

Engr. Dr. Sarmad Shams (HEC approved supervisor)

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CNIC No: 42000-1312447-3

Position/Title: Associate Professor/Chairman, Biomedical Engineering Department

Institution: Sir Syed University of Engineering and Technology

Education:

PhD in Bio Medical Science and Engineering; Sept. 2013 to Aug. 2017
Koç University; Istanbul; Turkey

Thesis Title: Development of Anthropomorphic Prosthetic Hand and its Control Scheme for Transhumeral Amputees.

MS in Mechanical Engineering; Sept. 2009 to June 2011
Hanyang University; Seoul; South Korea

Thesis Title: Development of Optical Torque Sensor for Wearable Robot.

ME in Industrial Electronics (incomplete); Jan 2008 to August 2009
NED University of Engineering and Technology; Karachi; Pakistan

BS in Biomedical Engineering; Jan. 2003 to Nov. 2006
Sir Syed University of Engineering and Technology; Karachi; Pakistan

Thesis Title: Biomechanics Monitoring System for the Legality of Bowling Action in cricket.

Experience:

Chairman Sept. 2019 to Present
Department of Biomedical Engineering
SSUET; Karachi; Pakistan

Associate Professor May 2019 to Present
Department of Biomedical Engineering
SSUET; Karachi; Pakistan

Associate Professor/Chairperson Sept. 2017 to April 2019
Department of Biomedical Engineering
FEST, Ziauddin University; Karachi; Pakistan

Assistant Professor Dec. 2011 to AUG 2013
Department of Mechatronics Engineering
CEME, NUST; Rawalpindi; Pakistan

Junior Lecturer Dec. 2007 to AUG 2009
Department of Biomedical Engineering
SSUET; KARACHI; PAKISTAN

Sales and Service Engineer Jan. 2007 to Nov. 2007
Life Science Division
Technoman (Pvt.) Ltd.; KARACHI; PAKISTAN

Activities

Reviewer
IEEE/ASME Transaction on Mechatronics,
IEEE Sensor Journal,
Photodermatology, Photoimmunology & Photomedicine, Wiley.
Pakistan Journal of Engineering, PEC, Pakistan
SSUET Journal, SSUET, Pakistan

Supervision and Guidance

Postgraduate Students (MS and PhD)

1. Engr. Fahad Ahmed Siddiqui (PhD Candidate EE, SSUET) – Supervisor
2. Engr. S. Fahad Akbar Ali (PhD Candidate BM, SSUET) – Supervisor

3. Engr. M. Muzammil Khan (PhD Candidate BM, SSUET) – Supervisor
4. Engr. S. M. Omair (PhD Candidate BM, SSUET) – Supervisor
5. Engr. M. Safwan (PhD Candidate EL, ZUFESTM) – Co Supervisor
6. Engr. Mariam Shakeel (MS BM, SSUET) – Co Supervisor
7. Engr. Abdul Rab (MS BM, SSUET) – Supervisor
8. Engr. Imtiaz Ali (MS BM, SSUET) – Co Supervisor
9. Engr. Adnan Afroze (PhD EE, SSUET) – GEC Member
10. Engr. Hira Zahid (PhD Candidate EL, ZUFESTM) – GEC Member
11. Engr. Salman (PhD Candidate EL, ZUFESTM) – GEC Member
12. Engr. Jawad Bhatti (MS EL, ZUFESTM) – GEC Member

International Credit Mobility

Got selected in International Credit Mobility program between Dublin City University and SSUET.

Honored as First Pakistani Student to design Indigenous Prosthetic Hand in Turkey

During PhD Research design and develop Turkey's indigenous Prosthetic Hand, covered by Hurriyet Newspaper, Fox News (TV) Turkey and HEC News and Views (Oct 2017)

Conference/Workshop

Keynote Speaker in Annual International Conference on Rehabilitation 2018, Ziauddin University DUHS DICE Health Innovation Exhibition 2018 and 2019 session member.

IEEEP Session Chair 2018, NEDUET

Keynote Speaker in National Conference on Emerging Technology 2017, SSUET

Poster Session Chair ICRAI 2013, CEME NUST

Patents

1. No: PCT/TR2018/050048 (Turkey) Date: 2018.02.07
Title: A Prosthetic Hand.
Inventors: Ismail Lazoglu and Sarmad Shams
2. No: PCT/TR2017/050616 (Turkey) Date: 2017.11.30
Title: opto-coupler based force sensor for measuring static and dynamic friction coefficients.
Inventors: Ismail Lazoglu and Sarmad Shams
3. No: PCT/TR2016/050145 (Turkey) Date: 2016.05.16
Title: Artificial Hand having finger units provided with a photo coupler contact force sensor.
Inventors: Ismail Lazoglu and Sarmad Shams
4. No: 2011-0030942 (Korea) Date: 2011.01.31
Title: Torque Measurement Equipment Using Photo Interrupter.
Inventors: Changsoo Han, Sarmad Shams, Dongik Shin, Dongsu Kim, Younsung Choi, Jungsoo Han
5. No: 2010-0062907 (Korea) Date: 2010.06.30
Title: 3-Dimension Relative Position Detection Method of the Wearer using Optical Sensor.
Inventors: Changsoo Han, Kwangjin Ko, Dongsu Kim, Sarmad Shams, Dongik Shin, Jungsoo Han.

Book Chapters

1. Samreen Hussain, Sarmad Shams, Saad Jawad Khan, Impact of Medical Advancement: Prostheses. In Computer Architecture in Industrial, Biomechanical and Biomedical Engineering 2019 Nov 12. IntechOpen.
2. Sarmad Shams, Muhammad Asif, Samreen Hussain, Muscle Mechanics and Electromyography. In Recent Advances in Biomechanics 2020 Jul 30. IntechOpen.

Journal Articles

1. Sarmad Shams, Jeayoung Lee and Changsoo Han, "Compact and Lightweight Optical Torque Sensor for Robots with Increased Range", Sensors and Actuators A: Physical, Volume 173, Issue 1, 81-89.
2. Sarmad Shams, Dong Su Kim, Youn Sung Choi and Chang Soo Han, "A Novel 3-DOF Optical Force Sensor for Wearable Robotic Arm", International Journal of Precision Engineering and Manufacturing, Springer, 12(4): 623-628.
3. Hussain A.A., Younus M., Moizuddin M., Ali S.W., Sarmad Shams. (2019) "Increasing Time Healing Process of Dislocated Shoulder in Athletes Using Smart Braces". Universal Journal of Computer Science & Information Technology, UJCSIT, Vol 2, Issue. 1, pp. 81-89.
4. Hussain A.A., Younus M., Moizuddin M., Ali S.W., Sarmad Shams. (2019) "Design of a Peltier effect-based Cooling Vest for extreme temperature areas in Pakistan". Universal Journal of Computer Science & Information Technology, UJCSIT, Vol 2, Issue. 2, pp. 36-43.

5. Zahid H, Syed SA, Abbas S, Shams S. Cost Effective Converted Powers Wheelchair with a Baby Carrier Attachment for a Paraplegic Mother to Care and Monitor Her Infant. *Quaid-E-Awam University Research Journal of Engineering, Science & Technology*, ISSN 1605-8607,2523-0379, Nawabshah. 2020 Sep 1;18(1):51-9.
6. Zahid H, Syed SA, Jerome M, Batool R, Shams S. Patient Benefactor Linker: Patient Benefactor Linker. *KIET Journal of Computing and Information Sciences*. 2020 Jul 1;3(2):12-16.
7. Osama Saeed, Bilal Fattah, Jahanzaib Ali, Faiza Niazi, Sarmad Shams, Ali Asghar Ali, Mubsir Bin Saeed, Feature Extraction and Classification of Surface EMG Signal of right arm to make an Artificial hand as Assistive Device for Upper Limb Amputees, *Pakistan Journal of Engineering*, October 2020, Vol. 1(1) ISSN NO. 2706-9648.
8. Marriam Shakil, Darakhshan Saleem, Afshan Zafar, Dr. Ahmed Ali, Mariam Raziq, Sarmad Shams, (2021). Evaluation of clinical and hematological parameters in patients of Rheumatoid arthritis in a tertiary care hospital. *Rawal Medical Journal*.
9. Hafiz Imtiaz Ahmed, Darakhshan M. Saleem, S. M. Omair, Sarmad Shams, Naeem Sheikh, Areeba Tariq, Conceptual Hybrid Model for Wearable Cardiac Monitoring System, *Wireless Personal Communications*, ISSN 1572-834X,0929-6212, Submitted (13 Nov. 2020).

Conference Proceedings

1. Sarwar Wasi, Sarmad Shams, Shahzad Nasim and Arham Shafiq, "Intrusion Detection Using Deep Learning and statistical data Analysis", 2019 4th International Conference on Emerging Trends in Engineering, Sciences and Technology (ICEEST).
2. Unzila Jawed, Aiman Mazhar, Faiza Altaf, Abdul Rehman, Sarmad Shams and Ali Asghar, "Rehabilitation Posture Correction Using Neural Network", 2019 4th International Conference on Emerging Trends in Engineering, Sciences and Technology (ICEEST).
3. Sarmad Shams and Ali Asghar, "A novel technique for the rehabilitation of shoulder joints dislocation using smart brace therapy", Annual International Conference on Rehabilitation, 22-24 Feb. 2018, Ziauddin University.
4. Sarmad Shams and Adnan Baig, "Post simulation rehabilitation gaming system technique for stroke patient", Annual International Conference on Rehabilitation, Translational, Clinical and Research perspectives, 22-24 Feb. 2018.
5. Sarmad Shams and Ismail Lazoglu, "A monolithic opto-coupler based sensor for contact force detection in artificial hand", 2nd International Conference on Robotics and Artificial Intelligence (ICRAI) 2016, Nov. 01-02, 2016, NUST College of E&ME, Rawalpindi, Pakistan.
6. Salman Pervaiz, Ibrahim Deiab, Sayem Zafar and Sarmad Shams, "Prediction of energy consumption and surface roughness in reaming operation of Al-6061 using ANN based models", IEEE International Conference on Robotics and Artificial Intelligence (ICRAI) 2012, Oct. 22-23, 2012, NUST College of E&ME, Rawalpindi, Pakistan.
7. Sarmad Shams, Dongik Shin, Jungsoo Han, Jeayoung Lee, Kyoosik Shin and Changsoo Han, "Compact Design of a Torque Sensor using Optical Technique and its Fabrication for Wearable and Quadruped Robot", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Sept. 25-30, 2011, San Francisco, California, pages 5127-5132.
8. Dongsu Kim, Sarmad Shams, Youngsung Choi, Dongik Shin and Changsoo Han, "Mechanism Design of 3-axis Load Cell with Optical Sensor for Wearable Robot", ICROS 2011, May 27-28, 2011, Gwangju, South Korea, pages 422-426.
9. Weijun Wang, Sarmad Shams, Dongik Shin, Changsoo Han and Hyeunseok Choi, "Soft Biomimetic Leg Design and Fabrication Process of Cockroach-Inspired Robot", Proceedings of the 2010 IEEE International Conference on Mechatronics and Automation, August 4-7, 2010, Xi'an, China, page no 1405-1409.
10. Sarmad Shams and Changsoo Han, "Optical Mouse Sensor as 2-Dimensional Position Controller", Korean Society of Precision Engineering KSPE, May 26-28, 2010, Jeju, South Korea, pages 1095-1096.
11. Faisal Azhar, Ijlal Shahrukh, M. Zeeshan ul Haq, Sarmad Shams and Ahsan Azhar, "An Hybrid Approach for Motion Artifact Elimination in Pulse Oximeter using MATLAB", 2009 northeast American Society of Engineering Education Conference ASEE 2009, 3-4 April 2009, University of Bridgeport, USA.

Professional Memberships

1. Member of Academic Council, SSUET.
2. Member of Engineering Board of Faculty, SSUET.
3. Convener of Industry Advisory Board, BMED, SSUET.
4. Convener Board of Studies BMED, SSUET.

5. Member of Board of studies DBME, BHU.
6. Member of Post Graduate Admission Test committee, SSUET.
7. Member of PhD Admission Test Committee, BMED, SSUET.
8. Member of Korean Society of Precision Engineering (KSPE).
9. Member of Pakistan Engineering Council (PEC).
10. Member of Aligarh Muslim University Old Boys' Association (AMUOBA), Pakistan.

Honors & Awards

1. Reviewer IEEE Sensors Journal.
2. Reviewer IEEE/ASME Transaction on Mechatronics.
3. Reviewer Photodermatology, Photoimmunology & Photomedicine, WILEY.
4. Higher Education Commission (HEC), Pakistan Scholarship for PhD In Turkey.
5. PhD Scholarship, Koc University, Turkey.
6. Marquis Who's Who in the World 30th Pearl Anniversary Edition Nov. 2012.
7. MS Scholarship, Hanyang University, South Korea.
8. Higher Education Commission (Hec), Pakistan Scholarship for MS Level Training in Korea.
9. BS Scholarship, Sir Syed University of Engineering & Technology, Pakistan.
10. Won 1st Prize on Final Year Project in All Pakistan Programming, Software and Hardware Competition, Procom 2007 at Fast University, Lahore, Pakistan.

Extra-Curricular Activities

President, Pakistan Student Association (PSA), Koc University	May 2016 to April 2017
Member, Cricket Team, Koc University	Sept 2013 to Aug. 2017

Skills

MATLAB, Simulink, LabVIEW Core I & II, Solidworks, Nx-Unigraphics, Ansys, Proteus, Ms-Office.
Arduino (Microcontroller Firm Ware Programming), Latex.

References

Available on request