



Nasir Ghazi Hariri

Assistant Professor

Personal Data

Nationality | Saudi Arabian

Date of Birth | Feb. 4, 1989

Department | Mechanical and Energy Engineering Department

Official IAU Email | nghariri@iau.edu.sa

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
Dec. 15, 2018	Ph.D.	Florida Institute of Technology	Florida, USA
Oct. 15, 2015	Master	Western New England University	Massachusetts, USA
June 15, 2011	Bachelor	King Abdulaziz University	Jeddah, KSA



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

PhD	Vision-based Navigation For Electromagnetic Formation Flight
Master	Experimental Study Of Nitinol Wire Arrangements As Servo-Biomimetics For Facial Muscles
Fellowship	Enhancing Student Understanding and Engagement Level in a Classroom

Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work		Date
Assistant Professor		Imam Abdulrahman Bin Faisal University	Feb. 18, 2019
Lecturer		Imam Abdulrahman Bin Faisal University	-
Teaching assistant		Imam Abdulrahman Bin Faisal University	Dec. 5, 2011

Scientific Achievements

Refereed Scientific Research Papers Submitted for Publication

#	Name of Investigator(s)	Research Title	Journal	Submitted Date
1	Nasir Ghazi Hariri, Kamal Mohamed Nayel, Emad Khalid Alyoubi, Ibrahim Khalil Almadani, Ibrahim Sufian Osman, and Badr Ahmed Al-Qahtani	Thermal-Optical Evaluation of an Optimized Trough Solar Concentrator for an Advanced Solar-tracking Application Using Shape Memory Alloy	Materials Journal, 2022 DOI: https://doi.org/10.3390/ma15207110	2022
2	Nasir Ghazi Hariri, Ibrahim Khalil Almadani, and Ibrahim Sufian Osman	A State-of-the-Art Self-Cleaning System Using Thermomechanical Effect in Shape Memory Alloy for Smart Photovoltaic Applications	Materials Journal, 2022 DOI: https://doi.org/10.3390/ma15165704	2022
3	Ibrahim Sufian Osman, Ibrahim Khalil Almadani, Nasir Ghazi Hariri, and Taher Saleh Maatallah	Experimental Investigation and Comparison of the Net Energy Yield Using Control-Based Solar Tracking Systems	International Journal of Photoenergy, 2022 DOI: https://doi.org/10.1155/2022/7715214	2022
4	Ibrahim Khalil Almadani, Ibrahim Sufian Osman, and Nasir Ghazi Hariri	In-Depth Assessment and Optimized Actuation Method of a Novel Solar-Driven	Energies Journal, 2022 DOI: https://doi.org/10.3390/en15103807	2022



		Thermomechanical Actuator via Shape Memory Alloy		
5	Nasir G. Hariri, Mohammed A. AlMutawa, Ibrahim Sufian Osman, Ibrahim K. AlMadani, Abdulilah M. Almahdi, and Sajid Ali	Experimental Investigation of Azimuth- and Sensor-Based Control Strategies for a PV Solar Tracking Application	Applied Sciences Journal, 2022 DOI: https://doi.org/10.3390/app12094758	2022
6	Ibrahim Sufian Osman, and Nasir Ghazi Hariri	Thermal Investigation and Optimized Design of a Novel Solar Self-Driven Thermomechanical Actuator	Sustainability Journal, 2022 DOI: https://doi.org/10.3390/su14095078	2022
7	Nasir Hariri	A novel dust mitigation technology solution of a self-cleaning method for a PV module capable of harnessing reject heat using shape memory alloy	Case Studies in Thermal Engineering Journal, 2022 DOI: https://doi.org/10.1016/j.csite.2022.101894	2022
8	Ibrahim Almadani, Ibrahim Osman, Nasir Hariri, Muhammad Saleem, Nagmeldeen Hassanain	Investigating the Effects of Solar Tracking Systems on Thermal Profile of Photovoltaic Modules	International Journal of Renewable Energy Research, 2021 DOI: https://doi.org/10.20508/ijrer.v11i4.12344.g8310	2021
9	Nasir Hariri, Hector Gutierrez, Tiauw Go, John Rakoczy, Richard Howard, Christopher Becker, Ivan Bertaska	Proximity Operations and Formation Flight of Small Spacecraft using the Smartphone Video Guidance System	Journal of Guidance, Control, and Dynamics (AIAA)	Feb. 2, 2019
10	Nasir Hariri, Hector Gutierrez, Tiauw Go, John Rakoczy, Richard Howard, Christopher Becker, Ivan Bertaska	Performance Characterization of the Smartphone Video Guidance Sensor as Vision-based Positioning System	Journal of Guidance, Control, and Dynamics (AIAA)	Jan. 24, 2019

Scientific Research Papers Presented to Refereed Specialized Scientific Conferences

#	Name of Investigator(s)	Research Title	Conference and Publication Date
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1	Nasir Hariri	A Study of a Scissor-like Lift Manipulator for the Actuation Mechanism of a Self Cleaning System Using Shape Memory Alloy	6th International Conference on Smart and Sustainable Technologies 2021 International, Peer-reviewed, SCOPUS indexed IEEE Xplore indexed DOI: http://dx.doi.org/10.23919/SpliTech52315.2021.9566349
2	N. Hariri, J. Riofrio, and M. Shin	Experimental Study of Nitinol Wire Arrangements as Servo-Biomimetics for Facial Muscles	ASME-IMECE-2015

Completed Research Projects

#	Name of Investigator(s) (Supported by)	Research Title	Report Date
1	Nasir Hariri, Hector Gutierrez (NASA-MSFC)	Proximity maneuvers and vision-based navigation for electromagnetic formation flight	Dec. 2018
2	Fahad G. Al-Amri, Nasir G. Hariri (CO-PI)	Hydrogen generator from enhanced performance HCPV	K. A. CARE, OT(a)_IAU_PC, SR 3.94 Million
3	Nasir G. Hariri (PI)	Experimental design and development of a low-cost automated respirator device	DSR-IAU, Covid19-2020-072-Eng, SR 0.03 Million
4	Nasir G. Hariri (PI)	A novel design for self-actuated cooling mechanism of solar panels with the integration of nitinol smart material	Ministry of Education, Research and Innovation, IFD-2020-085-Eng, SR 0.7 Million
5	Ibrahim Osman, Nasir G. Hariri (CO-PI)	A Novel Smart Cleaning System for Photovoltaic Modules Using SMA	DSR-IAU, 2022-003-Eng, SR 0.03 Million
6	Murad Althobaiti, Nasir G. Hariri (CO-PI)	Design of an automated spinal needle	DSR-IAU, IF-2022-046-Eng, SR 0.2 Million
7	Hector Gutierrez (PI), Nasir G. Hariri (Research Assistant)	Proximity Operations and Maneuvers Using the Smartphone Video Guidance Sensor	NASA Marshall Space Flight Center, Cooperative Agreements 80MSFC18N0001 and NNM17AA03A, Dual Use Technology Development, 2016–2018

Current Research

#	Research Title	Name of Investigator(s)
1	Design and experimental study of fixed, single, and dual-axis solar tracking systems in eastern region of Saudi Arabia	Nasir Hariri
2	Smart cooling Method of PV Module using Shape Memory Alloy	Nasir Hariri
3	Dust Accumulation and Cleaning Methods Using Automated Robot	Nasir Hariri



4	Design and Fabrication of Optimized Parabolic Trough Concentrator for Advanced Solar Self-Tracking Application	Nasir Hariri (PI), Kamal Nayel, Badr Alqahtani, Ahmad Al Hanen, Monther Al-Khalaf
5	Solar-Powered Atmospheric Water Generator System for Agricultural applications	Nasir Hariri (PI), Emad Alyoubi, Khalid Al-Rwished, Mazen Noman, Moustafa Baaqeel
6	Vision-based navigation of Electromagnetic Formation Flight	Nasir Hariri (Co-PI) Collaboration Project with Florida Institute of Technology, USA.
7	Innovative Design and Development of System for peak performance gain from high concentrating photovoltaic	Nasir Hariri (Co-PI) Collaboration project with Exeter University, UK and BSQ Solar, Spain.

Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1	Small Satellite conference 2017	Logan, Utah, USA August 2017	Shared a display with NASA-MSFC as part of the collaborative work in the SVGS-based motion control of RINGS.
2	ASME 2015 International Mechanical Engineering Congress and Exposition (IMECE 2015).	Houston, TX, USA November 2015	Present a paper with the following title: "Experimental Study of Nitinol Wire Arrangements as Servo-Biomimetics for Facial Muscles"
3	KAUST Research Conference on Robotics and Autonomy 2022 "Smart Dust Mitigation Solutions for PV Systems"	KAUST, 2022	Participant & Presenter
4	6th International Conference on Smart and Sustainable Technologies 2021 "A Study of a Scissor-like Lift Manipulator for the Actuation Mechanism of a Self Cleaning System Using Shape Memory Alloy"	6th International Conference on Smart and Sustainable Technologies 2021	Participant & Presenter

Membership of Scientific and Professional Societies and Organizations

- ASME
- IEEE
- Fellowship in Higher Education Academy (FHEA).
- Diploma in Academic Leadership.
- Phi Kappa Phi (PKP).
- American Society of Mechanical Engineers (ASME).
- Institute of Electrical and Electronics Engineers (IEEE).



- *International Reviewer* for the Renewable Energy Journal, ELSEVIER.

Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Electro-mechanical Systems , College of Engineering, Department of Mechanical and Energy Engineering.	(ENG 422)	LEC
2	Measurement and Data Acquisition Systems , College of Engineering, Department of Mechanical and Energy Engineering.	(ENRG 312)	LEC/LAB
3	Heat and Mass Transfer , College of Engineering, Department of Mechanical and Energy Engineering.	(ENRG 313)	LEC
4	Introduction to Engineering , College of Engineering, Department of Mechanical and Energy Engineering.	(ENG 251)	LEC
5	Electrical Circuits , College of Engineering, Department of Mechanical and Energy Engineering.	(ENG 331)	LEC
6	Control System , College of Engineering, Department of Mechanical and Energy Engineering.	(ENRG 405)	LEC/LAB
	Embedded Computing and Remote Sensing , College of Engineering, Department of Mechanical and Energy Engineering.	(ENRG 563)	LEC/LAB
	Directed Research , College of Engineering, Department of Mechanical and Energy Engineering.	(ENRG 565)	LEC
	Senior Design Project I & II , College of Engineering, Department of Mechanical and Energy Engineering.	(ENRG 503 & ENRG 509)	LEC

Personal Key Competencies and Skills: (Computer, Information technology, technical, etc.)



1	Microsoft Office
2	Technical writing
3	Engineering Software (SolidWorks, AutoCAD, CATIA, Matlab, Simulink, ANSYS, ABAQUS, NX by siemens, LabVIEW, MultiSim)
4	Visual Basic Programming with DAQ devices
5	Data acquisition programming and real-time windows target tools
6	Microcontroller programming
7	Rapid prototyping using 3D scanning, 3D printing, laser cutting techniques

Last Update

06/02/2023