Amir Hamza

Associate Professor

College of Electrical & Mechanical Engineering

Email: a.hamza@ceme.nust.edu.pk
Contact: 0514540262
LinkedIn: https://www.linkedin.com/in/amir-hamza-6bb02435/

About

Dr. Amir Hamza is working as Associate Professor in the College of Electrical & Mechanical Engineering. Dr. Amir Hamza has a PhD in Mechanical Engineering. Dr. Amir Hamza has published 37 research articles & conference papers having a citation count of 327, carried out 6 projects and filed 14 intellectual property.

Qualifications

PhD in Mechanical Engineering 2011 - 2016
King Fahad University of Petroleum and Minerals , Saudi Arabia

MS in Mechanical And Aerospace Engineering 2006 - 2008
Seoul National University , Korea

BE in Mechatronics Engineering 2001 - 2005
NUST, Islamabad , Pakistan

Experience

Associate Professor 2022- Present
College of Electrical & Mechanical Engineering

Assistant Professor 2016 - 2022
College of Electrical & Mechanical Engineering

Assistant Professor 2016 - 2016
College of Electrical & Mechanical Engineering

Lecturer B 2011 - 2016
King Fahd University of Petroleum and Minerals , Dhahran, KSA

Lecturer 2009 - 2011
National University of Sciences and Technology , H-12 Islamabad

Professional Memberships

PEC Since 2005

Research Projects

National Projects

Multirobot automation system for manufacturing (Composite layup manufacturing) 2023
Funding Agency: NUST
Amount: PKR 22,000,000.00
Status: Completed

Agri Pro Integrated Underground Crops Harvester 2020
Funding Agency: IGNITE
Amount: PKR 80,000.00
Status: Completed

StairLift for Elderly 2020
Funding Agency: IGNITE
Amount: PKR 80,000.00
Status: Completed

Development of ATV Mounted Seeding Mechanism 2019
Funding Agency: IGNITE
Amount: PKR 79,950.00
Status: Completed

Intelligent Neckband for cattle health monitoring 2018
Funding Agency: IGNITE
Amount: PKR 9,000.00
Status: Completed

Development of High Performance and Reliable MEMs Inertial Sensors for UAVs Applications 2018
Funding Agency: HEC
Amount: PKR 15,396,000.00
Status: Completed

International Projects

Research Articles

Quantifying uncertainty in robotics trajectories: A time-dependent approach using polynomial chaos expansion 2025
Keenjhar Ayoob Tayyab Zafar Amir Hamza Zhonglai Wang
AIP Advances , Volume:15, Issue:6, Article Number 065107
Impact Factor: N/A | **Quartile:** 4
DOI: 10.1063/5.0252807

Sensorized laparoscopic surgical grasper with integrated capacitive force sensor for robot-assisted minimally invasive surgery 2025
Muhammad Ameer Usman Muhammad Rehan Taimoor Shabbir Mohsin Islam Tiwana Amir Hamza Muhammad Mubasher Saleem
Sensor Review, Volume 45, No. 2, Pages 236-247
Impact Factor: 1.600 | **Quartile:** 3
DOI: https://doi.org/10.1108/SR-09-2024-0765

Tracking Control and Backlash Compensation in an Inverted Pendulum with Switched-Mode PID Controllers 2024
Aisha Akbar Awan Umar Shahbaz Khan Asad Ullah Awan Amir Hamza
Applied Sciences-Basel , Volume:14, Issue: 22, Article Number: 10265, Pages:15
Impact Factor: 2.500 | **Quartile:** 1 | **Citations:** 2
DOI: https://doi.org/10.3390/app142210265

Application of array Bessel beam generated by superposition method in electronic glass cutting 2024
Guanglei Liang Shufeng Sun Jin Wang Zhihao Qu Tao Wei Xunhuan Liu Hao Sun Peter Pavol Monka Amir Hamza
Optics and Lasers in Engineering, Volume 181, Article Number 108384
Impact Factor: 3.500 | **Quartile:** 2 | **Citations:** 3
DOI: https://doi.org/10.1016/j.optlaseng.2024.108384

Emotion Fusion-Sense (Emo Fu-Sense) – A novel multimodal emotion classification technique 2024
Muhammad Umair Nasir Rashid Umar Shahbaz Khan Amir Hamza Javaid Iqbal

Biomedical Signal Processing and Control, Volume 94, Article Number: 106224

Impact Factor: 4.9 | **Quartile:** 1

DOI: 10.1016/j.bspc.2024.1062

Deep Learning Based Multiresponse Optimization Methodology for Dual-Axis MEMS Accelerometer 2023

Fahad ul Hassan Asif Mattoo Tahir Habib Nawaz Muhammad Mubasher Saleem Umar Shahbaz Khan Amir Hamza

Micromachines , Volume 14, Issue 4, Article Number 817

Impact Factor: 3.523 | **Quartile:** 2 | **Citations:** 2

DOI: https://doi.org/10.3390/mi14040817

IoT-Based Non-Intrusive Automated Driver Drowsiness Monitoring Framework for Logistics and Public Transport Applications to Enhance Road Safety 2023

Muhammad Adil Khan Tahir Habib Nawaz Umar Shahbaz Khan Amir Hamza Nasir Rashid

IEEE Access , Volume 11, Pages 14385-14397

Impact Factor: 3.476 | **Quartile:** 2 | **Citations:** 44

DOI: https://doi.org/10.1109/ACCESS.2023.3244008

Study of ferroelectric and piezoelectric response of heat-treated surfactant-based BaTiO3 nanopowder for high energy capacitors 2023

Gulraiz Tanvir Mohsin Saleem Hamid Jabbar Amir Hamza Muhammad Asif Hussain Muhammad Zubair Khan Abrar H. Baluch Muhammad Irfan Muhammad Shoaib Butt Faysal Naeem Abdul Ghaffar Muhammad Ahsan Muhammad Asif Rafiq Rizwan Ahmed Malik Adnan Maqbool

Materials Science and Engineering B , Volume 287, Article Number 116100

Impact Factor: 3.407 | **Quartile:** 2 | **Citations:** 9

DOI: https://doi.org/10.1016/j.mseb.2022.116100

Patch-wise weed coarse segmentation mask from aerial imagery of sesame crop 2022

Syed Imran Moazzam Umar Shahbaz Khan Waqar Shahid Qureshi Mohsin Islam Tiwana Nasir Rashid Ameer Hamza Kunwar Faraz Ahmed Tahir Habib Nawaz

Computers and electronics in agriculture, Volume 203, Article Number 107458

Impact Factor: 6.757 | **Quartile:** 1 | **Citations:** 12

DOI: https://doi.org/10.1016/j.compag.2022.107458

Process Parameter Optimization of Additively Manufactured Parts using Intelligent Manufacturing 2022

Rizwan Ur Rehman Uzair Khaleeq uz Zaman Shahid Aziz Hamid Jabbar Adnan Shujah Shaheer Khaleequzzaman Amir Hamza Usman Qamar Dong Won Jung

Sustainability , Volume 14(22), Article Number 15475

Impact Factor: 3.889 | **Quartile:** 2 | **Citations:** 4

DOI: https://doi.org/10.3390/su142215475

Prediction of fatigue crack growth rate in aircraft aluminum alloys using optimized neural networks 2022

Hassan Bin Younis Khurram Kamal Muhammad Fahad Sheikh Ameer Hamza

Theoretical and Applied Fracture Mechanics, Volume 117, Article Number 103196

Impact Factor: 4.017 | **Quartile:** 1 | **Citations:** 49

DOI: https://doi.org/10.1016/j.tafmec.2021.103196

A Systematic Design Optimization Approach for Multiphysics MEMS Devices Based on Combined Computer Experiments and Gaussian Process Modelling 2021

Shayaan Saghir Muhammad Mubasher Saleem Amir Hamza Kashif Riaz Sohail Iqbal Rana Iqtidar Shakoor

Sensors , Volume 21(21), Article Number 7242

Impact Factor: 3.576 | **Quartile:** 1 | **Citations:** 6

DOI: 10.3390/s21217242

An efficient design of dual-axis MEMS accelerometer considering microfabrication process limitations and operating environment variations 2021

Amir Hamza Rana Iqtidar Shakoor Muhammad Ahmad Raza Tahir Muhammad Mubasher Saleem Syed Ali Raza Bukhari

Microelectronics International , Volume 38, No. 4, Pages 144-156

Impact Factor: 0.758 | **Quartile:** 4 | **Citations:** 7

DOI: https://doi.org/10.1108/MI-02-2021-0023

A Novel Design of High Resolution MEMS Gyroscope using Mode-Localization in Weakly Coupled Resonators 2021

Syed Ali Raza Bukhari Muhammad Mubasher Saleem Amir Hamza Shafaat Ahmed Bazaz

IEEE Access , Volume: 9, Page(s):157597-157608

Impact Factor: 3.476 | **Quartile:** 2 | **Citations:** 16

DOI: 10.1109/ACCESS.2021.3123152

A Patch-Image Based Classification Approach for Detection of Weeds in Sugar Beet Crop 2021

Syed Imran Muazzam Umar Shahbaz Khan Waqar Shahid Qureshi Mohsin Islam Tiwana Nasir Rashid Waleed S. Alasmary Javaid Iqbal Ameer Hamza

IEEE Access , Volume 9, Pages 121698-121715

Impact Factor: 3.476 | **Quartile:** 2 | **Citations:** 39

DOI: 10.1109/ACCESS.2021.3109015

A Low-g MEMS Accelerometer with High Sensitivity, Low Nonlinearity and Large Dynamic Range Based on Mode-Localization of 3-DoF Weakly Coupled Resonators 2021

Shayaan Saghir Syed Ali Raza Bukhari Rana Iqtidar Shakoor Shafaat Ahmed Bazaz Muhammad Mubasher Saleem Ameer Hamza

Micromachines , Volume 12(3), Article Number 310

Impact Factor: 2.891 | **Quartile:** 2 | **Citations:** 19

DOI: https://doi.org/ 10.3390/mi12030310

Improving Classification Performance of Four Class FNIRS-BCI Using Mel Frequency Cepstral Coefficients (MFCC) 2021

Umar Shahbaz Khan Ameer Hamza Umer Izhar Javaid Iqbal Nasir Rashid Waqar Shahid Qureshi Mohsin Islam Tiwana Muhammad Saad Bin Abdul Ghaffar

Infrared Physics and Technology, Volume 112, Article Number 103589

Impact Factor: 2.638 | **Quartile:** 2 | **Citations:** 32

DOI: https://doi.org/10.1016/j.infrared.2020.103589

Microfabrication Process-Driven Design, FEM Analysis and System Modeling of 3-DoF Drive Mode and 2-DoF Sense Mode Thermally Stable Non-Resonant MEMS Gyroscope 2020

Umar Shahbaz Khan Ameer Hamza Javaid Iqbal Syed Ali Raza Bukhari Muhammad Mubasher Saleem Rana Iqtidar Shakoor

Micromachines , Volume 11, Issue 09, Article Number 862

Impact Factor: 2.891 | **Quartile:** 2 | **Citations:** 18

DOI: https://doi.org/10.3390/mi11090862

EEG Based Four Class Human Limb Movement Detection by Mel Frequency Cepstral Coefficients and Quadratic Multi-Class Support Vector Machine 2020

Nasir Rashid Javaid Iqbal Umar Shahbaz Khan Mohsin Islam Tiwana Amir Hamza

Journal of Engineering and Applied Sciences, Volume 39, Issue 1, Pages 116-126

Impact Factor: -

DOI: http://dx.doi.org/10.17582/journal.jeas/39.1.116.126

Design, closed-form modeling and analysis of SU-8 based electrothermal microgripper for biomedical applications 2019

Muhammad Mubasher Saleem Umar Shahbaz Khan Amir Hamza Muhammad Umar Masood

Microsystem Technologies, Volume 25, pages 1171–1184

Impact Factor: 1.737 | **Quartile:** 3 | **Citations:** 18

DOI: 10.1007/s00542-018-4059-z

Evaluation and comparison of the hepatoprotective effects of trimetazidine and lovastatin against doxorubicin-induced hepatotoxicity 2019

Abeera Sikandar Kulsoom Farhat Amir Hamza

International Journal of Basic & Clinical Pharmacology, Volume 8, Issue 4, Pages 693-699

Impact Factor: N/A

DOI: 10.18203/2319-2003.ijbcp20191102

Efficient FIR Filter Implementations for Multichannel BCIs Using Xilinx System Generator 2018

Usman Ghani Muhammad Wasim Umar Shahbaz Khan Muhammad Mubasher Saleem Ali Hassan Nasir Rashid Mohsin Islam Tiwana Amir Hamza Amir Kashif

BioMed Research International , Volume 2018, Article ID 9861350, 9 pages

Impact Factor: 2.197 | **Quartile:** 3 | **Citations:** 6

DOI: https://doi.org/10.1155/2018/9861350

Application of Ba0.5Sr0.5Co0.8Fe0.2O3−δ membranes in an oxy-fuel combustion reactor 2016

Khaled Mezghani Ameer Hamza

Journal of Membrane Science, Volume 518, Pages 254-262

Impact Factor: 6.035 | **Quartile:** 1 | **Citations:** 18

DOI: 10.1016/j.memsci.2016.07.001

Effect of microstructure and thickness on oxygen permeation of La2NiO4+δ membranes 2016

Khaled Mezghani Amir Hamza Mohamed A. Habib Dongkyu Lee Yang Shao-Horn

Ceramics International , Volume 42, Issue 1, Part A, Pages 666-672

Impact Factor: 2.986 | **Quartile:** 1 | **Citations:** 18

DOI: 10.1016/j.ceramint.2015.08.163

Hybrid experimental/numerical technique for determination of the complex dynamic moduli of elastic porous materials 2009

Amir Hamza Yeon June Kang

Journal of Mechanical Science and Technology, Volume 23, Issue 2, Pages 283-290

Impact Factor: 0.374 | **Quartile:** 3 | **Citations:** 2

DOI: 10.1007/s12206-008-0715-z

Conference Proceedings

Enhanced Military Aircraft Detection Using YOLOv5s with Hyperparameter Evolution in Remote Sensing Images 2024

Wajih Ahmed Khan Fahad Ul Hassan Asif Mattoo Ali Sarosh Amir Hamza Umar Shahbaz Khan Muhammad Umar Anjum

6th International Conference on Robotics and Automation in Industry, ICRAI 2024, res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI62391.2024.10894385

Bare Printed Circuit Board Defects Localization and Detection Using YOLOv5 Models 2024

Wajih Ahmed Khan Amir Hamza Muhammad Usman Akram Umar Shahbaz Khan Tahir Habib Nawaz

2024 International Conference on Robotics and Automation in Industry (ICRAI), res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI62391.2024.10894537

Impact Testing of Different Materials on Wheels Used in Throwable Unmanned Ground Vehicles 2024

Hamza Sohail Amir Hamza Nasir Rashid Muhammad Saad Ali Taha Ghani

2nd International Conference on Modern Technologies in Mechanical & Materials Engineering (MTME-2024), res.country(177,)

Citations: N/A

DOI: https://doi.org/10.1051/matecconf/202439801014

Optimization of Impact Resistant Throwable Unmanned Ground Vehicle Using Mathematical Modeling Techniques 2024

Hamza Sohail Amir Hamza Nasir Rashid Muhammad Saad Ali Taha Ghani

2nd International Conference on Modern Technologies in Mechanical & Materials Engineering (MTME-2024), res.country(177,)

Citations: N/A

DOI: 10.1051/matecconf/202439801013

Design and Analysis of Throwable Unmanned Ground Vehicle 2023

Hamza Sohail Amir Hamza Nasir Rashid Muhammad Saad Ali Taha Ghani

2023 International Conference on Robotics and Automation in Industry (ICRAI), res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI57502.2023.10089612

Vision-Based Hybrid Detection for Pick and Place Application in Robotic Manipulators 2023

Muhammad Umar Anjum Umar Shahbaz Khan Amir Hamza Waqar Shahid Qureshi Wajih Ahmed Khan

2023 International Conference on Robotics and Automation in Industry, ICRAI 2023, res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI57502.2023.10089602

Design and FEM Analysis of Miniature Torque Sensor for Finger Exoskeleton 2021

Faryal Gula Hammad Munawar Amir Hamza

2021 International Conference on Robotics and Automation in Industry (ICRAI), res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI54018.2021.9651427

Design of Olive Pitting Machine 2021

Ahmed Faizan Tariq Eisha Gul Manahil Shahid Amir Hamza Hamid Jabbar Umar Shahbaz Khan

IEEE, 2021 International Conference on Robotics and Automation in Industry (ICRAI), res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI54018.2021.9651337

Control of Ankle Angles During Gait Cycle for Lower Limb Prosthesis 2019

Umar Shahbaz Khan Muneeb Masood Raja Mohsin Islam Tiwana Amir Hamza Muhammad Adnan Khalil Abdul Hanan

3rd IEEE International Conference on Robotics and Automation in Industry, res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI47710.2019.8967363

Prediction of fatigue crack growth rate in aircraft aluminum alloys using radial basis function neural network. 2018

Hassaan Bin Younis Muhammad Fahad Sheikh Amir Hamza Tayyab Zafar Khurram Kamal

2018 10th International Conference on Advanced Computational Intelligence (ICACI), res.country(48,)

Citations: N/A

DOI: 10.1109/ICACI.2018.8377568

Intellectual Property

Copyrights

Patents

System for combusting a methane stream and a method of combustion 2016
Status: Filed

sealing agent for ion transport membranes 2015
Status: Granted Filed

Industrial Designs

Casing of Transmission Control Module 2024
Status: Filed

Casing of Gyrocompass - A Night Navigation Device 2024
Status: Filed

PCB of Gyrocompass - A Night Navigation Device 2024
Status: Filed

Precision Forming Robotic Soil Drilling System 2024
Status: Filed

High maneuverability agricultural robot with individual wheel steering 2024
Status: Filed

Hybrid Walk and Roll Quadruped Robot (Class-01) 2022
Status: Granted Filed

Micro-machine for Fatigue Testing of Silicon Thin Films, 2020
Status: Licensed Filed

Resonant Micro-gyroscope 2020
Status: Licensed Filed

Flexible and multipurpose mobile agribot platform (Class-01) 2020
Status: Filed

Roller Mechanism StairLift (Class-01) 2020
Status: Filed

Gripper Mechanism StairLift (Class-01) 2020
Status: Filed

Inclined concentric quadrupole magnetic actuators for targeted drug delivery 2019
Status: Granted Filed

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