

RESUME OF PROF. UBAID M. AL-SAGGAF

SUMMARY

Engineer, entrepreneur, and professor. Passionate about Innovation, Space, Defense and Security Technologies, Technology Transfer, and Manufacturing. He holds Ph.D. and M.Sc degrees in electrical engineering from Stanford University, Stanford, USA. B.Sc. degree in electrical engineering and B.Sc. in mathematics, both from King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia. He worked for King Fahd University of Petroleum and Minerals, the Ministry of Defense, and King Abdulaziz University. He has 32 patents, 117 journal publications, 43 conference publications, and 8 book chapters.

PERSONAL DATA

Name: Ubaid M. Al-Saggaf

Nationality: Saudi

E-Mail: usaggaf@kau.edu.sa

umalsaggaf@kau.edu.sa

usaggaf@gmail.com

Web Sites: <http://usaggaf.kau.edu.sa>

<https://scholar.google.com/citations?user=8M9CwJYAAAAJ>

<https://www.linkedin.com/in/ubaid-al-saggaf-8b9245153>

FIELDS OF INTEREST AND SPECIALIZATION:

- Signal and image processing, communication systems
- Artificial Intelligence
- System theory, control, and model reduction
- Design and Application of robust control
- Embedded systems and digital systems design
- Optronics
- Complete system design and prototyping
- Engineering Education

ACADEMIC HISTORY

Ph.D.: (March 31, 1983 – June 15, 1986), Electrical Engineering, Stanford University, USA.

Thesis Title: "On Model Reduction and Control of Discrete Time Systems," Sponsored by NASA (Grant NAG2-223)

M.Sc.: (September 30, 1981 – March 31, 1983), Electrical Engineering, Stanford University, USA.

B.Sc.: October 1980 (Highest Honors) Mathematics,

King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia.

B.Sc.: June 1980 (Highest Honors) Electrical Engineering,

King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia.

Elementary, Middle, and High School Education:

Al-Thager Model Schools, Jeddah, Saudi Arabia

WORK EXPERIENCE

February 2023 to present:

Adjunct Professor

[Electrical and Computer Engineering Department](#)

King Abdulaziz University, Jeddah, Saudi Arabia

February 2015 to January 2023 :

Professor

[Electrical and Computer Engineering Department](#)

King Abdulaziz University, Jeddah, Saudi Arabia

April 2014 to January 2023:

Founder and Director

[Center of Excellence in Intelligent Engineering Systems \(CEIES\)](#)

<https://twitter.com/ceieskau>

King Abdulaziz University, Jeddah, Saudi Arabia

April 2014 to October 2021:

Founder and Supervisor

KAU FABLAB

<https://www.fablabs.io/labs/kaufablab>

https://twitter.com/kau_fablab?lang=ar

King Abdulaziz University, Jeddah, Saudi Arabia

December 2017 to October 2021:

Founder and Director

[Innovation and Prototyping Center \(IPC\)](#)

https://twitter.com/ipc_kau

King Abdulaziz University, Jeddah, Saudi Arabia

August 2011 to January 2023:

Founder and Executive Director,

[Autonomous Systems Techniques \(AST\)](#), Houses of Expertise, Knowledge and Business

Alliance, King Abdulaziz University, Jeddah, Saudi Arabia

September 2010 to February 2015:

Associate Professor

[Electrical and Computer Engineering Department](#)

King Abdulaziz University, Jeddah, Saudi Arabia

March 1992 to August 2010:

Executive Technical Advisor, R&D Department

Ministry of Defense, Saudi Arabia

(On leave from King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia)

January 1991 to February 1992:

Associate Professor

[Electrical Engineering Department](#)

King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia

July 1986 to December 1990:

Assistant Professor

[Electrical Engineering Department](#)

King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia

September 1981 to June 1986:

Graduate Student and Research Assistant sponsored by NASA

[Electrical Engineering Department](#)

Stanford University, USA.

June 1980 to August 1981:

Graduate Assistant

[Electrical Engineering Department](#)

King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia

SUMMER COLLABORATION

Summer 2012

Visiting Research Fellow

[Department of Engineering](#)

University of Leicester, Leicester, UK.

Summer 1991

Honorary Visiting Associate

[Department of Engineering](#)

University of Leicester, Leicester, UK.

Summer 1990

Visiting Research Fellow

Industrial Control Unit

[University of Strathclyde, Glasgow, U.K.](#)

Summer 1989

Visiting Research Fellow

Industrial Control Unit

[University of Strathclyde, Glasgow, U.K.](#)

Summer 1988

Visiting Engineer,

Instrumentation & Control Systems Department

[Chiyoda Corp., Yokohama, Japan](#)

Summer 1987

Visiting Research Fellow
[Electrical Engineering Department](#)
Stanford University, USA

RECENT OTHER ADMINISTRATIVE AND LEADERSHIP ACTIVITIES

- Member, committee to study the executive rules for scientific promotions. June 2021– May 2022
- Member, MOE Advisory Committee on Innovation and Entrepreneurship March 2019
- Member, KAU Supervisory Committee of the University's Programs for the Prison Directorate in the Makkah Region March 2020
- Chairman, KAU Faculty Appointment Committee January 2017 - February 2019
- Member, KAU Faculty Appointment Committee August 2013 - December 2016
- Member, KAU Scientific Council. September 2016 – August 2020
- Member, KAU Faculty of Engineering Council May 2018 – August 2020
- Member, Supervisory Committee for the Vice Presidency for Business and Knowledge Creativity. December 2017 - October 2021
- Member, KAU Executive Committee to supervise the criteria for attracting collaborators to teach from outside the university. May 2019
- Member of the ECE Graduate Program Committee. 2013 – January 2023
- Member, Committee to study and evaluate the number of faculty members, lecturers, demonstrators, and collaborators in all academic departments at KAU. December 2018

OTHER PREVIOUS ACTIVITIES

- Group Head, [The Autonomous Systems Research Group \(ASRG\)](#)
- KAU ECE Ph.D. program advisor
- Established and supervised 3 new research labs
 - Robotics and Unmanned Systems Lab
 - Intelligent Control Systems Lab
 - Wireless Communications and Signal Processing Lab

PROFESSIONAL MEMBERSHIP

- Certified Consultant, Saudi Council of Engineers
- Member SPIE (The International Society for Optical Engineering)
- Vice-Chairman, IEEE Saudi Arabia Section (1988-89)

RECENT RECOGNITIONS

- KAU Faculty of Engineering recognition for outstanding performance in the highest number of Patents Award for the year 2023.
- KAU Faculty of Engineering recognition for outstanding performance in the highest number of Patents Award for the year 2022.

- KAU Award for Distinguished Contributions to 2021 Patents.
- KAU Award for Distinguished Contributions to 2020 Patents.

INDUSTRIAL PROPOSALS

Recently Submitted Proposals to the KAU Financial Sustainability Realization Office

- Jeddah Techno Park Company
- Ultrasound Medical Imaging Equipment Manufacturing Company
- Military Technologies Academy
- A company to integrate innovation and industrialization into teaching and learning

RESEARCH

Recently Approved Funded Research Projects

2022

49. "Design of two-dimensional filters for image denoising using Quantum calculus for Intelligent IoT applications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, PI, 2022.
48. "Statistical Beamforming Aided Spectrum Sensing in Cooperative Cognitive Radio Networks for Military Communications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, PI, 2022.
47. "AI-Based Statistical Method for Waveforms Optimization in MIMO Radar for Military Applications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, PI, 2022.
46. "Ergodic Capacity Maximization based Beamforming Design for MU-MIMO Downlink Communication Systems," DSR General Program, KAU, PI, 2022.
45. "Efficient deployment of tiny ML Algorithms on low power edge devices for emotion detection in IoT Applications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
44. "Visual Place Recognition for Autonomous Robots," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
43. "Diffusion Tensor Least Mean Squares algorithm for cooperative estimation in IoT," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
42. "Design of Uplink Receive Combining in Centralized Cell-Free Massive MIMO System for Military Communications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.

41. "Deep Learning Based Anomaly Detection in Crowd Surveillance Videos," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
40. "Quantification of Body Posture using MEMS for Healthy Lifestyle," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
39. "Image Enhancement in Harsh Environments for Security Surveillance Applications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
38. "Algorithmic Optimization of Semantic Segmentation using Deep Neural Networks for Deployment on IoT Edge Devices," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
37. "Coronavirus Disease (COVID-19) Detection using CT Images," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
36. "Large Scale Face Recognition for Surveillance Applications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2022.
35. "Indoor Robot Localization using Fusion of Inertial and Visual Sensor Data," DSR General Program, KAU, CO-PI, 2022.
34. "Intelligent Control Techniques and the use of Artificial Intelligence (AI) for Biomedical Industrial and physical systems," KAU DSR Knowledge-Excellence Program, CO-PI, 2022.
33. "Artificial Intelligence Assisted semi-blind methods for channel estimation and data recovery in multi-carrier MIMO communications," KAU DSR Knowledge-Excellence Program, CO-PI, 2022.
32. "Artificial Intelligence Algorithms Design via Covariance Matrix Estimation in Large-dimensional Applications," KAU DSR Knowledge-Excellence Program, CO-PI, 2022.

2021

31. "Energy-efficient SSD-LMS algorithm for state-space estimation in distributed networks," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, PI, 2021.
30. "Distributed Posterior LMS Algorithms based Cooperative Estimation in Wireless Sensor Networks for Intelligent IoT applications," Institutional Fund for Research and Development, Indexed Scientific Publication Program, KAU, CO-PI, 2021.
29. "Investigation on a Novel Method to Identify Mental Stress Resilience using EEG Modality in a Virtual Reality Environment," FRGS, Ministry of Education (MOE), Malaysia, CO-PI, 2021.
28. "AI based Real-Time Mental Healthcare Assessment System, "Major Research Projects-Research capabilities," Institutional Fund for Research and Development, KAU, PI, 2021.

27. "Explainable Artificial Intelligence-based High Quality Medical Ultrasound Imaging for Improved Diagnosis Using Low-Cost System," Institutional Fund for Research and Development, KAU, CO-PI, 2021.
26. "Power electronics-based controller for Wind turbines towards Sustainable and Secure energy, "Major Research Projects-Research capabilities," Institutional Fund for Research and Development, KAU, CO-PI, 2021.
25. "Crowd Flow Monitoring in the Holy Places using Artificial Intelligence and Machine Learning," Makkah digital portal for research and innovation, KAU, Co_PI, 2021.

2020

24. "Artificial Intelligence Method for Extracellular Matrix Proteins Prediction using Latent Space Encoding," High Impact Research Publication, Institutional Fund for Research and Development, KAU, PI, 2020.
23. "Deep Learning Aided Adaptive Modulation for Communications in High Mobility Military Systems," High Impact Research Publication, Institutional Fund for Research and Development, KAU., CO-PI, 2020.
22. "Artificial-Intelligence based Secure Ultra-Reliable and Low-Latency Communications for Modern Military Wireless Systems," High Impact Research Publication, Institutional Fund for Research and Development, KAU, CO-PI, 2020.
21. "KAU LOW-COST VENTILATOR", KAU DSR, PI, 2020.
20. "High-Performance Controller Design for Fully Automated Mechanical Ventilation to serve the New Corona COVID-19 Patients", KAU DSR, CO-PI, 2020.

2019

19. "Robustness Improvement of the Fractional order LADRC scheme for Integer High order system," MOE High Quality/Impact Research Publication Initiative, PI, 2019.
18. "Nonsingular Terminal Synergetic Observer for Synchronization of Fractional-Order Chaotic Systems," MOE High Quality/Impact Research Publication Initiative, CO-PI, 2019.
17. "An Efficient Normalized LMS. Algorithm for adaptive beamforming in Massive MIMO systems," MOE High Quality/Impact Research Publication Initiative, CO-PI, 2019.
16. "Non-Iterative Data-Driven Fractional Order Controller: Tuning and Applications," KAU DSR Knowledge-Excellence Program, PI, 2019.
15. "Development and hardware implementation of new chaotic based encryption algorithms: Application to speech secure communication," KAU DSR Knowledge-Excellence Program, PI, 2019.
14. "Performance Analysis and Blind Beamforming Design of Multi-Cell Association in Downlink MU-MIMO System," KAU DSR, CO-PI, 2019.
13. "Hardware Implementation of Computer Vision Systems for Driverless Cars," M.O.E. Post-Doctoral Fellowships, CO-PI, 2019

2018

12. "EEG Signals based stress prediction and classification using Deep Learning Neural Networks," KAU CEIES, CO-PI, 2018.

2017

11. "Waveform Optimization for Future Wireless Radio and Underwater Acoustic Communication Systems," KAU CEIES, PI, 2017.)
10. "Efficient Cooperative Hybrid Automatic Repeat reQuest (HARQ) protocol to achieve QoS requirements using delay and throughput analysis for cognitive radio networks," KAU CEIES, CO-PI, 2017.
9. "Design of Fractional Controllers: Implementation and Testing on Physical Processes, Part 2", KAU CEIES, PI, 2017.

2016

8. "New Approach for speckle reduction in medical ultrasound imaging with real-time implementation on` an ultrasound imaging research system," KAU CEIES, CO-PI, 2016.
7. "Characterization and Beamforming of Interference Limited MIMO Cellular Networks: An Indefinite Quadratic Forms Approach," KAU DSR, CO-PI, 2016.
6. "Design of Chaos Based Secure Data Communication Systems: Application to Image Transmission," KAU CEIES, PI, 2016.

2014

6. "Distributed Optimization for Cooperative Estimation and Control in Multi-agent Systems," KAU DSR, PI, 2014.
5. "Gyro-Stabilized Platform Design and Air-to-Ground Video Target Tracking in Urban Environments," KACST ADVANCED AND STRATEGIC TECHNOLOGIES Program, Approved, PI, 2014.

2013

4. "Design of Fractional Controllers: Implementation and Testing on Physical Processes," KAU DSR, PI, 2013.
3. "A Novel Class of Stochastic Gradient Adaptive Algorithms Based on q-Derivative," KAU DSR, Distinct Research Study, PI, 2013.
2. "Modeling and Flight Control System Design for Autonomous UAV," KACST ADVANCED AND STRATEGIC TECHNOLOGIES Program, PI, 2013.
1. "Night Vision Based on Laser Gated Imaging," KACST ADVANCED AND STRATEGIC TECHNOLOGIES Program, PI, 2013.

Journal Publications

2024

117. Maaz Mahadi, Tarig Ballal, Muhammad Moinuddin, Tareq Y. Al-Naffouri, and Ubaid M. Al-Saggaf, "Regularized Linear Discriminant Analysis Using a Nonlinear Covariance Matrix Estimator," Accepted, IEEE Transactions on Signal Processing. **(ISI) (IF 5.4), (Q1 Quartile)**.

2023

116. N. U. Zaman, K. Munawar, M. Moinuddin, A. K. Hassan, and U. M. Al-Saggaf, "Sum Capacity Based Modeling and Secrecy Analysis of MISO-NOMA Cooperative IoT Framework," in IEEE Open Journal of the Communications Society, vol. 5, pp. 156-167, 2024, doi: 10.1109/OJCOMS.2023.3338775. **(ISI) (IF 7.9), (Q1 Quartile)**.
115. Ubaid M. Al-Saggaf, Jawwad Ahmad, Mohammed A. Alrefaei, and Muhammad Moinuddin. 2023. "Optimized Statistical Beamforming for Cooperative Spectrum Sensing in Cognitive Radio Networks" Mathematics 2023, 11, no. 16: 3533. <https://doi.org/10.3390/math11163533> **(ISI) (IF 2.592), (Q1 Quartile)**.
114. M. S. Hanif, M. Bilal, K. Munawar and U. M. Al-Saggaf, "Enhancing Conventional Geometry-Based Visual Odometry Pipeline Through Integration of Deep Descriptors," in IEEE Access, vol. 11, pp. 58294-58307, 2023, doi: 10.1109/ACCESS.2023.3284463. **(ISI) (IF 3.476), (Q2 Quartile)**.
113. Ahmad Kamal Hassan, Ubaid M. Al-Saggaf, and Muhammad Moinuddin, "Statistical Method based Waveform Optimization in collocated MIMO Radar Systems" Mathematics, 2023, 11, 680. <https://doi.org/10.3390/math11030680> **(ISI) (IF 2.592), (Q1 Quartile)**.
112. Abdullah Jeza Aljohani, Muhammad Moinuddin, Ubaid M. Al-Saggaf, Mohammed El-Hajjar, and Soon Xin Ng, "Statistical Beamforming for Multi-Set Space-Time Shift-Keying-Based Full-Duplex Millimeter Wave Communications" Mathematics 11, no. 2: 433. <https://doi.org/10.3390/math11020433> **(ISI) (IF 2.592), (Q1 Quartile)**.
111. Hanif, M.S., Bilal, M., Balamash, A.S., Al-Saggaf, U.M. (2023). Hypotheses generation and verification based framework for crowd anomaly detection in single-scene surveillance videos. Traitement du Signal, Vol. 40, No. 1, pp. 115-122. <https://doi.org/10.18280/ts.400110> **(ISI) (IF 2.299), (Q3 Quartile)**.
110. Belkacem Kada, Khalid Munawar, Muhammad Shafique Shaikh, Muhammad Bilal, Ubaid M. Al-Saggaf, "UAV Attitude Prediction using a new EKF and Stochastic Disturbed Process Noise Model," Mathematical Statistician and Engineering Applications, 72(1), 2156–2168. <https://www.philstat.org/index.php/MSEA/article/view/2713>

2022

- 109 Ubaid M.Al-Saggaf, Ahmad Kamal Hassan, and Muhammad Moinuddin, "Ergodic Capacity Analysis of Downlink Communication Systems under Covariance Shaping Equalizers" Mathematics 10, no. 22: 4304. <https://doi.org/10.3390/math10224304> **(ISI) (IF 2.592), (Q1 Quartile)**.

- 108.** Azzedine Zerguine, Jawwad Ahmad, Muhammad Moinuddin, Ubaid M. Al-Saggaf, and Abdelhak M. Zoubir, "An efficient normalized LMS algorithm," *Nonlinear Dyn* (2022). <https://doi.org/10.1007/s11071-022-07773-0> (ISI) (IF 5.741), (Q1 Quartile).
- 107.** M. Mahadi, T. Ballal, M. Moinuddin and U. M. Al-Saggaf, "Portfolio Optimization Using a Consistent Vector-Based MSE Estimation Approach," in *IEEE Access*, vol. 10, pp. 86636-86646, 2022, doi: 10.1109/ACCESS.2022.3197896. (ISI) (IF 3.476), (Q2 Quartile)
- 106.** Muhammad Moinuddin, Ahmad Kamal Hassan, and Ubaid M. Al-Saggaf, 2022. "Performance Analysis of Multi-Cell Association in Downlink MU-MIMO System with Arbitrary Beamforming" *Mathematics*, vol. 10, no. 15, p. 2611, Jul. 2022, <https://doi.org/10.3390/math10152611> (ISI) (IF 4.755), (Q1 Quartile).
- 105.** Ibrahim M. Mehedi, K. Prahlad Rao, Ubaid M. Al-Saggaf, Hadi Mohsen Alkanfery, Maamar Bettayeb, Rahtul Jannat, "Intelligent Tomographic Microwave Imaging for Breast Tumor Localization", *Mathematical Problems in Engineering*, vol. 2022, Article ID 4090351, 9 pages, 2022. <https://doi.org/10.1155/2022/4090351> (ISI) (IF 1.43), (Q4 Quartile).
- 104.** I. M. Mehedi, A. J. Aljohani, U. M. Al-Saggaf, A. I. Iskanderani, T. Palaniswamy et al., "Control of linear servo carts with integral-based disturbance rejection," *Computers, Materials & Continua*, vol. 73, no.1, pp. 453–463, 2022. [doi:10.32604/cmc.2022.022921](https://doi.org/10.32604/cmc.2022.022921) (ISI) (IF 3.86), (Q2 Quartile).
- 103.** Maamar Bettayeb, Rachid Mansouri, Ubaid M. Al-Saggaf, Abdulrahman U. Alsaggaf, and Mohammed Moinuddin, "New LADRC scheme for fractional-order system," *Alexandria Engineering Journal*, Volume 61, Issue 12, 2022, Pages 11313-11323, ISSN 1110-0168, <https://doi.org/10.1016/j.aej.2022.05.008> (ISI) (IF 6.626), (Q1 Quartile).
- 102.** Maamar Bettayeb, Rachid Mansouri, Ubaid M. Al-Saggaf, Abdulrahman U. Alsaggaf, and Mohammed Moinuddin, "Linear Active Disturbance Rejection Control with a Fractional Order Integral Action," *CMC-Computers, Materials & Continua*, vol. 73, no.2, pp. 3057–3079, 2022. <https://doi.org/10.32604/cmc.2022.025751> (ISI) (IF 3.86), (Q2 Quartile).
- 101.** Rumaisa Abu Hasan, Muhamad S.B. Yusoff, Tong B. Tang, Yasir Hafeez, Mazlina C. Mustafa, Masayu Dzainudin, Juppri Bacotang, Ubaid M. Al-Saggaf, and Syed S.A. Ali, "Resilience-Building for Mental Health among Early Childhood Educators: A Systematic Review and Pilot-Study towards an EEG-VR Resilience Building Intervention," *International Journal of Environmental Research and Public Health* 19, no. 7: 4413, 2022. <https://doi.org/10.3390/ijerph19074413> (ISI) (IF 4.614), (Q1 & Q2 Quartile)
- 100.** Yasser M. Kadah, Ahmed F. Elnokrashy, Ubaid M. Alsaggaf and Abou-Bakr M. Youssef, "Principal Component Analysis Based Hybrid Speckle Noise Reduction Technique for Medical Ultrasound Imaging" *International Journal of Advanced Computer Science and Applications*, Vol. 13, Issue 12, 2022. <http://dx.doi.org/10.14569/IJACSA.2022.0131256> (ISI)
- 99.** Ubaid M. Al-Saggaf, Syed Faraz Naqvi, Muhammad Moinuddin, Sulhi Ali Alfakeh, and Syed Saad Azhar Ali, "Performance Evaluation of EEG Based Mental Stress Assessment Approaches for Wearable Devices," *Frontiers in Neurorobotics*, Vol. 15, 2022, DOI=10.3389/fnbot.2021.819448,

<https://www.frontiersin.org/article/10.3389/fnbot.2021.819448> (ISI) (IF 3.493), (Q2 & Q3 Quartile)

98. Muhammad Bilal, Khalid Munawar, Muhammad Shafique Shaikh, Ubaid M Al-Saggaf, Belkacem Kada, "Hyperspectral Image Segmentation using End-to-End CNN Architecture with built-in Feature Compressor for UAV Systems," International Journal of Advanced Computer Science and Applications, Vol. 13, Issue 12, 2022. (ISI)
97. Ubaid M Al-Saggaf, Abdelaziz Botalb, Muhammad Faisal, Muhammad Moinuddin, Abdulrahman U Alsaggaf, and Sulhi Ali Alfakeh, "Constraints on Hyper-parameters in Deep Learning Convolutional Neural Networks", International Journal of Advanced Computer Science and Applications, Vol. 13, Issue 11, 2022. (ISI)
96. Muhammad Moinuddin, Shujaat Khan, Abdulrahman U. Alsaggaf, Mohammed Jamal Abdulaal, Ubaid M. Al-Saggaf and Jong Chul Ye, "Medical ultrasound image speckle reduction and resolution enhancement using texture compensated multi-resolution convolution neural network," Frontiers in Physiology, 13, 2022. <https://doi.org/10.3389/fphys.2022.961571> (ISI) (IF 4.755), (Q1 Quartile)
95. Yasser M. Kadah, Ahmed F. Elnokrashy, Ubaid M. Alsaggaf and Abou-Bakr M. Youssef, "Speckle Reduction in Medical Ultrasound Imaging based on Visual Perception Model" International Journal of Advanced Computer Science and Applications, Vol. 13, Issue 11, 2022. <http://dx.doi.org/10.14569/IJACSA.2022.0131166> (ISI)
94. Maaz Mahadi, Tarig Ballal, Muhammad Moinuddin, and Ubaid M. Al-Saggaf, "A Recursive Least-Squares with a Time-Varying Regularization Parameter. Applied Sciences. 2022; 12(4):2077. <https://doi.org/10.3390/app12042077> (ISI) (IF 2.838), (Q2 & Q3 Quartile)
93. I. M. Mehedi, N. Saad, M. A. Magzoub, U. M. Al-Saggaf, and A. H. Milyani, "Simulation Analysis and Experimental Evaluation of Improved Field-Oriented Controlled Induction Motors Incorporating Intelligent Controllers," in IEEE Access, vol. 10, pp. 18380-18394, 2022, <https://doi.org/10.1109/ACCESS.2022.3150360>. (ISI) (IF 3.476), (Q2 Quartile)
92. Shahriar Mostufa, Tarik Bin Abdul Akib, Md. Masud Rana, Ibrahim M. Mehedi, Ubaid M. Al-Saggaf, Abdulrahman U. Alsaggaf, Mohammed U Alsaggaf, and Md. Sarowar Alam, "Numerical approach to design the graphene-based multilayered surface plasmon resonance biosensor for the rapid detection of the novel coronavirus," Opt. Continuum 1, 494-515 (2022) <https://doi.org/10.1364/OPTCON.445255> (ISI)
91. Ubaid M Al-Saggaf, Maamar Bettayeb, Said Djenoune, "Fixed-time synchronization of memristor chaotic systems via a new extended high-gain observer," European Journal of Control, Volume 63, 2022, Pages 164-175, ISSN 0947-3580, <https://doi.org/10.1016/j.ejcon.2021.10.002> (ISI) (IF 2.649), (Q3 Quartile)
90. Muhammad Arif, Imran Naseem, Muhammad Moinuddin, Abdulrahman U. Alsaggaf, Ubaid M. Al-Saggaf, "Energy-efficient SSD-LMS algorithm for state-space estimation in distributed networks," Digital Signal Processing, 2021, 103362, ISSN 1051-2004, <https://doi.org/10.1016/j.dsp.2021.103362>. (ISI) (IF 2.92), (Q2 Quartile)
89. Said Djenoune, Maamar Bettayeb, Ubaid Muhsen Al-Saggaf, "Fixed-time convergent sliding-modes-based differentiators," Communications in Nonlinear Science and

Numerical Simulation, Volume 104, 2022, 106033, ISSN 1007-5704, <https://doi.org/10.1016/j.cnsns.2021.106033>. (ISI) (IF 4.186), (Q1 Quartile)

88. Ibrahim M. Mehedi, Rachid Mansouri, Ubaid M. Al-Saggaf, et al., "Fractional Order Linear Active Disturbance Rejection Control for Linear Flexible Joint System," CMC-Computers, Materials & Continua, 70(3), 5133–5142., <https://doi.org/10.32604/cmc.2022.021018> (ISI) (IF 3.86), (Q2 Quartile)
87. Rachid Mansouri, Maamar Bettayeb, Ubaid M. Al-Saggaf, Abdulrahman U. Alsaggaf, and Muhammad Moinuddin, "Extended State Observer Based Fractional Order Controller Design for Integer High Order Systems," Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science. December 2022, <https://doi.org/10.1177/09544062211062100> (ISI) (IF 1.758), (Q3 Quartile)
86. Mehedi, I. M., Al-Saggaf, U. M., Vellingiri, M. T., Milyani, A. H., Saad, N. B. et al., "OBSCO Based Fractional PID for MPPT-Pitch Control of Wind Turbine Systems. CMC-Computers, Materials & Continua," 71(2), 4001–4017, (2022). <https://doi.org/10.32604/cmc.2022.021981> (IF 3.86), (Q2 Quartile)
85. Muhammad Arif, Muhammad Moinuddin, Imran Naseem, Abdulrahman Al-Saggaf, Ubaid M Al-Saggaf, "Diffusion Quantum-Least Mean Square Algorithm for Distributed Estimation," Circuits Syst Signal Process (2022). <https://doi.org/10.1007/s00034-021-01934-z>. (ISI) (IF 2.311), (Q3 Quartile)
84. Ibrahim M. Mehedi, Maher H. Al-Sereihy, Asmaa U. Al-Saggaf, Ubaid M. Al-Saggaf, "A Non-integer Order Control Scheme for the Core Power of a Pressurized Water Reactor," CMC-Computers, Materials & Continua, 72(1), 651–662, <https://www.techscience.com/cmc/v72n1/46839>, (ISI) (IF 3.86), (Q2 Quartile)

2021

83. Ubaid M. Al-Saggaf, Muhammad Usman, Imran Naseem, Muhammad Moinuddin, Ahmad A. Jiman, Mohammed U. Alsaggaf, Hitham K. Alshoubaki, and Shujaat Khan, "ECM-LSE: Prediction of Extracellular Matrix Proteins using Deep Latent Space Encoding of k-Spaced Amino Acid Pairs," Front. Bioeng. Biotechnol, 2021, <https://www.frontiersin.org/articles/10.3389/fbioe.2021.752658> , (ISI) (IF 5.89), (Q1 Quartile)
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3. Abdullah Al-Gafri, Muhammed Moinuddin, Ubaid M Al-Saggaf, "Combining Diffusion Processes for Semi-supervised Learning on Graph Structured Data," In book: Intelligent Systems and Applications, January 2020, DOI: 10.1007/978-3-030-29513-4_40
2. Maamar Bettayeb, Rachid Mansouri, Chahira Boussalem, Ubaid M. Al-Saggaf, Linear integer order system control by fractional PI-state Feedback, Chapter 4 in "Fractional Calculus: Applications," Nova Science Publishers, Inc., Mathematics Research Developments Series, 2014, ISBN: 978-1-63463-221-8.
1. U. M. Al-Saggaf and M. Bettayeb, Techniques in Optimized Model Reduction for High Dimensional Systems, Invited chapter in International Academic Press Series, "Advances in Control and Dynamic Systems," Vol.55, part 1, pp 51-109, 1993.

Peer Reviewer

Reviewed articles for IEEE Systems Journal, IEEE Access, IEEE Transactions on Systems Man Cybernetics-Systems, IEEE Transaction on Circuit and Systems, IEEE Transaction on Automatic Control, IEEE Transaction on Acoustics, Speech and Signal Processing, IMA Journal of Mathematical Control and Information, The Arabian Journal for Science and Engineering, etc.

Ph.D. AND M.Sc. THESIS

Supervised/Co-supervised more than 20 Ph.D. and M.Sc. Theses.

TEACHING

At King Abdulaziz University:

EE 366	Microprocessors and Microcontrollers.
EE 390	Summer Training
EE 400	Coop Training
EE 432	Digital Control Systems
EE 651	Digital control systems
EE 671	Special Topics in Control.
EE 695	MSc Seminar
EE 702	Advanced Linear Systems
EE766	Advanced Artificial Intelligence
EE 768	Advanced Neural Networks
EE 795	Ph.D. seminar

At King Fahd University of Petroleum and Minerals:

EE 200	Digital logic circuit design
EE 202	Network Theory
EE 204	Fundamentals of electrical circuits
EE 370	Communication Engineering
EE 380	Control Engineering I
EE 390	Digital system engineering
EE 406	Digital signal processing
EE 432	Digital control systems
EE 550	Linear control systems
EE 552	Optimal control theory and Applications

LABORATORY DEVELOPMENT

At King Abdulaziz University

- Set up the laboratory of the new EE 366 course, which includes equipment selection and procurement, design of experiments, etc.
- Set up the laboratory for graduate and undergraduate Control Courses in the Electrical and Computer Engineering Department.

At King Fahd University of Petroleum and Minerals

- Set up of new EE 200 laboratory (Design of experiments, equipment selection ...).
- Updating and modernizing the laboratories for control engineering by selecting all the new equipment and software for those laboratories.

COURSE DEVELOPMENT

At King Abdulaziz University

- Developed the EE 366 course.

- Developed the EE 671 Course
- Developed the EE 702 Course

At King Fahd University of Petroleum and Minerals

- Developed the EE 200 course.

TEACHING SHORT COURSES

At King Abdulaziz University

- Actuators in Robotics Applications
- Microcontrollers Part 2

At King Fahd University of Petroleum and Minerals

- Digital Communications and Signal Processing.
- Distributed Industrial Computer Control Systems. (Syst. Eng. Dept.)
- Electrical Engineering for Non-Electrical Engineers.

SELECTED COMMITTEES

International Committees

Member, the Technical Program Committee,
ISMA'2015 International Symposium on Mechatronics and its Applications
Sharjah, United Arab Emirates

At King Abdulaziz University

University Committees

Follow-up and support committee for the development of engineering and
Computer science colleges.
Higher Committee for the centers of excellence

College Committees

Engineering Education Development Committee
Railway Engineering Graduate Program Development Committee

Departmental Committees

ABET committee
Faculty recruitment committee
Faculty evaluation ad-hoc committee
Ph.D. comprehensive exam committee

At King Fahd University of Petroleum and Minerals

University Committees

Research Committee
Entrance exam committee
Technical colleges program development committee
A special investigation committee
Part-time Ph.D. program committee
Book authoring committee
Digital Control Labs committee

College Committees

Review and evaluation of Math 101 & 102
Best Researcher Award committee
Best Teacher Award committee
Promotion committee

Departmental Committees

Curriculum Committee
Graduate program committee
Laboratory development committee
Planning and continuing education committee
Computer utilization committee
Senior project guidelines formulation committee

National Committees

Organization Committee of the 11th National Computer Conference & Exhibition
Organization Committee of the 12th National Computer Conference & Exhibition

Other Committees

Registration Committee of the 11th National Computer Conference & Exhibition
Publications Committee of the 11th National Computer Conference & Exhibition
Program and Registration Committee of the 12th National Computer Conference and Exhibition