Fadi Jaber

B.Eng (Hons), M.Sc, Ph.D, MIEEE

I. PERSONAL DETAILS

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PO Box 346
Ajman
U.A.E

II. EDUCATION

2004-2009	University of Surrey, U.K	**Ph.D. in Biomedical Engineering**
2002-2003	University of Surrey, U.K	**M.Sc. in Medical Physics**
1997-2000	University of Kent, U.K	**B.Eng. in Electronic Engineering with Medical Electronics**
1996-1997	Dudley College of Technology, U.K	**Access to Higher Education**

III. EMPLOYMENT RECORD

Aug 2021 – present	**Associate Professor** Department of Biomedical Engineering Ajman University, Ajman, U.A.E
Aug 2017 – July 2021	**Assistant Professor** Department of Biomedical Engineering Ajman University, Ajman, U.A.E
Sept 2011 – July 2017	**Assistant Professor** Department of Electrical Engineering Qatar University, Doha, Qatar
Sept 2009 – Aug 2011	**Assistant Professor** Department of Medical Engineering Al-Ahliyya Amman University, Jordan
Feb 2004 – Sept 2004	**Lecturer** Department of Biomedical Engineering Jordan University of Science & Technology, Jordan

IV. TEACHING EXPERIENCE

1. Undergraduate Level

Lecture Courses

Institution	Course Name
Ajman University	Circuit Analysis I
	Biomedical Design
	Medical Electronics
	Medical Instrumentation I
	Electrophysiology
Qatar University	Electronics Engineering
	Digital Systems Design
	Biomedical Engineering
	Advanced Biomedical Systems Engineering
	Fundamentals of Electronics
Al-Ahliyya Amman University	Medical Imaging Systems
	Computer Applications in Biomedical Engineering
	Laboratory Instrumentation
Jordan University of Science & Technology	Electronics for Biomedical Engineering Students I
	Electronics for Biomedical Engineering Students II

Senior Student Supervision

Supervised 4 senior student projects at Al-Ahliyya Amman University, 8 at Qatar University, and 58 at Ajman University. All senior projects involved groups of 2 to 4 students.

Educational Field Trips

Organized the following field trips for Qatar University students registered in the 'Biomedical Engineering' course:

Apr. 2013 Biomedical Engineering Department, Hamad Medical Corporation (two visits)

Apr. 2014 Ambulance Services, Hamad Medical Corporation (two visits)

2. Postgraduate Level

Lecture Courses

Institution	Course Name
Qatar University	Medical Imaging
	Bio-instrumentation*

* Project-based course

Theses Supervision

2016 – 2017 Qatar University **Mrs. Arti Mishra (Ph.D)**

2015 – 2017 Qatar University **Ms. Reem Al-Disi (M.Sc)**

2015 – 2017 Qatar University **Mr. Monther Abu-Gaoud (M.Sc)**

2014 – 2015 Qatar University **Mr. Sami Alshorman (M.Sc)**

V. RESEARCH

1. Research Funding

2019 **Ajman University**: Internal Research Grant
Title: Development of a Smart Wireless Bio-mimetic Nacre like Metal-oxide/Polymer/Ceramic Composite Implant for Bone Revision Surgery Retardation – Phase 2
Amount: $12,300

2018 **Ajman University**: Internal Research Grant
Title: Development of a Smart Wireless Bio-mimetic Nacre like Metal-oxide/Polymer/Ceramic Composite Implant for Bone Revision Surgery Retardation – Phase 1
Amount: $12,800

2018 **Ajman University**: Internal Research Grant
Title: Electro-mechanical exciter for peripheral sensory neuropathy monitoring – Phase 1
Amount: $9,260

2016 **Qatar University:** University Grant
Title: Development of a Distal Hole Targeting System Based on Image Data from an Earth's Field Nuclear Magnetic Resonance (EFNMR) Apparatus
Amount: $32,400

2013 **Qatar National Research Fund (QNRF):** National Priorities Research Program (NPRP)
Title: Identification of Time-Varying Human Ankle Dynamics and the Robust Robotic Control of Active Ankle Orthoses

Amount: $1,029,702

2013 **Qatar University:** University Grant
Title: Electrophysiological studies of geometrically-defined in-vitro neural networks
Amount: $41,195

2012 **Qatar National Research Fund (QNRF):** Undergraduate Research Experience Program (UREP)
Title: Magnetic sensor system for distal hole locking of intramedullary nails
Amount: $29,720

2012 **Qatar University:** Start-up Grant
Title: Development of a Biomedical Instrumentation Research Laboratory
Amount: $13,730

2. Publications

Journal Papers

1. George K. Varotsos, Hector E. Nistazakis, Konstantinos Aidinis, Fadi Jaber, Mohd Nasor and Kanhira Kadavath Mujeeb Rahman, "Error Performance Estimation of Modulated Retroreflective Transdermal Optical Wireless Links with Diversity under Generalized Pointing Errors," telecom, vol. 2, pp. 167-180, https://doi.org/10.3390/telecom2020011, 2021

2. Erfan Zalnezhad, F. Musharavati, Tianyi Chen, Fadi Jaber, Kaan Uzun, Muhammad E. H. Chowdhury, Amith Khandakar, Junxing Liu & S. Bae, "Tribo-mechanical properties evaluation of HA/TiO_2/CNT nanocomposite," *Scientific Reports*, vol. 11, https://doi.org/10.1038/s41598-021-81187-7, 2021

3. G. K. Varotsos, H. E. Nistazakis, K. Aidinis, F. Jaber & K. K. Mujeeb Rahman, "Transdermal subcarrier L-PSK or DBPSK optical wireless links with time diversity, skin attenuation and spatial jitter," *Journal of Modern Optics*, vol. 67, https://doi.org/10.1080/09500340.2020.1825848, 2020

4. Xin Chen, Rui Xie, Hui Li, F. Jaber, F. Musharavati, E. Zalnezhad, S. Bae, K. S. Hui & K. N. Hui, "Supercapacitor performance of porous nickel cobaltite nanosheets," *Scientific Reports*, vol. 10, https://doi.org/10.1038/s41598-020-75946-1, 2020

5. Erfan Zal Nezhad, Xiang Qu, Farayi Musharavati, Fadi Jaber, Mark R. Appleford, S. Bae, Kaan Uzun, Morgan Struthers, Muhammad E.H. Chowdhury, Amith Khandakar, "Effects of titanium and carbon nanotubes on nano/micromechanical properties of HA/TNT/CNT nanocomposites," *Applied Surface Science*, vol. 538, https://doi.org/10.1016/j.apsusc.2020.148123, 2020

6. George K. Varotsos, Hector E. Nistazakis, Konstantinos Aidinis, Fadi Jaber and K. K. Mujeeb Rahman, "Signal Intensity Estimation in Transdermal Optical Wireless Links with Stochastic Pointing Errors Effect," *Technologies*, vol. 8, https://doi.org/10.3390/technologies8040060, 2020

7. JiFeng Nan, Mohammadreza Rezaei, Rashid Mazhar, Fadi Jaber, Farayi Musharavati, Erfan Zalnezhad, and Muhammad E. H. Chowdhury, "Finite Element Analysis of the Mechanism of Traumatic Aortic Rupture (TAR)," *Computational and Mathematical Methods in Medicine*, vol. 2020, https://doi.org/10.1155/2020/6718495, 2020

8. Chen Xin, Hui Li, Jianzhou Xu, F. Jaber, F. Musharavati, Erfan Zalnezhad, S. Bae, K.S. Hui, K.N. Hui, and Junxing Liu, "Synthesis and Characterization of a $NiCo_2O_4$@$NiCo_2O_4$ Hierarchical Mesoporous Nanoflake Electrode for Supercapacitor Applications," *Nanomaterials*, vol. 10, https://doi.org/10.3390/nano10071292, 2020

9. Chen Xin, Li Ang, Farayi Musharavati, Fadi Jaber, Li Hui, Erfan Zalnezhad, Sungchul Bae, Kwan San Hui, and Kwun Nam Hui, "Supercapacitor Performance of Nickel-Cobalt Sulfide Nanotubes Decorated Using Ni Co-Layered Double Hydroxide Nanosheets Grown in Situ on Ni Foam," *Nanomaterials*, vol. 10, https://doi.org/10.3390/nano10030584, 2020

10. G.K. Varotsos, H.E. Nistazakis, K. Aidinis, F. Jaber and K.K. Mujeeb Rahman, "Transdermal Optical Wireless Links with Multiple Receivers in the Presence of Skin-Induced Attenuation and Pointing Errors," *Computation*, vol. 7, https://doi.org/10.3390/computation7030033, 2019

11. Huda F.S.G. Alyafei, W. Fu, E. Zalnezhad, F. Jaber, A.M. S. Hamouda, F. Musharavati, and S. Bae, "Properties Investigation of GO/HA/Pt Composite Thin Film," *BioMed Research International*, https://doi.org/10.1155/2019/4847932, 2019

12. B. Han, E. Zal Nezhad, F. Musharavati, F. Jaber, and S. Bae, "Tribo-Mechanical Properties and Corrosion Behavior Investigation of Anodized Ti–V Alloy," *Coatings*, vol. 8(12), 459, https://doi.org/10.3390/coatings8120459, 2018

13. M. Ding, N. Sahebgharani, F. Musharavati, F. Jaber, E. Zalnezhad, G.H. Yoon, "Synthesis and properties of HA/ZnO/CNT nanocomposite," *Ceramics International*, vol. 44, pp. 7746–7753, 2018

14. Hui Li, F. Musharavati, Jingtao Sun, Fadi Jaber, Erfan Zalnezhad, K. N. Hui, and K. S. Hui, "Investigation of the Electrochemical Properties of CoAl-Layered Double Hydroxide/$Ni(OH)_2$," *Journal of The Electrochemical Society*, vol. 165, pp. A407-A415, 2018

15. Huda Fadol S.G. Alyafei, Kaan Uzun, F. Musharavati, E. Zalnezhad, A.M.S. Hamouda, Chae-Ok Yun, Fadi Jaber, "HA/rGO/Pd nanocomposite thin film coating on SST 304 - Synthesize, characterization, and properties investigations," *Journal of Alloys and Compounds*, vol. 741, pp. 562-574, 2018

16. H. Ali, F. Bensaali, A. Amira, Fadi Jaber, "Novel Approach to Non-Invasive Blood Glucose Monitoring based on Transmittance and Refraction of Visible Laser Light," *IEEE Access*, vol. 5, pp. 9163-9174, 2017

17. Xiaojun Zhai, Fadi Jaber, Faycal Bensaali, Arti Mishra, “Hardware Acceleration of a Dielectrophoresis System for Achieving a Single-Neuron-Per-Electrode Arrangement in Microelectrode Arrays,” *International Journal of Simulation Systems, Science & Technology*, vol. 16(3), pp. 4.1-4.7, 2015

18. Fadi T. Jaber, Fatima H. Labeed, Michael P. Hughes, “Action potential recording from dielectrophoretically positioned neurons inside micro-wells of a planar microelectrode array,” *Journal of Neuroscience Methods*, vol. 182, pp.225-235, 2009

Conference Papers

1. G.K. Varotsos; H.E. Nistazakis; K. Aidinis; F. Jaber; K. K. Mujeeb Rahman; A.D. Tsigopoulos; V. Christofilakis, "Average BER Estimation of Retroreflective Transdermal Optical Wireless Links with Diversity, Attenuation and Spatial Jitter," Proceedings of the 2020 International Conference on Modern Circuits and Systems Technologies (MOCAST), Bremen, Germany, pp. 1-4, 2020

2. G. K. Varotsos, H. E. Nistazakis, K. Aidinis, G. D. Roumelas, F. Jaber and K. K. M. Rahman, "Modulated Retro-Reflector Transdermal Optical Wireless Communication Systems with Wavelength Diversity over Skin-Induced Attenuation and Pointing Errors," 2019 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Ajman, United Arab Emirates, pp. 1-5, 2019

3. G.K. Varotsos, H.E. Nistazakis, G. Tombras, K. Aidinis, F. Jaber and K. K. Mujeeb Rahman, “On the use of Diversity in Trasdermal Optical Wireless Links with Nonzero Boresight Pointing Errors for Outage Performance Estimation,”, Proceedings of the 2019 International Conference on Modern Circuits and Systems Technologies (MOCAST), Thessaloniki, Greece, 2019

4. Haider Ali, Faycal Bensaali, Abbes Amira, Fadi Jaber, “Sea Water Salinity Detection Using Circular Fringes Formation Based on Diffraction of Laser Light,” Proceedings of the 9th IEEE-GCC Conference and Exhibition (GCCCE), Manama, Bahrain, pp. 1-9, 2017

5. Artur Gmerek, Mohammadreza Davoodi, Nader Meskin, Fadi Jaber, “An EMG signal processing system for control of an ankle-foot orthosis,” Proceedings of the 4th International Conference on Control, Decision and Information Technologies (CoDIT2017), Barcelona, Spain, pp. 444-449, 2017

6. R. Al-Disi and F. Jaber, “Theoretical Investigation on the Effect of Individual Stage-Gain Selection on the 3-dB Bandwidth of Three-Op-Amp Difference Amplifiers,” Proceedings of the 2016 IEEE Symposium on Computer Applications & Industrial Electronics, Penang, Malaysia, pp. 155-158, 2016

7. A. Gmerek, N. Meskin and F. Jaber, “Development of LPV Models and Switching LPV-H∞ Controller for a Hydraulic System,” Proceedings of the 3rd International Conference on Control, Decision and Information Technologies (CoDIT2016), Saint Julian's, Malta, pp. 484 - 489, 2016

8. Alshorman SS, Bensaali F, Jaber F, “A wireless oxygen saturation and heart rate monitoring and alarming system based on the Qatar Early Warning Scoring system,” Journal of Emergency Medicine, Trauma & Acute Care, International Conference in Emergency Medicine and Public Health – Qatar 2016:155 http://dx.doi.org/10.5339/jemtac.2016.icepq.155

9. S. Alshorman, F. T. Jaber, and F. Bensaali, "A Wireless Oxygen Saturation and Heart Rate Monitoring and Alarming System Based on the Qatar Early Warning Scoring System," Proceedings of the 2015 International Conference on Computational Science and Computational Intelligence, Las Vegas, USA, pp. 787-790, 2015

10. Xiaojun Zhai, Fadi Jaber, Faycal Bensaali, Arti Mishra, “Hardware Acceleration of an Image Processing System for Dielectrophoretic Loading of Single Neurons inside Micro-Wells of Microelectrode Arrays,” Proceedings of the 17th UKSIM-AMSS International Conference on Modelling and Simulation, Cambridge, U.K, pp. 571-576, 2015

11. Arti Mishra, Fadi T. Jaber, Mohieddine Benammar, “Planar Microelectrode Array Technology for Neural Activity Recording,” 1st IEEE EMBS International Student Conference (ISC), Malaysia, 2014

12. Fadi T. Jaber and Awni B. Al-Jayyousi, “A Phantom for Cadaverless Evaluation of Targeting Systems for Distal Locking of Intramedullary Nails,” Proceedings of the 2nd Middle East Conference on Biomedical Engineering (MECBME), Doha, Qatar, pp. 115-118, 2014

13. Fadi T. Jaber, Fatima H. Labeed, Michael P. Hughes, “A dielectrophoresis and image processing based system for loading single-neurons per micro-well in planar microelectrode arrays,” Proceedings of the 8th International Workshop on Systems, Signal Processing and their Applications (WOSSPA), Zeralda, Algeria, pp.180-184, 2013

3. Conference/Workshop Attendance

Apr 2016	Empowering Connected Health in Qatar through Intelligent Medical Devices and IoT Workshop, Doha, Qatar (**presenter**)
Apr 2016	3rd International Conference on Control, Decision and Information Technologies (CoDIT2016)
Dec 2015	2015 International Conference on Computational Science and Computational Intelligence, Las Vegas, USA (**presenter**)
Mar 2015	17th UKSIM-AMSS International Conference on Modelling and Simulation, Cambridge, UK
Nov 2014	26th International Conference on Microelectronics (ICM), Doha, Qatar

Feb 2014	2nd Middle East Conference on Biomedical Engineering, Doha, Qatar (**presenter**)
Jan 2014	Qatar-Japan Symposium on Tissue Regenerative Therapy, Doha, Qatar
Nov 2013	7th IEEE GCC Conference and Exhibition, Doha, Qatar
May 2013	8th International Workshop on Systems, Signal Processing and their Applications (WOSSPA), Zeralda, Algeria (**presenter**)
Apr 2011	7th Jordanian International Electrical & Electronics Engineering Conference (JIEEEC), Amman, Jordan

VI. ADMINISTRATION

1. Committees

2017 – present **College of Engineering Research Committee** (**chair**)
Dept. of Biomedical Engineering, Ajman University

Achievements: Revising and implementing college research policies, reviewing and managing internal research grants, developing research infrastructure, coordinating research activities within college.

2014 – 2017 **Curriculum Committee (member)**
Dept. of Electrical Engineering, Qatar University

Achievements: contributed towards the improvement and ABET accreditation of the B.Sc in Electrical Engineering program.

2014 – 2017 **Student and Social Affairs Committee (chair)**
Dept. of Electrical Engineering, Qatar University

Achievements: arranged meetings with students to listen to their concerns regarding their studies and provide assistance. Organized social events involving students and faculty members.

2012 – 2017 **Strategic Planning Committee (member)**
Dept. of Electrical Engineering, Qatar University

Achievements: extensive involvement in the development and implementation of the department's strategic plan.

2. Conference Organization

Dec 2019 19th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)
Role: Publication Chair

Nov 2014 26th International Conference on Microelectronics (ICM), Doha, Qatar
Role: Publication Co-Chair

Nov 2013 7th IEEE GCC Conference and Exhibition, Doha, Qatar

Role: Electronics and Instrumentation Track Chair

Dec 2012 — 7th IEEE International Design & Test Symposium, Doha, Qatar
Role: Publicity Chair

VII. MEMBERSHIPS

1. Professional Societies

2012 – present — Institute of Electrical and Electronics Engineers (IEEE) – Member

2004 – present — Jordan Engineers Association (JEA) – Member

2. Editorial Boards

2008 – 2020 — IEEE Transactions on NanoBioscience – Senior Editor

VIII. SKILLS

1. Computing Skills

- **Applications:** Microsoft Office, Microsoft Visio, Eagle, Multisim, TINA, Maxwell,
- **Programming languages:** LabVIEW, Matlab, Visual Basic, VHDL, C, Cobol

2. Technical Skills

- Extensive practical experience in primary and cell-line mammalian cell culture procedures and the use of laboratory equipment
- Fabrication of micro-electrodes and printed circuit boards using photolithographic techniques
- Extensive experience in designing instruments for acquiring and processing bio-signals
- Good experience in designing dielectrophoretic (DEP) set-ups as well as the use of commercial products like 3DEP (DEPtech, UK)

3. Linguistic Skills: Fluent in English, Greek and Arabic.

IX. REFEREES

1. Prof. Michael P. Hughes

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University of Surrey
Guildford, Surrey
GU2 7XH
United Kingdom

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2. Prof. Abbes Amira

School of Computer Science and Informatics
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3. Dr. Faycal Bensaali

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