrillators, implantable cardioverters defibrillators, heart valves, hemodialysis delivery systems, ventilators, and pulse oximetry. In addition, the course covers equipment’s key features from engineering standards.

Supervision of Master and/or PhD Thesis

#	Degree Type	Title	Institution	Date
	PhD	Sensorless Physiological Control of Implantable Rotary Blood Pumps for Heart Failure Patients Using Modern Control Techniques.	The University of New South Wales (UNSW)	2014
1.	Postgraduate Project MSc	Modelling and Control of a Rotary Blood Pump in Heart Failure Patients	The University of New South Wales (UNSW)	2010
2.	Postgraduate MSc Project	Investigations in Left Ventricular Assist Device, Cardiovascular System Interaction, and a Non-invasive Control Approach.	The University of New South Wales (UNSW)	2011

Administrative Responsibilities, Committee and Community Service (Beginning with the most recent)

Administrative Responsibilities

#	From	To	Position	Organization
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1.	1436H	Ongoing	Head of Biomedical Engineering Department	College of Engineering, Imam Abdulrahman Bin Faisal University (IAU)
2.	1437H	Ongoing	Oversight ABET Committee	College of Engineering, Imam Abdulrahman Bin Faisal University (IAU)

Committee Membership

#	From	To	Position	Organization
1.	2016	Ongoing	Head, Internal Review Committee	BMED, IAU
2.	2016	Irregular Students Committee	Member	BMED, IAU

Last Update 03/05/2023