

Sameer Ahmad Hasan, PhD

Assistant Professor in Electrical and Biomedical Engineering
Member of Board Trustees in Medical Devices Technology Institute/
Jordanian Royal Medical Devices



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Profile

Dr Sameer Hasan joined the German Jordanian University as an assistant professor in biomedical engineering in 2020. He earned his PhD in electrical and biomedical engineering from Northumbria University at Newcastle- UK, and his MSc in bio-nanotechnology from the University of Southampton-UK. He finished his undergraduate degree in nursing science from the University of Jordan in 1999. However, due to his great passion for engineering and technology and his hard work and determination, Dr Hasan was awarded a second bachelor's degree in biomedical engineering from Hashemite University in 2004 to begin a new life chapter.

Dr Hasan worked as a product and modality manager with GE Healthcare, a world-leading healthcare company. He spent five years leading the life support care and respiratory business in Saudi Arabia and the Middle East region. Dr Hasan has vast professional experience that extends to more than 20 years in various professional positions such as critical care nurse, biomedical engineer, sales and marketing leader, lecturer, academic, and researcher.

Education

2015 – 2019	PhD in Electrical and Biomedical Engineering Northumbria University, United Kingdom
Thesis title	Flexible ZnO thin film-based acoustic wave devices for environmental and biomedical sensing applications.
Skills	Microfabrication: Lithography and microfabrication processes. Characterization: SEM, ADX, XRD, profilometer, and spectrophotometer.
2013 – 2014	MSc Bio-Nanotechnology. University of Southampton, United Kingdom.
Dissertation Title	Detection of human transferrin protein using sandwich ELISA assay.
Post MSc Internship	Five weeks of working in the centre of hybrid biodevice, a dedicated cell and molecular laboratory for developing miniaturized analytical platforms at the University of Southampton. The project was part of the development of a biosensor lab.
Major Modules	Introduction to bio-nanotechnology, microfabrication, nanofabrication and characterization, Lab on a Chip, research method, integrated circuit design, biosensor, memory and spintronic devices, nano-electronics Lab, bio-nanotechnology lab project.
1999 – 2004	BSc Biomedical Engineering. Hashemite University, Jordan.
1995 – 1999	BSc in Nursing Science. The University of Jordan, Jordan

Training Courses and Certifications

- University Teaching – Basics Certificate: Magdeburg-Stendal University
- University Teaching – Advanced Certificate: Magdeburg-Stendal University

List of Professional and Academic Experiences

2/ 2020 – present	Assistant Professor in Biomedical Engineering. German Jordanian University – Amman – Jordan.
9/ 2020 – 9/2022	Department Chair of Biomedical Engineering. German Jordanian University – Amman – Jordan.
9/ 2018 – 12/ 2018	Lab Demonstrator for analogue electronics and instrumentation – Northumbria University – Newcastle – UK.
2/ 2015 – 9/ 2015	Lecturer – Biomedical Engineering Department. Hashemite University – Zarqa – Jordan.
2008 – 2013	Sales specialist/Modality Leader & Product Manager, GE Healthcare. Saudi Arabia and Middle East Region,
2006 – 2008	Biomedical Sales Engineer, AMSA (GE HealthCare distributor).
2004 – 2006	Lecturer – Nursing Instructor, SAMT, Saudi Arabia
1999 – 2004	Staff Nurse/ Registered Nurse (RN) "Deliver nursing care for critically ill patients in ICU, CCU and SICU".

Key Achievements as Department Chair of Biomedical Engineering:

- Leading the ASIIN (German) accreditation process of the biomedical engineering program.
- Establishing a strategic partnership with ITT Siemens Healthineers.
- Strengthen the German dimension through expanding the BME network (i.e., TU Chemnitz) and participating in study group mobility visits.
- Proposing and establishing new bachelor's programs in "Intelligent Health Informatics) and Nursing Science.
- Establish sustainable cooperation and partnership relations with the industry and the private sector, such as the Arab Scientific Medical Group Company, Abdali Hospital, and First National Company for Medical Devices Trading.
- Establishing an Ask4Help team (Mentors) to help the BME students during their studies.

Teaching Experience

- Medical Instrumentation.
- Biomedical Sensors and Transducers
- Biofluid Mechanics and transport phenomena.
- Medical Signal Processing.
- Medical Imaging Systems
- Physiological Modelling and Automatic Control Systems
- Automatic Control Systems for Medical Applications
- Micro/Nano Fabrication Techniques Prosthetic systems
- Fundamentals of micro/nanotechnology in biomedical engineering
- Selected Topics in Biomedical Engineering

List of Supervised Master Students (MSc)

Feb 2022 Co-Supervising a postgraduate student (MSc in Biomedical Engineering) in collaboration with Prof. Mohammad Ibbini from Jordan University of Science and Technology (JUST).

Thesis title Deep Learning Network for Electrical Impedance Tomography Image Reconstruction Based on Prior Knowledge for Hand Gesture Recognition Applications

List of Supervised Graduation Projects

- **Arabic Sign Language Recognition and Interpretation Using RCNN and Deep Machine Learning (Awarded the second rank in Jordanian University students' competition for entrepreneurship)**
- Proficient Connection between Health Equipment and Medical Institutes.
- IoT Health care Monitoring bracelet
- Design of Laboratory Incubator
- Appli-Walker: IoT Walker with Vital Signs Sensors for Elderly People & Their Care Takers
- Irradiation of Non-Pathogenic Bacteria at 222 and 254 nm (Far-UVC and UVC) and Comparing the Results with their Pathogenic Relatives
- Condition Monitoring and Comparison of Characteristic Features Between New and Worn Dental Handpieces Based on Measurements of Operating Parameters
- 3D Printed Peristaltic Pump for Haemodialysis Machine
- Open-Source Medical Equipment Management System

Research Interests

- Acoustic wave technology for biomedical applications
- Bioelectronics & Biosensors.
- Microfluidics integrated Lab on a chip.
- Bio-Nanotechnology and Biomedical Instrumentation.
- Founder of microsystems and sensors research group at the GJU in collaboration with measurements and sensor technology from TU Chemnitz University in Germany.

Honours and Awards

- Northumbria University fully funded PhD studentship

Professional memberships

- Member of Jordan Engineering Association.
- Associate member IOP.
- Active member IEEE.

List of publications

- H. Alasasfeh, M. Hafsa, O. Bader, M. Ibbini, **S. Hasan** and O. Kanoun, "Electrical Impedance Tomography Image Reconstruction with apriori Knowledge for Gesture Recognition," 2022 19th International Multi-Conference on Systems, Signals & Devices (SSD), 2022, pp. 1770-1775.
- Suaifan, Ghadeer A. R. Y., Mohammad F. Khanfar, Mayadah B. Shehadeh, Asmaa Alnajajrah, Raghad Abuhamdan, and **Sameer Ahmad Hasan**. 2022. "An Electrochemical Sensor for the Detection of Albendazole Using Glassy Carbon Electrode Modified with Platinum-Palladium Nanocomposites" Biosensors 12, no. 11: 1026
- M Mehmood, UF Khan, AOM Maka, J Akhter, T N Chaudhary, F Masood, **S Ahmad Hasan**, Y Chu Lee. A review of thermal impact of surface acoustic waves on microlitre droplets in medical applications. Advances in Mechanical Engineering. 2022;14(8).
- **S. A. Hasan**, H. Torun, D. Gibson, Q. Wu, M. D. Cooke, and Y. Fu, "Flexible UV sensor based on nanostructured ZnO thin film SAW device," in 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT), 2019, pp. 85-90.
- R. Tao, W. B. Wang, J. T. Luo, **S. Ahmad Hasan**, H. Torun, P. Canyelles-Pericas, et al., "Thin-film flexible/bendable acoustic wave devices: Evolution, hybridization and decoupling of multiple acoustic wave modes," Surface and Coatings Technology, vol. 357, pp. 587-594, 2019/01/15/ 2019.

- R. Tao, **S. Hasan**, H. Z. Wang, J. Zhou, J. T. Luo, G. McHale, et al., "Bimorph material/structure designs for high sensitivity flexible surface acoustic wave temperature sensors," Scientific reports, vol. 8, p. 9052, 2018. (A joint first authors).
- **S. A. Hasan**, D. Gibson, S. Song, Q. Wu, W. P. Ng, G. McHale, et al., "ZnO thin film-based flexible temperature sensor," in 2017 IEEE SENSORS, 2017, pp. 1-3.
- Y. Liu, J. T. Luo, C. Zhao, J. Zhou, **S. A. Hasan**, Y. Li, et al., "Annealing effect on structural, functional, and device properties of flexible ZnO acoustic wave sensors based on commercially available Al foil," IEEE Transactions on Electron Devices, vol. 63, pp. 4535-4541, 2016.