Dr. Amer A. Alsaraira

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Academic Qualifications

2004 - 2009	PhD in Biomedical Engineering, Monash University, Australia. "An Investigation of Soft Tissue Deformation Using Finite Element Modeling for a Virtual Reality Based Endoscopic Surgical Simulator."
2003	Master of Biomedical Engineering, Monash University, Australia.
1996 - 2001	Bachelor of Electrical Engineering, Mu'tah University, Jordan.

Academic Employment – Teaching

2022 – present	Assistance professor Biomedical Engineering Department, German Jordanian University (GJU), Jordan
2019 – 2022	Assistance professor Department of Electrical Engineering, American University of Middle East (AUM), Kuwait
2009 – 2019	Assistance professor Department of Biomedical Engineering, Hashemite university, Jordan
2006 – 2008	Tutor Department of Electrical and Computer Systems Engineering, Monash University, Australia
2006, 2009	Lab Demonstrator Department of Electrical and Computer Systems Engineering, Monash University, Australia

List of Professional and Academic Experiences

2023-present	Department Chair of Biomedical Engineering. German Jordanian University – Amman – Jordan
2007-2008	Facilitator in teaching development program - Centre for the advancement of learning and teaching (CALT), Monash University.
2001-2002	Network Engineer - In Lafarge Company / Cement Division, Jordan.

Scholarships

2008 - 2009	Doctoral Completion Scholarship, Monash University
2007 - 2008	Monash University Departmental Scholarship, Monash University
2003 - 2006	Hashemite University Scholarship, Hashemite University, Jordan
1996 - 2001	Jordanian government Scholarship, Jordan

Research Grants

- Seed Research Grant with an amount of $42000 from GJU in 2023
- Financial support from Ion Company: A memorandum of understanding was signed with them, obtaining financial support of 15000 Jordanian Dinars for scientific research to manufacture a medical device in 2024.
- Obtaining a medical device as a donation from Arab Medical Laboratories Company worth 15,000 Jordanian Dinars

Courses Taught:

German Jordanian University:

- Physiological Modeling and Control Systems
- Introduction to Biomedical Engineering
- Numerical Methods for Engineers
- Biomedical Sensors and Transducers
- Biomedical Sensors and Transducers Lab
- Biomaterials Lab
- Physiological Modeling and Control Systems Lab
- Biomechanics and Rehabilitation Lab
- Medical Instrumentation Lab
- Medical Image Processing Lab
- Anatomy and Physiology Lab

American University of Middle East (AUM):

- Linear Circuit Analysis I
- Introduction to Electronic Analysis and Design
- Semiconductor Devices
- Electrical and Computer Engineering Sophomore Seminar
- Transforming Ideas to Innovation I

Hashemite University:

- Modeling and Simulation of Biomedical systems
- Biomedical signals and systems analysis
- Biomedical Instrumentation I
- Biomedical Instrumentation I Lab
- Biomedical Instrumentation II
- Biomedical Instrumentation II Lab

- Electronics I
- Bioelectronics
- Clinical Engineering
- Biomedical Transducer Lab
- Applied mathematics
- Fundamental of electrical circuits
- Ethics and communication skills
- E-health

Administrative experience

• Head of committee for of Qualifications Placement on the Jordanian National Qualifications Framework	• Preparing, designing and placement the national qualification and determining its hours for the biomedical engineering department
• Technical program committee member TPC for REM2024 (22nd International Conference on Research and Education in Mechatronics)	• Members of the SC will be responsible for reviewing papers
• Member of the committee for developing academic programs based on the international and German accreditations	• Establishing new tracks • Review existing academic programs and ensure alignment with international and German accreditation standards and guidelines. • Monitor changes in accreditation criteria and regulations and ensure that academic programs comply with the latest requirements. • Collaborate with faculty and academic departments to develop and revise curriculum materials
• Housing committee	• Regularly attend committee meetings to discuss and make decisions related to housing policies, procedures, and issues affecting members • Contribute to the development and revision of housing policies and guidelines
• Member of Internal audit committees for quality management systems at the University ISO 9001:2015 and ISO 2100:2018	• Preparing internal audit checklists for organizational units, conducting internal audit, preparing reports related to it and following up on it
• ABET accreditation committee	• Organize and guide quality assurance practices and accreditation efforts related to ABET at the department of biomedical

	engineering in particular and the college of engineering in general
• Curriculum committee	• Continuously monitor the content and quality of courses being taught in the biomedical engineering department and make recommendations for changes or improvements to the program when needed
• Employment, promotion and scientific research committee	• Receive and evaluate employment applications then Recommend the acceptance/rejection of candidates. • Receive and evaluate academic promotion packets, then recommend appropriate course of action. • Receive and evaluate research proposals then recommend
• Senior Design coordinator	• Supervise and manage distribution of funds to senior design students. • Manage senior design projects in cooperation with project supervisors. • Define standards and metrics to be followed. • Make sure projects comply with the highest standards. • Project evaluation in coordination with advisers
• Department of biomedical engineering representative	• Represent the department of biomedical engineering in the college of engineering council

Software skills

- Professional knowledge of ABAQUS, ANSYS, Multisim, Pspice and MATLAB
- Sound knowledge of word, Excel, PowerPoint, Computer Hardware and network.

Research interests

- Modeling and simulation of biomedical systems.
- Biomedical signals and systems analysis and processing.
- Wireless communication

Publications

- Amer Alsaraira, Omar A. Saraereh, & Samer Alabed, (2024). Advancements in Breast Cancer Detection through Broadband Microstrip Antenna Technology. International Journal of Online and Biomedical Engineering (iJOE), 20(13), pp. 1–19
- Alsaraira, A., Younes, K., Alabed, S. and Saraereh, O. 2024. Wireless Controlled Robotic Hand using an LED-LDR Sensor. Engineering, Technology & Applied Science Research. 14, 5 (Oct. 2024).
- Alsaraira, Amer, Samer Alabed, and Omar Saraereh. "Multi-stage cryptography technique for wireless networks." TELKOMNIKA (Telecommunication Computing Electronics and

Control) 22.3 (2024): 499-509.

- A. Alsaraira, S. Alabed, and O. Saraereh, Remote Medical Care Monitoring System, Accepted in International Journal of Electrical and Computer Engineering.
- Alsaraira, Amer; Alabed, Samer; Hamad, Eyad and Saraereh, Omar. (2023). An Optimal Framework for Alzheimer's Disease Diagnosis. Intelligent Automation & Soft Computing. 37. 165-177. 10.32604/iasc.2023.036950.
- E. Hamad, S. Alabed, A. Alsaraira, and O. Saraereh, Implementing and Developing Multi-Stage Cryptography Technique for Low-Cost Long-Range Communication System, Bulletin of Electrical Engineering and Informatics, pp. 264-276, vol. 13, no. 1, 2024.
- S. Alabed, A. Alsaraira, N. Mostafa, M. Al-Rabayah, A. Shdefat, C. Zaki, O. Saraereh, and Z. Al-Arnaout. Two-Way Differential Strategy for Wireless Sensor Networks, Bulletin of Electrical Engineering and Informatics, pp. 3499-3508, vol. 12, no. 6, 2023.
- S. Alabed, A. Alsaraira, N. Mostafa, M. Al-Rabayah, Y. Kotb, and O. Saraereh, "Implementing and Developing Secure Low-Cost Long-Range System Using Speech Signal Processing," Indonesian Journal of Electrical Engineering and Computer Science, Oct. 2023.
- Zahra Ghanem, Amer Alsaraira, Luae Al-Tarawneh and Omar A.Saraereh. Comparative Analysis of ML-Schemes in OWC Systems, International Journal of Electrical Engineering and Technology (IJEET). 12(8). 2021, pp. 115-132.
- Saraereh, O.A.; Alsaraira, A.; Khan, I.; Uthansakul, P. Performance Evaluation of UAV-Enabled LoRa Networks for Disaster Management Applications. *Sensors* 2020, *20*, 2396.
- Saraereh, O.A.; Alsaraira, A.; Khan, I.; Choi, B.J. A Hybrid Energy Harvesting Design for On-Body Internet-of-Things (IoT) Networks. *Sensors* 2020, *20*, 407.
- Saraereh, O.A.; Alsaraira, A.; Khan, I.; Uthansakul, P. An Efficient Resource Allocation Algorithm for OFDM-Based NOMA in 5G Systems. *Electronics* 2019, *8*, 1399.
- S. Awad, M. Al-Abed and A. A. Saraira, "A Comparison of Time Delay Estimation Methods and Interpolation Methods in Signal-Averaged ECG: Preliminary Results," 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT), Amman, Jordan, 2019, pp. 371-374, doi: 10.1109/JEEIT.2019.8717446.
- Saraereh, Omar A., and Amer A. Al Saraira. "Piezoelectric Driven Antenna System for Health Monitoring Gadgets." International Journal of Engineering and Technology (IJET), Vol 8 No 5. 2016
- Omar A. Saraereh, Amer A. Al Saraira, Qais H. Alsafasfeh, Aodeh Arfoa." Bio-Inspired Algorithms Applied on Microstrip Patch Antennas: a Review." International Journal on Communications Antenna and Propagation (I.Re.C.A.P.), Vol. 6, N. 6. December 2016.
- Almomani T.D et al., " Influence of erythrocyte shape on platelet scattering towards vessel wall" int.J. of Biomedical Engineering and Technology, 2016. 21(3): pp 264-278.
- A. Alsaraira, I. Brown, R. McColl, F. Lim. Instrument-tissue segment interaction using finite element modeling. In Engineering in Medicine and Biology Society, 2007. EMBS 2007. 29th Annual international conference of the IEEE, 2007, pp. 2760-2763.
- A. Alsaraira, I. Brown, R. McColl, F. Lim. 2006, Challenges associated with tissue cutting in a surgical training simulator. Engineering & the Physical Sciences in Medicine EPSM, Noosa, Queensland, Australia.
- McColl R., Brown I., Seligman C., Lim F., Alsaraira A., "Haptic Rendering for Laparoscopic Surgery Simulation & Related Studies," Encyclopaedia of Healthcare Information Systems, IDEA Group Inc., USA, June, 2008.
- Lim F., Brown I., McColl R., Seligman C., Alsaraira A., "Hysteroscopic Simulator for Training and Educational Purposes," 28th Annual International Conference of the Engineering in Medicine and Biology Society, New York, 2006, pp. 1513-1516.

- McColl R., Brown I., Seligman C., Lim F., Alsaraira A., “Haptic Rendering & Perception Studies for Laparoscopic Surgery Simulation,” 28th Annual International Conference of the Engineering in Medicine and Biology Society, New York, 2006, pp. 833-836.
- Lim F., Brown I., McColl R., Seligman C., Alsaraira A., “A Visual and Haptic-Rendering Model for Hysteroscopic Procedures,” Engineering & the Physical Sciences in Medicine 29th Annual Conference, Adelaide, Australia, 2005 pp. 87-91.
- McColl R., Brown I., Seligman C., Lim F., Alsaraira A., “Haptic Rendering for VR Laparoscopic Surgery Simulation,” Engineering & the Physical Sciences in Medicine 29th Annual Conference, Adelaide, Australia, 2005, pp. 81-86.