

Curriculum Vita

Contact Data

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Education

- B.Sc. degree (with honors) in Electronic and Communication Engineering from Applied Sciences University, Amman, Jordan, 1998 (V. Good with honors).
- M.S. degree in Electronic and Communication Engineering from Jordan University of Science and Technology, Irbid, Jordan, 2001 (V. Good).
- Ph.D. degree in Electrical Engineering from the University of Kassel, Kassel, Germany, 2006 (V. Good).
- Post-doctoral fellow at Ecole de Technologie Superieure of Quebec University, Montreal, Canada, 2008.

Academic Experience

- Teaching assistant with the department of Electrical Engineering of Jordan University of Science and Technology, Irbid, Jordan, from October 1998 to January 2001.
- Lecturer with the department of Computer Engineering of Hodeidah University, Hodeidah, Yemen, from November 2001 to November 2002.
- Assistant professor in the department of Computer Engineering of Hodeidah University, Hodeidah, Yemen, since April 2007.
- Vice Dean of Academic Affairs of Computer Engineering and Science Faculty of Hodeidah University, Hodeidah, Yemen, December 2010.
- Assistant professor at the department of Electrical and Computer Engineering of University of Nizwa, Nizwa, Oman, from 2011 to 2012.
- Assistant professor at the department of Electrical Engineering of King Faisal University, Al-Hofuf, Saudi Arabia, 2012 to 2013.
- Acting Chair for the department of Electrical Engineering of University of Sharjah, Sharjah, UAE, Summer 2016.
- Acting Dean for the College of Engineering of University of Sharjah, Sharjah, UAE, Summer 2016.
- Acting Dean for the College of Engineering of University of Sharjah, Sharjah, UAE, Summer 2019.

- Acting Chair for the department of Electrical Engineering of University of Sharjah, Sharjah, UAE, Summer 2023.
- Assistant professor at the department of Electrical Engineering of University of Sharjah, Sharjah, UAE from 2013 to 2017.
- Associate professor at the department of Electrical Engineering of University of Sharjah, Sharjah, UAE, from 2017 to 2023.
- Professor at the department of Electrical Engineering of University of Sharjah, Sharjah, UAE, from 2023 till now.
- Graduate studies coordinator at the department of Electrical Engineering of University of Sharjah, Sharjah, UAE .

Professional Experience

- Training course in TV and Radio-Cassette maintenance and troubleshooting, Al-Rafedin institute, Baghdad, Iraq, 1994.
- Practical training in the Jordanian Electrical Company, the Control Center, Amman, Jordan, 1996.
- Practical training in the Middle East Complex for Engineering, Electrical and Heavy Industrial PLC, Amman, Jordan, 1997.
- Potential researcher in the Mobile-GaN project of the University of Kassel, Kassel, Germany, 2007.
- Adjunct Researchers in iRadio Lab of University of Calgary, Calgary, Canada.
- Visiting researcher in Ecole de Technologie Superieure, Quebec University, Montreal, Canada, Summer 2014.
- Visiting researcher in iRadio Lab, University of Calgary, Calgary, Canada, summer 2017.

Language Skills

- Arabic: Speaking and writing.
- English: Speaking and writing.
- Germany: Speaking.

Computer Skills

- Applications: Microsoft office and Corel draw.
- Languages: Fortran, C, C++, Assembly, and Matlab.
- Computer Aided Design Soft wares: PSPICE, COMSOL, Silvaco and ADS.

Awards and Honors

- Academic award of Applied Sciences University, Amman, Jordan, for three times.
- Graduation with honors from Applied Sciences University, Amman, Jordan, 1998.
- Nominated by Marquis 'Who's Who in Science and Engineering for 2006 Edition'.
- Best Paper Award at the 3rd Symposium of Nizwa College of Technology, Nizwa, Oman, May 2012.
- 2nd place Best student paper award for my master students in the IEEE International Conference on Electrical and Computing Technologies and Applications, Ras al-Khaimah, UAE, 2017.

- 3rd place of Best student paper award for my master students in the IEEE International Conference on Electrical and Computing Technologies and Applications, Ras al-Khaimah, UAE, 2019.
- University of Sharjah annual incentives award for distinguished faculty in scientific research for the academic year 2018/2019.
- Classified as one of the World's Top 2% Scientists 2020 (Stanford University).

Scholarships

- National scholarship from the Yemen government for B.Sc. study, 1992.
- National scholarship from the Yemen government for M.S. study, 1998.
- German Academic Exchange Service (DAAD), Germany, scholarship for Ph.D. study, 2004.
- Post-doctoral fellow at Ecole de Technologie Superieure of Quebec University, Montreal, Canada, 2008.

Memberships

- Senior Member of IEEE (Institute of Electrical and Electronics Engineers).
- Member of IEEE Communication Society.
- Member of IEEE Electron Devices Society.
- Member of IEEE Solid-State Circuits Society
- Member of IEEE Microwave Theory and Techniques Society

Research Interests

- Active Devices Modeling, Nonlinear Devices and Circuits Characterization, Power Amplifier Design, Low-Noise Amplifier Design, Genetic Optimisation, Neural Networks Modeling, Fuzzy Logic and Radio-Channel Modelling, Wireless Power Transfer.

Taught Courses

- Electric Circuits Analysis, Fundamentals of Electronics, Electronic Circuits, Digital Electronics, Digital Design, Microelectronics, Analog Communications, Digital Communications, Communication Systems, Wireless Communications, Computer Networks, Control Systems, C programming, Matlab Programming, Microprocessors and Microcontrollers, Electrical Technology, Signals and Systems, Electromagnetisms and Applications, Measurements and Instrumentation, Numerical Methods, and optoelectronics.

List of Publications

Master Thesis and Ph.D. Dissertation

- **A. Jarndal**, "Propagation model for building blockage in the mid earth satellite mobile communication systems" M.S. thesis, Department of electrical engineering, Jordan University of Science and Technology, Irbid, Jordan, 2001.
- **A. Jarndal**, "Large-Signal Modeling of GaN Device for High Power Amplifier Design," Ph.D. Dissertation, Department of High Frequency Engineering, University of Kassel, Kassel, Germany, 2006.

Conferences

1. **A. Jarndal** and G. Kompa, "A New Small Signal Model Parameter Extraction Method Applied to GaN Devices," in *IEEE MTT-S International Microwave Symposium Digest*, Long Beach, CA, June 2005, pp. 1-4.
2. **A. Jarndal**, B. Bunz and G. Kompa, "Accurate Large-Signal Modeling of AlGa_N-Ga_N HEMT Including Trapping and Self-Heating Induced Dispersion," in *IEEE International Symposium on Power Semiconductor Devices and IC's*, Napoli, Italy, June 2006, pp. 1-4.
3. **A. Jarndal** and G. Kompa, "Large-Signal Model for AlGa_N/Ga_N HEMT for Designing High Power Amplifiers of Next Generation Wireless Communication Systems," in *IEEE International Conference in Communication and Signal Processing*, Dubai, UAE, November 2007, pp. 77-80.
4. **A. Jarndal**, P. Aflaki, L. Degachi, A. Birafane, A. Kouki, R. Negra and F. M. Ghannouchi, "Large-Signal Modeling of AlGa_N/Ga_N HEMTs for RF Switching-Mode Power Amplifiers Design," in *IEEE Regional Symposium on Microelectronic*, Kota Bahru, Malaysia, August 2009.
5. **Anwar Jarndal**, Pouya Aflaki, Louay Degachi, Ahmed Birafane, Ammar Kouki, Renato Negra and Fadhel M. Ghannouchi, "On the Large-Signal Modeling of AlGa_N/Ga_N HEMTs for RF Switching-Mode Power Amplifiers Design," in *Asia-Pacific Microwave Conference*, Singapore, December 2009, Paper ID: TH2G-3.
6. **A. Jarndal**, A. Zena Markos, and G. Kompa, "Improved Parameter Extraction Method for Ga_N HEMT on Si Substrate," in *IEEE MTT-S Int Microwave Symposium Digest*, Anaheim CA, June 2010, pp. 1668- 1671.
7. **A. Jarndal**, P. Aflaki, A. Kouki and F. M. Ghannouchi, "Large-Signal Modeling of AlGa_N/Ga_N HEMTs Based on DC IV and S-parameter Measurements," in *IEEE International conference on Semiconductor*, Melaka, Malaysia, June 2010, pp. 41-44.
8. **A. Jarndal**, "Genetic Algorithm Based Extraction Method for Distributed Small-Signal Model of Ga_N HEMT," *IEEE International conference on Semiconductor*, Melaka, Malaysia, June 2010, pp. 48-51.
9. **A. Jarndal**, Swaroop Pillai, Hussein Abdulqader and Fadhel M. Ghannouchi, "A Genetic Neural Network Modeling of Ga_N HEMTs for RF Power Amplifiers Design," in *IEEE International Conference on Microelectronics*, Tunisia, December 2011, Paper ID: 94.
10. **A. Jarndal**, "Gallium Nitride Based RF Power Amplifier for Future Wireless Communication Systems," in *the 3rd Symposium of Nizwa College of Technology*, Nizwa, Oman, May 2012 (Best Paper Award).
11. **A. Jarndal**, S. Pillai, H. Abdulqader and G. Kompa, "On the Large-Signal Modeling of AlGa_N/Ga_N Devices Using Genetic Neural Networks," in *7th European Microwave Integrated Circuits Conference*, Amsterdam, Netherlands, October 2012, pp. 60-63.
12. **A. Jarndal**, "Application of Genetic Neural Networks for Modeling of Active Devices," in *the 19th International Conference on Neural Information Processing*, Doha, Qatar, November 2012, Lecture Notes in Computer Science, vol. 7666, 2012, pp. 231-239.
13. **A. Jarndal**, "Measurements Uncertainty and Modeling Reliability of Ga_N HEMTs," in the International Conference on Modeling, Simulation and Applied Optimization conference, Tunisia, Hammamet, April 2013, pp. 1-4.
14. **A. Jarndal**, "A Simplified Modelling Approach for AlGa_N/Ga_N HEMTs Using Pinched Cold S-parameters," in the International Conference on Modeling, Simulation and Applied Optimization conference, Tunisia, Hammamet, April 2013, pp. 1-4.

15. **A. Jarndal**, "Load Forecasting for Power System Planning Using a Genetic-Fuzzy-Neural Networks Approach," in the IEEE – GCC Conference and Exhibition, Doha, Qatar, November 2013, pp. 44 - 48.
16. **A. Jarndal**, "Parasitic Elements Extraction of AlGaN/GaN HEMTs on SiC Substrate Using Only Pinch-off S-parameter Measurements," in the *IEEE International Conference on Microelectronics*, Doha, Qatar, December 2014, pp. 13-16.
17. **A. Jarndal**, "Combined Genetic Algorithm and Neural Network Technique for Transistor Modeling," in the 2nd International Conference on Communications, Signal Processing, and their Applications (ICCSPA'15), Sharjah, UAE, February 2015, pp. 1-4, (DOI: 10.1109/ICCSPA.2015.7081300).
18. **A. Jarndal**, Omar A. Alhammedi and Rashid H. Al-Ali "GaN Power Amplifiers Design Using Genetic Neural Network Model," in 2nd International Conference on Communications, Signal Processing, and their Applications (ICCSPA'15), Sharjah, UAE, February 2015, pp. 1-6, (DOI: 10.1109/ICCSPA.2015.7081304).
19. **A. Jarndal**, Riadh Essaadali, and Ammar Kouki, "A General and Reliable Model for GaN HEMTs on Si and SiC," in the *IEEE Wireless and Microwave Technology Conference*, Cocoa Beach, Florida, USA, April 2015, pp. 1-5, (DOI: 10.1109/WAMICON.2015.7120400).
20. Riadh Essaadali, **A. Jarndal**, Ammar Kouki and F. M. Ghannouchi, "Modeling of Extrinsic Parasitic Elements of Si Based GaN HEMTs Using Two Step De-Embedding Structures," in the *IEEE Wireless and Microwave Technology Conference*, Cocoa Beach, Florida, USA, April 2015, pp. 1-4, (DOI: 10.1109/WAMICON.2015.7120399).
21. **A. Jarndal**, "A Novel Genetic-Neural-Networks Modeling Approach for Self-Heating in GaN HEMTs," in the 18th International Conference on Electronics, Information and Communication, Istanbul, Turkey, January 2016, pp. 2936-2940.
22. **Anwar Jarndal** and Ahmed Elwakil, "Fraction-Order Model of GaN High Electron Mobility Transistors for Switching Applications," in the 18th International Conference on Microelectronics, Nanoelectronics and Photonics, Stockholm, Sweden, July, 2016.
23. **Anwar Jarndal**, "Hybrid Extraction Method Based on Pinch-off S-parameters for Mm-Wave Modeling of GaN HEMTs," in the IEEE 59th International Midwest Symposium on Circuits and Systems, October 2016, Abu Dhabi, UAE.
24. Ahmed Salhin and **Anwar Jarndal**, "Reliable Particle-Swarm-Optimization Based Parameter Extraction Method Applied to GaN HEMTs," in the IEEE Mediterranean Microwave Symposium, Abu Dhabi, UAE, November 2016.
25. Dalal Abdulla, Shahrazad Abdulla; Rameesa Manaf, **Anwar Jarndal**, "Design and implementation of a sign-to-speech/text system for deaf and dumb people," *Proceeding of IEEE 5th International Conference on Electronic Devices, Systems and Applications*, Ras al-Khaimah, UAE, December 2016. (DOI: 10.1109/ICEDSA.2016.7818467).
26. Ahmed R. Babikir and **Anwar Jarndal**, "Design and implementation of a multi-purpose wireless charger," *Proceeding of IEEE 5th International Conference on Electronic Devices, Systems and Applications*, Ras al-Khaimah, UAE, December 2016. (DOI: 10.1109/ICEDSA.2016.7818527).
27. Amer Bassal and **Anwar Jarndal**, "Design of a GaN Low Noise Amplifier for WiMax Applications," in the *IEEE Mediterranean Microwave Symposium*, Abu Dhabi, UAE, November 2016.

28. **Anwar Jarndal** and Sadeque Hamdan, "Forecasting of Peak Electricity Demand Using ANN-GA and ANN-PSO Approaches" *IEEE 7th International Conference on Modeling, Simulation, and Applied Optimization*, Sharjah, UAE, April 2017, pp. 1-5 (DOI: 10.1109/ICMSAO.2017.7934842).
29. Sadeque Hamdan and **Anwar Jarndal**, "A Two Stage Green Supplier Selection and Order Allocation Using AHP and Multi-Objective Genetic Algorithm Optimization," *IEEE 7th International Conference on Modeling, Simulation, and Applied Optimization*, Sharjah, UAE, April 2017, pp. 1-6 (DOI: 10.1109/ICMSAO.2017.7934843).
30. Naser Nawayseh, **Anwar Jarndal** and Sadeque Hamdan, "Optimizing the Parameters of a Biodynamic Responses to Vibration Model using Particle Swarm and Genetic Algorithms," *IEEE 7th International Conference on Modeling, Simulation, and Applied Optimization*, Sharjah, UAE, April 2017, pp. 1-6 (DOI: 10.1109/ICMSAO.2017.7934851).
31. **Anwar Jarndal**, "Neurogenetic Small-Signal Modeling Approaches for Microwave Active Devices," *IEEE International Conference on Electrical and Computing Technologies and Applications*, Ras al-Khaimah, UAE, December 2017.
32. **Anwar Jarndal** and Ahmed Al-Maflehi, "On Design and Implementation of a Sign-to-Speech/Text System," the 2nd IEEE International Conference on Electrical, Electronics, Communication, Computer Technologies & Optimization Techniques, Bangalore, India, December 2017.
33. **Anwar Jarndal** and Sadeque Hamdan, "Global-Optimization of Neural Network-Based Electro-Thermal Model for GaN Transistors," *IEEE International Conference on Electrical and Computing Technologies and Applications*, Ras al-Khaimah, UAE, December 2017.
34. Sadeque Hamdan, Shaikha Binkhatim, **Anwar Jarndal** and Imad Alsyof, "On the performance of artificial neural network with sine-cosine algorithm in forecasting electricity load demand," *IEEE International Conference on Electrical and Computing Technologies and Applications*, Ras al-Khaimah, UAE, December 2017.
35. Ahmed S. Hussein and **Anwar Jarndal**, "On hybrid model parameter extraction of GaN HEMTs based on GA, PSO, and ABC optimization," *IEEE International Conference on Electrical and Computing Technologies and Applications*, Ras al-Khaimah, UAE, December 2017.
36. Ahmed S. Hussein and **Anwar Jarndal**, "An improved reliable PSO based parameter extraction method applied to GaN HEMTs for Mm-Wave applications," *IEEE International Conference on Electrical and Computing Technologies and Applications*, Ras al-Khaimah, UAE, December 2017.
37. **Anwar Jarndal** and Amer Bassal, "On designing of a broadband GaN low-noise amplifier for WiMax applications," *IEEE International Conference on Electrical and Computing Technologies and Applications*, Ras al-Khaimah, UAE, December 2017.
38. **Anwar Jarndal** and Amer Bassal, "A Broadband Hybrid GaN Cascode Low Noise Amplifier for WiMax Applications," *3rd IEEE Int. Conference on Microwave and Photonics*, Dhanbad, India, February 2018.
39. Khalid K. Ali and **Anwar H. Jarndal**, "Remote-Monitoring and Wireless-Powering System for Pacemaker Patients," *1st IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2018)*, Sharjah, UAE, March 2018.

40. **Anwar H. Jarndal**, Ahmed S. Hussein, Giovanni Crupi and Alina Caddemi, "Reliable PSO Based Noise Modeling Approach Applied to GaN HEMTs," in the *IEEE International Workshop On Integrated Nonlinear Microwave and Millimetre-wave Circuits*, Brive La Gaillarde, France, July 2018.
41. Xuekun Du, Sagar K. Dhar, **Anwar Jarndal**, Craig Storey, Mohamed Helaoui, Simon Wingarz, Chang Jiang You, Jingye Cai, Fadhel M. Ghannouchi, "Reliable Parameter Extraction of Asymmetric GaN-based Heterojunction Field Effect Transistors," in the Proc. Of *IEEE 48th European Microwave Conference*, Madrid, Spain, September 2018.
42. **Anwar H. Jarndal**, "Reliable Propagation Model for 5G Systems in Urban Environments," in the IEEE Int. Conference on Advanced Computation and Telecommunication (ICACAT 2018), Bhopal, India, December 2018.
43. **Anwar H. Jarndal** and Teodora Petrovic, "GaN-Based Oscillators for Wireless Power Transfer Applications," in the IEEE Int. Conference on Advanced Computation and Telecommunication (ICACAT 2018), Bhopal, India, December 2018.
44. **Anwar Jarndal** and Mohamad B. Al Sabbagh, "On Modeling of Substrate/Buffer Loading in GaN HEMT Using Grey-Wolf Optimization Technique," in the IEEE Int. Conference on Modeling, Simulation and Applied Optimization (ICMSAO'2019), Bahrain, April 2019.
45. **Anwar Jarndal** and Sadeque Hamdan and Maamar Bettayeb, "On Neural Networks Modeling Based on GA, PSO and GW Optimization Techniques," in the IEEE Int. Conference on Modeling, Simulation and Applied Optimization (ICMSAO'2019), Bahrain, April 2019.
46. Muhammad Awais Ali, Ahmed Bingamil, **Anwar Jarndal** and Imad Alsyouf, "The Influence of Handling Imbalance Classes on the Classification of Mechanical Faults Using Neural Networks," in the IEEE Int. Conference on Modeling, Simulation and Applied Optimization (ICMSAO'2019), Bahrain, April 2019.
47. Mohamad Baziyad, **Anwar Jarndal** and Maamar Bettayeb, "A Model Order Reduction Technique Based on Balanced Truncation Method and Artificial Neural Networks," in the IEEE Int. Conference on Modeling, Simulation and Applied Optimization (ICMSAO'2019), Bahrain, April 2019.
48. **Anwar Jarndal**, "GaN HEMT Electrothermal Modeling Using Feedback Neural Networks Techniques," in the IEEE International Conference on Electrical and Computing Technologies and Applications, Ras al-Khaimah, UAE, November 2019.
49. Amer Bassal, Azizulrahman Shafiqurrahman and **Anwar Jarndal**, "An Armstrong GaN-Based Oscillator for Wireless Power Transfer Applications," in the IEEE International Conference on Electrical and Computing Technologies and Applications, Ras al-Khaimah, UAE, November 2019.
50. **Anwar Jarndal**, Sadeque Hamdan, Sanaa Muhaureq and Maamar Bettayeb, "Neural Networks Modeling Based on Recent Global Optimization Techniques," in the International Conference on Modelling, Simulation & Intelligent Computing, Dubai, UAE, January 2020.
51. Muhammad Awais Ali, Huda A. Alzaabi, Aaasha S. Alnuaimi and **Anwar Jarndal**, "Smart Healthcare Device for Cardiac Patients," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2018), Dubai, UAE, March 2020.
52. Bodoor W. Alabdullah, Hind R. Alowais, Sara J. D'yab, Maha S. Diab and **Anwar Jarndal**, "Health Care Device for Diabetic Patients," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2018), Dubai, UAE, March 2020.

53. Arivazhagan L, **Anwar Jarndal**, Subhash Chander, Godfrey D, Raj Kumar J S, S Bhagyalakshmi, Pavan Kumar Reddy, D. Nirmal, "Self-Heating Analysis of GaN-HEMT for Various Ambient Temperature and Substrate Thickness," in the 2020 5th International Conference on Devices, Circuits and Systems (ICDCS), Coimbatore, India, March 2020.
54. **Anwar Jarndal**, Saddam Husain, Omar Zaatar, Talal Al Gumaiei and Amar Hamadeh, "GPR and ANN Based Prediction Models for COVID-19 Death Cases," in the IEEE Int. Conference on Communications, Computing, cybersecurity, and Informatics, Sharjah, UAE, November, 2020.
55. **Anwar Jarndal** and Saddam Husain, "Forecasting of Electric Peak Load Using ANN-Cascaded, ANN-NARX and GPR Techniques," in the IEEE Int. Conference on Communications, Computing, cybersecurity, and Informatics, Sharjah, UAE, November 2020.
56. Saddam Husain, Amar Hamadeh, Omar Zaatar, Talal Al Gumaiei and **Anwar Jarndal**, "Temperature Dependent SVR and ANN Based I-V Models for GaN HEMTs," in the IEEE Int. Conference on Communications, Computing, cybersecurity, and Informatics, Sharjah, UAE, November, 2020.
57. Omar Kaziha, **Anwar Jarndal** and Talal Bonny, "Genetic Algorithm Augmented Convolutional Neural Network for Image Recognition Applications," in the IEEE Int. Conference on Communications, Computing, cybersecurity, and Informatics, Sharjah, UAE, November, 2020.
58. Maha S. Diab, Saddam Husain and **Anwar Jarndal**, "On Diabetes Classification and Prediction Using Artificial Neural Networks," in the IEEE Int. Conference on Communications, Computing, cybersecurity, and Informatics, Sharjah, UAE, November 2020.
59. **Anwar Jarndal**, et al., "Design and Implementation of GaN based DC-AC Converter for Wireless Power Transfer Applications," in the IEEE 18th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, Chiang Mai, Thailand, May 2021.
60. **Anwar Jarndal**, Khalid Kamel and Ahmed S. Elwakil, "GaN-Based Two-Stage Colpitts Oscillator for Wireless Power Transfer," in the IEEE 4th International Conference on Devices for Integrated Circuit (DevIC 2021), Kalyani, India, May 2021.
61. Abdallah Abushawish and **Anwar Jarndal**, "Hybrid PSO-GWO Optimization Based Parameter Extraction Method Applied to GaN Devices," in the IEEE 4th International Conference on Circuits, Systems and Simulation (ICCSS), Kuala Lumpur, Malaysia, May 2021.
62. Abdallah Abushawish and **Anwar Jarndal**, "Hybrid GWOCs Optimization Based Parameter Extraction Method Applied to GaN Devices," in the 94th IEEE 2021 IEEE International Midwest Symposium on Circuits & Systems (MWSCAS2021), Michigan, USA, August 2021.
63. S. Husain, M. Hashmi, **Anwar Jarndal**, M. Chaudhay, and, G. Nauryzbayev, "Comparative Analysis of ANN Architectures for the Development of GaN HEMT Small-Signal Model," IEEE Int. Microwave and RF Conference, Lucknow. India, Dec. 2021.
64. **Anwar Jarndal** and Husna Hamza, "GaN Power Amplifiers Design Using Efficient GA-ANN Dynamic Nonlinear Model," IEEE Int. Conference on Developments in eSystems Engineering, Sharjah, UAE, December 2021.
65. **Anwar Jarndal**, Maha S. Diab, Saddam Husain and Amir Shikhli, "Machine Learning Based Prediction Models for the Percentage Deaths Due to COVID-19," IEEE Int. Conference on Developments in eSystems Engineering, Sharjah, UAE, December 2021.

66. Abdallah Abushawish and **Anwar Jarndal**, "Comparison of GA, GWO, and HHO Optimization Techniques for Modeling Substrate/Buffer Loading Effect on GaN HEMTs," IEEE Int. Conference on Developments in eSystems Engineering, Sharjah, UAE, December 2021.
67. Mahamad Salah Mahmoud, **Anwar Jarndal**, Ahmad Alzghoul, Hossam Almahasneh, Imad Alsyof and Abdul Kadir Hamid, "Driver Drowsiness Detection System using Deep Learning based on Visual Facial Features," IEEE Int. Conference on Developments in eSystems Engineering, Sharjah, UAE, December 2021.
68. **Anwar Jarndal**, Mahamad Salah Mahmoud and Omar Mohammad Abbas, "Fault Detection and Identification Based on Image Processing and Deep Learning," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2018), Dubai, UAE, February 2022.
69. Saif K. Almulla, Omar Zaatat, Hamad S. Ahmed, Noor ul Misbah Khanum and **Anwar Jarndal**, "Smart Artificial-Intelligence Based Self-Care-Device for Diabetic Patients," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2022.
70. Siraj Shikhli, Amir Shikhli, **Anwar Jarndal**, Imad Alsyof and Ali Cheaitou, "Towards Sustainability in Buildings: a Case Study on the Impacts of Smart Home Automation Systems," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2022.
71. Ahmed Ibarra Abboudi, Abdelrahman Ibrahim Alhammadi, Khalifa Mohammed Albastaki, Noor ul Misbah Khanum and **Anwar Jarndal**, "Design and Implementation of Portable Emergency Ventilator for COVID-19 Patients," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2022.
72. Ahmed Mohammed Al Bahri, Ahmed Mohamed Al Yammahi, Asem Yousef Al Marzooqi, Noor ul Misbah Khanum and **Anwar Jarndal**, "Remote Monitoring Device for People Under Self-Quarantine Due to COVID-19," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2022.
73. **Anwar Jarndal**, Razan A. Alhamad and Mahamad Salah Mahmoud, "GaN Power Transistor Modeling Using Global Optimization Based Artificial Neural Networks," in the IEEE 5th Int. Conference on Power Electronics and their Applications, Hail, KSA, March 2022.
74. **Anwar Jarndal**, Arivazhagan L, Eqab Rateb AL Majali and Soliman Awad Mahmoud, "GaN HEMT with Enhanced Back-Barrier for Power Electronics Application," in the IEEE 5th Int. Conference on Power Electronics and their Applications, Hail, KSA, March 2022.
75. **Anwar Jarndal** and Husna Hamza, "On the Design of Broadband Doherty Power Amplifier for 5G Applications," in the IEEE International Conference on Electrical and Computing Technologies and Applications, Ras al-Khaimah, UAE, November 2022.
76. E'qab R. Almajali, Ali Abdi, **Anwar Jarndal**, Saqer S. Alja'afreh, Chaker Saleh and Amir Altaf, "V-Band Dual-layer Holographic Antenna for Future Small Satellite Applications," IEEE Advances in Science and Engineering Technology International Conferences, Dubai, United Arab Emirates, February 2022.
77. Omar Abbas and **Anwar Jarndal**, "On the Design of GaN Low Noise Amplifier for 5G Applications," in the IEEE International Conference on Electrical and Computing Technologies and Applications, Ras al-Khaimah, UAE, November 2022.
78. S Husain, K Khan, **A Jarndal**, G Nauryzbayev, M Hashmi, "Temperature Dependent IV Models for Microwave Transistor Using Radial Basis NNs, Generalized Regression NNs and Feedforward NN," 2022 5th International

Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT), Aligarh, India, November 2022.

79. Fatima-ezzahra Zerrad, Mohamed Taozari, Jamal El Aoufi, Yadgar I. Abdulkarim, **Anwar Jarndal** and Eqab Almajali, "Slotted Antipodal Vivaldi Antenna for Multiple Ultra-Wide Band Applications Including IoT," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2023.
80. Fatima-ezzahra Zerrad, Mohamed Taozari, Jamal El Aoufi, **Anwar Jarndal** and Eqab Almajali, "Multilayered Metamaterial Antenna for Brain Stroke Imaging System," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2023.
81. Arivazhagan L and **Anwar Jarndal**, "Impact of Field-Plate Structure on Parasitic Effects in GaN Based Transistor," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2023.
82. Kamran Arif, **Anwar Jarndal** and Eqab Almajali, "Wireless Microwave Biosensors: The Effect of Sample Size and Sample Location on Sensitivity," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2023.
83. Sultan Bader Albahri, Yousuf Ibrahim Albahri, Rashed Atiq Alfalasi, Noor ul Misbah Khanum and **Anwar Jarndal**, "Artificial Intelligence Based Logistics Client Service System," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2023.
84. Ahmad Khalid Alrais, Mohamad Youssef Alhammadi, Khalid Alwaleed Alhajeri, Omar Mohammad Abbas and **Anwar Jarndal**, "Design and Implementation of a Smart Driver Assistance System," in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2022), Dubai, UAE, February 2023.
85. Paweł Kołodziejski, **Anwar Jarndal** and Eqab Almajali, "Collision Rate of Hybrid Autonomous/Non-Autonomous Driving in Smart City: Case Study of Deira-Dubai," 2024 18th International Conference on Ubiquitous Information Management and Communication (IMCOM), Kuala Lumpur, Malaysia, January 2024
86. Bagylan Kadirbay, Saddam Husain, Anwar Jarndal and Mohammad Hashmi, "Comparison of ANFIS and ANN for Small-Signal Modelling of GaN HEMT up to 40 GHz," 2023 International Conference on Microelectronics (ICM), Abu Dhabi, United Arab Emirates, December 2023.
87. Arivazhagan L and **Anwar Jarndal**, "On Structure Design Optimization of GaN Based Semiconductor Device for Reduced Trapping," 2023 International Conference on Microelectronics (ICM), Abu Dhabi, United Arab Emirates, December 2023.
88. Husna Hamza and **Anwar Jarndal**, "A Sub-1dB Noise Figure Ku Band GaN Low Noise Amplifier for Space Applications," 2023 International Conference on Microelectronics (ICM), Abu Dhabi, United Arab Emirates, December 2023.
89. Hamda A. Almarzouqi, Fatma A. Alfalasi, Noora T. Almurbari, Mohammed Siraj Eddin, Amir Shikhli, Antar S. H. Abdul-Qawy and **Anwar Jarndal**, "Smart Greenhouse Control System for Sustainable Agriculture," 2023 First International Conference on the Advancements of Artificial Intelligence in African Context (AAIAC), Arusha, Tanzania, March 2024.
90. Md Hasnain Ansari1, Anwar Jarndal, and Yogesh Singh Chauhan, "Verilog-A Based ANN Large Signal Modeling of GaN HEMTs," 2023 5th International Youth Conference on Radio Electronics, Electrical and Power Engineering (REEPE), Moscow, Russian Federation, March 2024.

91. Famin Rahman Rakib, Anwar Jarndal and Mohammad Abdul Alim, "Optimized Electrothermal Drain Current Modeling of GaN-Based HEMT," 6th IEEE International Conference on Electrical Engineering and Information & Communication Technology (ICEEICT), Dhaka, Bangladesh, May 2024.
92. Imdad Ahmed Jaman, Tofayel Karim; Md. Asifur Rahman, Md. Omar Faruk Azad, Electrical and Electronic Engineering, University of Chittagong, Chittagong, Bangladesh Anwar Jarndal and Mohammad Abdul Alim, "Temperature Response and Power Dissipation in GaN HEMT on Diamond Substrate," 6th IEEE International Conference on Electrical Engineering and Information & Communication Technology (ICEEICT), Dhaka, Bangladesh, May 2024.
93. Famin Rahman Rakib, Anwar Jarndal and Mohammad Abdul Alim, "Optimized Electrothermal Drain Current Modeling of GaN-Based HEMT," accepted and to be presented in in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2024), Dubai, UAE, June 2024.
94. Khawla Ahmed Al-Tayeb, Anwar Jarndal, Hayssam Dahrouj and Kassen Dautov, "Diabetic Retinopathy Detection through Smartphone-based Retinal Imaging Approach: A Brief Review," accepted and to be presented in in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2024), Dubai, UAE, June 2024.
95. Antar S. H. Abdul-Qawy, Ali Idarous Adnan, Mohammed Sultan Mohammed, Narendra Khatri, Amir Shikhli, and Anwar Jarndal, "SEES-QL: An Improved Scalable and Energy-Efficient Scheme for WSNs based on Lightweight Q-learning," accepted and to be presented in in the IEEE Advances in Engineering Technology & Sciences Multi-Conferences (ASET 2024), Dubai, UAE, June 2024.

Journals

1. M. S. Al Salameh and **A. Jarndal**, "Impact of Buildings on the Performance of MEO Satellite Mobile Communication Systems for Low Bit Rate Applications," *IEE Proceeding Microwave Antenna Propagation*, vol. 151, no. 2, pp 161-166, April 2004.
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4. E. R. Srinidhi, A. Ahmed, **A. Jarndal**, and G. Kompa, "A New Method for Identification and Minimization of Distortion Sources in GaN HEMT Devices Based on Volterra Series Analysis," *IEEE Electron Device Letters*, vol. 28, no. 5, pp. 343-345, May 2007.
5. **A. Jarndal** and G. Kompa, "Large-Signal Model for AlGaIn/GaN HEMT Accurately Predicts Trapping and Self-Heating Induced Dispersion and Intermodulation Distortion," *IEEE Transaction on Electron Devices*, vol. 54, no. 11, pp. 2830-2836, November 2007.
6. **A. Jarndal**, P. Aflaki, L. Degachi, A. Birafane, A. Kouki, R. Negra and F. M. Ghannouchi, "Large-Signal Model for AlGaIn/GaN HEMTs Suitable for RF Switching-Mode Power Amplifiers Design," *International Journal of Solid State Electronics(Elsevier)*, vol. 54, no. 7, pp. 696-700, July 2010.

7. **A. Jarndal**, Pouya Aflaki, Renato Negra, Ammar Kouki, and Fadhel M. Ghannouchi, "Large-Signal Modeling Methodology for GaN HEMTs for RF Switching-Mode Power Amplifiers Design," *International Journal of RF and Microwave Computer-Aided Engineering*, vol.21, no. 1, pp. 45-50, November 2010.
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10. **A. Jarndal**, "Gallium Nitride-Based RF Power Amplifiers for Future Wireless Communication Systems," *IFRSA International Journal of Electronics Circuits and Systems*, vol. 1, no. 2, pp. 161-166, July 2012.
11. A. Alsagaf, Y. Holba, **A. Jarndal**, G. Salman, "Hybrid Evolutionary Algorithm for Optimal Planning of Hybrid Wireless Optical Broadband Access Network," *International Journal of Electronics and Communication Engineering & Technology (IJECET)*, ISSN0976–6464(Print), ISSN 0976–6472(Online) vol. 3, no. 3, pp. 122-138, December 2012.
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13. **A. Jarndal**, "AlGaIn/GaN HEMTs on SiC and Si Substrates: A Review from the Small-Signal-Modeling's Perspective," *International Journal of RF and Microwave Computer Aided Engineering*, vol. 24, no. 3, pp. 389–400, May 2014.
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15. **A. Jarndal** and Ammar Kouki, "Efficient Modeling of GaN HEMTs for Linear and Non-linear Circuits Design," *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, September 2015 (DOI: 10.1002/jnm.2100).
16. **A. Jarndal**, "A Genetic-Neural-Network Modeling Approach for Self-Heating in GaN High Electron Mobility Transistors," *International Journal of Electrical, Computer, Energetic, Electronic and Communication Engineering*, vol. 10, no. 1, pp. 106 – 110, February 2016.
17. **A. Jarndal**, "Smart Home System for Energy Saving using Genetic-Fuzzy-Neural Networks Approach," *International Journal of Sustainable Water and Environmental Systems*, vol. 8, no. 1, pp. 27-31, 2016.
18. **A. Jarndal** and Ahmed Elwakil, "Fraction-Order Model of GaN High Electron Mobility Transistors for Switching Applications," *International Journal of Electrical, Computer, Energetic, Electronic and Communication Engineering*, vol. 10, no. 7, pp. 706 – 710, 2016.
19. **A. Jarndal** and G. Kompa, "A Simple, Direct and Reliable Extraction Method Applied to GaN Devices," *International Journal of Electronics*, August 2016, pp. 1-12 (DOI:10.1080/00207217.2016.1218058).
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32. **Anwar Jarndal**, "On Neural Networks Based Electrothermal Modeling of GaN Devices," *IEEE Access*, vol. 7, July 2019, pp. 94205-94214. (DOI: 10.1109/ACCESS.2019.2928392).
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34. **Anwar Jarndal**, "On modeling of substrate loading in GaN HEMT using grey wolf algorithm," *J. Computational Electronics* (2020). <https://doi.org/10.1007/s10825-020-01464-y>.
35. **Anwar Jarndal**, Arivazhagan L and D. Nirmal, "On the Performance of GaN on Silicon, Silicon-Carbide and Diamond Substrates," *International Journal of RF and Microwave Computer-Aided Engineering*, February 2020, (DOI: 10.1002/mmce.22196).
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Characterization,” IEEE Transactions on Microwave Theory and Techniques, May 2020 (DOI: 10.1109/TMTT.2020.2990171).

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43. Ahmad Alzghoul, **Anwar Jarndal**, Imad Alsyof, Ahmed Ameen Bingamil, Muhammad Awais Ali, Saleh AlBaiti, “On the Usefulness of Pre-processing Methods in Rotating Machines Faults Classification using Artificial Neural Network,” *J. Appl. Comput. Mech.*, 7(1), 2021, 254-261. <https://doi.org/10.22055/JACM.2020.35354.2639>
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46. **Anwar Jarndal**, “Gray Wolf Optimization-Based Modeling Technique Applied to GaN High Mobility Electron Transistors,” *Journal of the Electron Devices Society*, vol. 9, pp. 958 - 965, October 2021.
47. L. Arivazhagan, D. Nirmal, **Anwar Jarndal**, Hasina F. Huq, Subhash Chander, S. Bhagyalakshmi, Pavan Kumar Reddy, J. Ajayan and Arathy Varghese, “Applicability of double Channel Technique in AlGaIn/GaN HEMT for future biosensing applications,” vol. 160, December 2021, pp. 107086.
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49. Abdallah Abushawish and **Anwar Jarndal**, "Hybrid PSO-GWO Optimization Based Small-Signal Modelling Applied to GaN Devices," *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 32, no. 5, May 2022.
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51. Khawla A. Alnajjar, **Anwar Jarndal**, Mohamed El-Tarhuni, Peter Smith and Saeed Abdallah, "Performance Evaluation of VBLAST and Linear Receivers for mmWave MIMO Systems with Ray-Tracing Channel Models," *International Journal on Communications Antenna and Propagation*, vol. 12, no. 2, 2022.
52. **A Jarndal**, L Arivazhagan, E Almajali, S Mahmoud, S Majzoub, T Bonny, "Enhancement of Sensitivity in AlGaIn/GaN HEMT Based Sensor Using Back-Barrier Technique," *IEEE Sensors Journal* vol. 22, no. 16, July 2022.
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54. CM Saleh, E Almajali, **A Jarndal**, J Yousaf, SS Alja'afreh, RE Amaya, "Wideband 5G Antenna Gain Enhancement Using a Compact Single-Layer Millimeter Wave Metamaterial Lens," *IEEE Access*, January 2023.
55. MA Alim, **A Jarndal**, C Gaquiere, G Crupi, "A Study of DC and RF Transconductance for Different Technologies of HEMT at Low and High Temperatures," *Journal of Materials Science: Materials in Electronics*, February 2023.
56. **Anwar Jarndal** and Husna Hamza K "On GaN Low Noise Amplifier: Device Modelling and Circuit Design" *International Journal on Communications Antenna and Propagation*, Vol 13, No 1, February 2023.
57. Omar Kaziha, Talal Bonny and **Anwar Jarndal**, "Genetic Algorithm Augmented Inception-Net based Image Classifier Accelerated on FPGA," *Multimedia Tools and Applications*, April 2023
(<https://doi.org/10.1007/s11042-023-15178-3>).
58. Saddam Husain, **Anwar Jarndal**, Mohammad Hashmi and Fadhel M. Ghannouchi, "Accurate, Efficient and Reliable Small-Signal Modeling Approaches for GaN HEMTs" *IEEE Access*, vol. 11, September 2023.
59. Saddam Husain, **Anwar Jarndal**, Bagylan Kadirbay and Mohammad Hashmi, "Comprehensive Investigation of ANN Algorithms Implemented in MATLAB, Python and R for Small-Signal Behavioral Modeling of GaN HEMTs," *IEEE Journal of the Electron Devices Society (Early Access)*, October 2023.
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Book Chapters

1. **Anwar Jarndal**, "Large-Signal Modeling of GaN Devices for Designing High Power Amplifiers of Next Generation Wireless Communication Systems" published in the book titled "*Mobile and Wireless Communications: Network Layer and Circuit Level Design*", In-Tech, Vukovar, Croatia, 2009 (ISBN 978-953-307-042-1).

2. **Anwar Jarndal**, "Electrothermal Modeling of GaN HEMTs" book chapter in the book titled: "Advances in Microelectronics: Reviews", IFSA Publishing, January 2018. (ISBN-13: 978-8469786338).
3. **Anwar Jarndal**, "Neural Networks Modeling Based on Recent Global Optimization Techniques" book chapter in the book titled: "Advances in Machine Learning and Computational Intelligence", Springer Nature Singapore Pte Ltd., 2020. (10.1007/978-981-15-5243-4_6).
4. Anwar Jarndal. "GaN oscillator-based DC–AC converter for wireless power transfer applications" a chapter in the book of "Power Electronics for Next-Generation Drives and Energy Systems: Converters and control for drives-Vol. 1: Converters and Control for Drives" edited by 'Nayan Kumar, Josep M. Guerrero, Debaprasad Kastha, Tapas Kumar Saha'. Institution of Engineering and Technology (IET) 2022.

Books

1. **Anwar Jarndal**, "Large-Signal Modeling of GaN Device for High Power Amplifier Design," Kassel University Press, Germany, 2006 (ISBN: 978-3-89958-258-1).
2. **Anwar Jarndal**, "Modeling of Land Mobile Satellite Radio Propagation Channel," Lambert Academic Publishing, Germany, 2015 (ISBN: 978-3-659-68256-8).

Research Activities and Projects

Completed Projects

1. Modeling and Characterization of GaN devices for Power Amplifier Design Considering Memory Effects (Hochleistungsmesstechnik zur Charakterisierung und Modellierung von GaN Leistungsbau-elementen und Leistungsverstärkern insbesondere unter dem Gesichtspunkt von Memory-Effekten), Project Code: 01BU385, Federal Ministry of Education and Research (BMBF), Germany, 3 years, Started on: 01/10/2004.
2. Characterizing and Modeling of GaN FETs for Optimal Linear Highly Efficient Power Amplifier Design (Modellierung von GaN FETs für einen optimalen Entwurf hocheffizienter linearer Leistungsverstärker für UMTS Anwendungen, Project Code: 01BU0610, Federal Ministry of Education and Research (BMBF), Germany, 2 years, Started on: 01/08/2006.
3. Modeling of GaN HEMTs for Switching-Mode Power Amplifier Design, Postdoctoral Project supported by École de Technologie Supérieure (ETS), Montreal, Canada, in collaboration with Calgary University, Calgary, Canada.
4. Modeling of GaN HEMTs on Si Substrate, Supported by Hodeida University in Yemen in collaboration with the University of Kassel in Germany.
5. Neural Network Modeling of GaN Devices for Designing High Power Amplifiers of Next Generation Wireless Communication Systems, A/10-11-UoN/14/ENG/IF, University of Nizwa, Oman, 2 Years.
6. **SEED Project** entitled: "Neural Network Modeling of GaN Devices for Designing High Power Amplifiers of Next Generation Wireless Communication Systems", G.R.C./S.R. 8/2013, University of Sharjah, Sharjah, 2 Years, Started on: 14/01/2014 (**Principal Investigator**).
7. **Competitive Project** entitled: "GaN Switching-Mode Power Amplifier Design for High Frequency Applications", V.C./G.R.C. /S.R. 267/2015, University of Sharjah, Sharjah, 2 Years, Started on: 01/09/2015. (**Principal Investigator**).

- 8. Competitive Project** entitled: “Designing Power and Low-Noise Amplifiers Using GaN Technology for Space and Terrestrial Wireless Communications”, V.C.R.G.R. /R. 1265/2017, University of Sharjah, Sharjah, 2 Years, Started on: 11/2017 (**Principal Investigator**).

In-Progress Projects

- 1. Competitive Project** entitled: “Using GaN Technology for Developing Efficient Renewable Energy Sources to be Integrated in Smart Grid”, V.C.R.G.R. /R. 438/2020, funded by the University of Sharjah, Sharjah, 2 Years, Started on: November 2020 (**Principal Investigator**).
- 2. Competitive Project** entitled: “Using GaN Technology for Developing Efficient Renewable Energy Sources to be Integrated in Smart Grid”, V.C.R.G.R. /R. 438/2020, funded by the University of Sharjah, Sharjah, 2 Years, Started on: November 2020 (**Principal Investigator**).
- 3. Targeted Project** entitled: “Field Programmable Analog Arrays for Biomedical Applications”, V.C.R.G.R. /R./2020, funded by the University of Sharjah, Sharjah, 2 Years, Started on: November 2020 (**Co-Investigator**).
- 4. Collaborative Project** entitled: “Assessment of Public Transportation Driver’s Psychophysiological State”, V.C.R.G. / R. 438/2020 funded by the University of Sharjah and Dubai Taxi Corporation, 3 Years, started on Aril 2021 (**Co-Investigator**).
- 5. Member** of "Sustainable Engineering Asset Management (SEAM)" **Group Research**.
- 6. Coordinator** of "Mixed-Analog-Digital Smart Electronic Circuits and Systems" **Group Research**.

Senior Design Projects Supervision

1. Design of Linear GaN RF Power Amplifier for Wireless Communications. (**Completed**)
2. ANN based smart home system for energy savings: design and implementation. (**Completed**)
3. Design of Power Efficient GaN RF Power Amplifier for Wireless Communications. (**Completed**)
4. Controlling Gloves for Robotic Hands: Design and Implementation. (**Completed**)
5. Design of WiMAX Transmitter Using GaN RF Power Amplifier. (**Completed**)
6. Design and Implementation of a Multipurpose Wireless Charger. (**Completed**)
7. Design and implementation of Smart Gloves for Deaf and Dumb People. (**Completed**)
8. Design and Fabrication of GaN Low Noise Amplifier for High Frequency Applications. (**Completed**)
9. Design and Implementation of a Wireless Gloves Controlled Robot. (**Completed**)
10. Smart Parking System for Disabled People: Design and Implementation. (**Completed**)
11. Wireless-Powering and Remote- Monitoring System for Pacemaker Patients: Design and Implementation. (**Completed**)
12. Design and Implementation of VLC Based Data Communication System. (**Completed**)
13. Design and Implementation of High Efficiency WPT System for Portable Devices. (**Completed**)
14. Design and Implementation of IoT Health Care Device. (**Completed**)
15. Artificial Pancreas: Design and Implementation. (**Completed**)
16. Design and Implementation of Robotic for Military applications. (**Completed**)
17. Smart Health Care Device for Diabetic Patients. (**Completed**)
18. Remote Monitoring Device for People under Self-Quarantine Due to COVID-19: Design and Implementation. (**Completed**)
19. Design and Implementation of Portable Emergency Ventilator for COVID-19 Patients. (**Completed**)

20. Smart Driver-Assistance System for Road Safety. **(Completed)**
21. Face Recognition Based Client Service System. **(Completed)**
22. Smart Control System for Greenhouses. **(Completed)**
23. Design and implementation of a system to prevent suffocation of children in a locked car. **(Completed)**
24. Design and Implementation of Contactless Vending Machine. **(Completed)**
25. Design and Implementation of Rescue Robotic Vehicle. **(Completed)**

Master Thesis Co/Supervision

1. Hybrid PSO-Direct Based Small-Signal Modeling of GaN HEMT for Millimeter-Wave Application. **(Master)**
2. Inception-based Image Classification Accelerator on FPGA for Real-Time Applications. **(Master)**
3. Physics-Relevant Small-Signal Modeling of GaN HEMTs using Hybrid PSO-GWO Optimization Technique. **(Master)**
4. A Reconfigurable Wideband GaN LNA for C/X-bands. (in progress)
5. New non-linear microwave network parameters with application to gallium nitride high electron mobility transistor modeling with x-parameters. **(PhD)**
6. Exploring the ML and AI Techniques for the Development of Large Signal Transistor Device Models for Advanced RF Applications. **(PhD)**

Research Activates

1. A Member of the Technical Program Committee of the IEEE International Conferences on Electrical and Computing Technologies and Applications, ICECTA'2018 and ICECTA'2019 AURAK, UAE.
2. Editorial Board Member of International Journal of RF and Microwave Computer-Aided Engineering.
3. Serving as an Evaluator with Natural Sciences and Engineering Research Council of Canada.
4. Serving as an Evaluator with Qatar National Research Fund (QNRF)
5. Serving as an Evaluator with European Quality Assurance
6. Reviewer for the IEEE Access Journal.
7. Reviewer for the IEEE Journal of Electron devices Society.
8. Reviewer for the IEEE Transaction on Electron devices.
9. Reviewer for the IEEE Transaction on Power Electronics.
10. Reviewer for the IEEE Transaction on Microwave Theory and Techniques.
11. Reviewer for the IEEE Transaction on Industrial Electronics.
12. Reviewer for the IEEE Transaction on Circuits and Systems I: Regular Papers
13. Reviewer for the IEEE Transactions on Circuits and Systems II: Express Briefs
14. Reviewer for the IEEE Microwave Wireless Components Letter.
15. Reviewer for International Journal of Circuit Theory and Applications.
16. Reviewer for AEU - International Journal of Electronics and Communications (Elsevier).
17. Reviewer of Microelectronics Journal (Elsevier).
18. Reviewer for the International Journal of RF and Microwave Computer-Aided Engineering.
19. Reviewer of Journal of Electromagnetic Waves and Applications.
20. Reviewer of the International Journal of Electronics Letters.
21. Reviewer of the Journal of Applied Physics A
22. Reviewer for the International Journal of Numerical Modelling: Electronic Networks, Devices and Fields
23. Reviewer for the IET Microwaves, Antennas & Propagation Journal
24. Reviewer for the IET Circuits, devices and Systems.

- 25.** Reviewer for Journal of Science: Advanced Materials and Devices
- 26.** Reviewer for the Scientific Reports Journal
- 27.** Journal of Engineering Applications of Artificial Intelligence