

Mahmoud A. M. Albreem | CV

Department of Electrical Engineering
University of Sharjah, Sharjah 27272 – UAE

☎ +971 5434 670 11

✉ ma_braim@hotmail.com, malbreem@sharjah.ac.ae
in Mahmoud Albreem, SM'IEEE, MIET

Education

Universiti Sains Malaysia <i>PhD, School of Electrical and Electronics engineering</i> <i>Specialization: Wireless Communications and Mobile Systems</i>	Malaysia 2010–2013
Universiti Sains Malaysia <i>MSc, School of Electrical and Electronics engineering</i> <i>Specialization: Electronic Systems Design Engineering</i>	Malaysia 2008–2010
Islamic University of Gaza <i>BEng, Electrical and Computer Engineering Department</i> <i>Specialization: Electrical Engineering</i>	Palestine 2003–2008

Experience

University of Sharjah <i>Assistant Professor</i> Department of Electrical Engineering	UAE 2021 – date
University of Oulu <i>Visiting Assistant Professor</i> Center for Wireless Communications	Finland 2017 – 2021
A'Sharqiyah University <i>Head of Department, Assistant Professor</i> Department of Electronics and Communications Engineering	Oman 2016 – 2021
University Malaysia Perlis <i>Assistant Professor</i> School of Electrical Systems Engineering	Malaysia 2014 – 2016
University Malaysia Perlis <i>Research Associate</i> Center of Excellence for Renewable Energy	Malaysia 2016 – 2017

Universiti Sains Malaysia
Research Fellow
School of Electrical and Electronics Engineering

Malaysia
2011 – 2013

Universiti Sains Malaysia
Teaching Assistant
School of Electrical and Electronics Engineering

Malaysia
2010 – 2011

Universiti Sains Malaysia
Research Assistant
School of Electrical and Electronics engineering

Malaysia
2009– 2010

Administrative Responsibilities

- **Head of Department:** Department of Electronics and Communications Engineering, A'Sharqiyah University [2016-2021].
- **Chairman:** Master of Engineering in Electronics and Communications development Committee, A'Sharqiyah University [2019-2020].
- **Member:** University Academic Board, A'Sharqiyah University [2019-2021].
- **Chairman:** Research committee, College of Engineering, A'Sharqiyah University [2016-2017].
- **Chairman:** Bachelor of Technology in Electrical Engineering program development committee, A'Sharqiyah University [2017-2018].
- **Chairman:** Industry and Community Engagement Adhoc committee, A'Sharqiyah University [2017-2018].
- **Chairman:** Research committee, College of Engineering, A'Sharqiyah University [2016-2017].

Grants

University of Sharjah **UAE**
Status: Ongoing, Budget: 90,000 AED (\approx 25,000 USD\$) 2023 – 2025
Title: Efficient data detection techniques for cell-free massive multiple-input multiple-output (MIMO) in beyond-fifth generation communication systems

University of Sharjah **UAE**
Status: Ongoing, Budget: 33,000 AED (\approx 9,000 USD\$) 2022 – 2024
Title: Data detection based on deep learning (DL) for beyond fifth generation (B5G) communication networks

- The Research Council** **Oman**
Status: Successfully done, Budget: 19,900 Omani Rial ($\approx 51,740$ USD\$) 2020 – 2022
Title: Remediation of petroleum and industrial liquids of Oman groundwater using Cosolvent Flushing and Chemical Oxidation via image analysis
- The Research Council** **Oman**
Status: Successfully done, Budget: 19,400 Omani Rial ($\approx 50,440$ USD\$) 2019 – 2021
Title: Licensed spectrum occupancy analysis and demand forecasting for current and future mobile broadband (MBB) services in Oman
- The Research Council** **Oman**
Status: Successfully done, Budget: 14,000 Omani Rial ($\approx 36,400$ USD\$) 2019 – 2021
Title: Green Internet of Things (IoT): Energy saving practices, impact on the environment, and its awareness in Oman
- The Research Council** **Oman**
Status: Successfully done, Budget: 2,500 Omani Rial (≈ 6500 USD\$) 2019 – 2021
Title: Detection Techniques for Massive MIMO Systems: Enabling Technology of 5G
- The Research Council** **Oman**
Status: Successfully done, Budget: 2,500 Omani Rial ($\approx 6,500$ USD\$) 2019 – 2021
Title: Developing and investigating an Effective Teaching and Learning Framework towards Realizing Smart Higher Education Institutes (HEIs) in Oman: A'Sharqiyah University Case Study
- Nokia Foundation Centennial Grant** **Finland**
Status: Successfully done, Budget: 10,000 € ($\approx 11,400$ USD\$) 2019 – 2019
Title: Detection techniques for massive MIMO systems
- The Research Council** **Oman**
Status: Successfully done, Budget: 2000 Omani Rial ($\approx 5,200$ USD\$) 2018 – 2019
Title: Managing illumination and road island using renewable energy and IoT
- University Grant, A'Sharqiyah University** **Oman**
Status: Successfully done, Budget: 2,000 Omani Rial ($\approx 5,200$ USD\$) 2017 – 2019
Title: Low-complexity sphere detector for massive MIMO
- Fundamental Research Grant Scheme, Ministry of Higher Education** **Malaysia**
Status: Successfully done, Budget: 93800 Malaysian Ringgit (≈ 24000 USD\$) 2015 – 2018
Title: Detection algorithms for fifth generation (5G) cellular systems using Richardson method and minimum mean square estimation (MMSE) algorithm for optimum performance and reduced complexity
- Fundamental Research Grant Scheme, Ministry of Higher Education** **Malaysia**
Status: Successfully done, Budget: 85,000 Malaysian Ringgit ($\approx 22,000$ USD\$) 2015 – 2018
Title: A novel energy encryption technique for wireless power transfer using Chaos theory
- Fundamental Research Grant Scheme, Ministry of Higher Education** **Malaysia**
Status: Successfully done, Budget: 84,300 Malaysian Ringgit ($\approx 21,500$ USD\$) 2014 – 2016

Title: Detection techniques for fourth generation wireless communication using LSD-LMMSE for optimum performance and complexity reduction

University Grant, University Science Malaysia

Status: Successfully done, *Budget:* 10,000 Malaysian Ringgit (\approx 2,500 USD\$)

Title: Lattice sphere detection techniques for block data transmission systems

Malaysia

2010 – 2013

Recognition and Awards

Stanford University

World's Top-Cited Scientists

USA

2021, 2022, 2023

University of Oulu

Nokia Visiting Professors Scholarship

Finland

2019

A'Sharqiyah University (ASU)

Best Researcher Award

Oman

2017, 2019

The Institute of Electrical and Electronics Engineers (IEEE)

Senior member, IEEE (SM'IEEE)

USA

2016

School of Electrical and Electronics Engineering

University Science Malaysia (USM) Fellowship

Malaysia

2011 – 2013

School of Electrical and Electronics Engineering

Gold Medal Award For Best MSc. Student

Malaysia

2010

Taught Courses

- **Courses for under-graduate students:** Signals and Systems, Analog Communication Systems, Digital Communication Systems, Antenna Theory and Propagation, Digital Signal Processing, Wireless and Mobile Communications, Electromagnetic Theory I & II, Computer Programming, Circuits Theory, Complex Variables and Applications, Random Signal Theory, Random Signals and Systems, Engineering Computation and Linear Algebra, Analog Communications Lab, and Digital Communications Lab.
- **Courses for graduate students:** Research Methodology, Signal and Image Processing, Wireless Communications.

Publications [Citations: 2407, h-index: 23]

Book Chapters.....

- Himanshu Sharma, Arun Kumar, and **Mahmoud A. M. Albreem**, "5G-driven Radio Framework for Proficient Smart Health-care Institutions," *Blockchain for 5G Health-care Applications: Security and Privacy Solutions*, pp. 115 – 130, IET Digital Library, https://doi.org/10.1049/PBHE035E_ch5, 2021.
- Mohammed H. Alsharif, Anabi Hilary Kelechi, Imran Khan, **Mahmoud A. M. Albreem**, Abu Jahid, George Mastorakis, and Evangelos K. Markakis, "Machine Learning Algorithms for Smart Data Analysis in the Internet of Things: An Overview," *Intelligent Wireless Communications*, pp. 307 – 330, IET Digital Library, https://doi.org/10.1049/PBTE094E_ch12, 2021.
- **Mahmoud A. M. Albreem**, "Efficient Iterative Massive MIMO Based on Iterative Matrix Inversion Methods," *Design Methodologies and Tools for 5G Network Development and Application*, pp. 175 – 195, IGI Global, <http://doi:10.4018/978-1-7998-4610-9.ch009>, 2021.

Selected Papers.....

- **Mahmoud A. M. Albreem**, S. Abdallah, K. Alnajjar, and M. Aldababsa, "Efficient Detectors for Uplink Massive MIMO Systems," *IEEE Journal of Communications and Networks*, vol. 26, issue: 1, pp. 35–48, 2024.
- S. Abdallah, **Mahmoud A. M. Albreem**, M. Saad, and M. Aldababsa, "Channel Estimation for Full-duplex OFDM-based Ambient Backscatter Communication Systems with I/Q Imbalance," Accepted for publication in *IEEE Transactions on Communications*, vol. xx, pp. xxxx–xxxx, 2024.
- S. Abdallah, A. Salamah, M. Saad, and **Mahmoud A. M. Albreem**, "Asynchronous Ambient Backscatter Communication Systems: Joint Timing Offset and Channel Estimation," Accepted for publication in *IEEE Transactions on Communications*, vol. xx, pp. xxxx–xxxx, 2024.
- A. El-Saleh, A. Sheikh, **Mahmoud A. M. Albreem**, and M. S. Honnurvali, "The Internet of Medical Things (IoMT): Opportunities and Challenges," *Wireless Networks (Springer)*, May. 2024. <https://doi.org/10.1007/s11276-024-03764-8>.
- M. Saad, S. Abdallah, and **Mahmoud A. M. Albreem**, "On Spectrum-Efficient Routing and Power Allocation in a Multihop Network of Passive Backscatter Tags," *IEEE Sensors Journal*, vol. 23, issue: 18, pp. 21924–21935, 2023.
- S. Abdallah, Z. Verboven, M. Saad, and **Mahmoud A. M. Albreem**, "Channel Estimation for Full-duplex Multi-Antenna Ambient Backscatter Communication Systems," *IEEE Transactions on Communications*, vol. 71, pp. 3059–3072, 2023.

- **Mahmoud A. M. Albreem**, K. Alnajjar, and A. Almasadeh "Massive MIMO Detectors Based on Deep Learning, Stair Matrix, and Approximate Matrix Inversion Methods," **IEEE Access**, 2023.
- L. Mucchi, S. Shahabuddin, **Mahmoud A. M. Albreem**, S. Abdallah, S. Caputo, E. Panayiric, and M. Juntti, "Signal Processing Techniques for 6G," **Journal of Signal Processing Systems (Springer)**, vol. 95, pp. 435–457, 2023.
- **Mahmoud A. M. Albreem**, M. Juntti, S. Shahabuddin, S. Abdallah, A. Alhabbash, and E. Almajali, "Data Detection Based on Matrix Decomposition for Massive MIMO Systems in Realistic Channel Scenarios," **Physical Communications (Elsevier)**, vol. 57, pp. 1–11, 2023.
- **Mahmoud A. M. Albreem**, A. Sheikh, M. Bashir, and A. El-Saleh, "Towards Green Internet of Things (IoT) for a Sustainable Future in Gulf Cooperation Council countries: Current Practices, Challenges and Future Prospective," **Wireless Networks (Springer)**, Oct. 2022. <https://doi.org/10.1007/s11276-022-03133-3>.
- **Mahmoud A. M. Albreem**, A. Alhabbash, and A. Hudrouss, "Data Detection in Decentralized and Distributed Massive MIMO Networks," **Computer Communications (Elsevier)**, vol. 189, pp. 79–99, 2022.
- **Mahmoud A. M. Albreem**, A. Alhabbash, Shahriar Shahabuddin, and M. Juntti, "Deep Learning for Massive MIMO Uplink Detectors," **IEEE Communications Surveys & Tutorials**, vol. 24, issue: 1, pp. 741-766, 2022.
- A. Uwaechia, N. Mahyddin, and **Mahmoud A. M. Albreem**, "Beamspace Channel Estimation in Wideband Lens Antenna Array-based mmWave mMIMO-OFDM Systems Under Beam Squint," **Physical Communication (Elsevier)**, vol. 50, issue: 61, pp. 1-14, 2022.
- A. Alhabbash, A. Hudrouss, M. El Astal, **Mahmoud A. M. Albreem**, and S. Ikki, "Extended Signed Quadrature Spatial Modulation System with Multi-User Support," **IEEE Transactions on Broadcasting**, vol. 67, no. 4, pp. 868–878, 2021.
- **Mahmoud A. M. Albreem**, A. Alhabbash, A. Hudrouss, and S. Ikki, "Overview of Precoding Techniques for Massive MIMO," **IEEE Access**, vol. 9, pp. 60764 - 60801, 2021
- **Mahmoud A. M. Albreem**, W. Salah, A. Kumar, M. Alsharif, A. Rambe, M. Jusoh, and A. Uwaechia, "Low Complexity Linear Detectors for Massive MIMO: A Comparative Study," **IEEE Access**, vol. 9, pp. 45740-45753, 2021
- **Mahmoud A. M. Albreem**, A. Sheikh, M. Alsharif, M. Jusoh, and M. Yasin, "Green Internet of Things (GIoT): Applications, Practices, Awareness, and Challenges," **IEEE Access**, vol. 9, pp. 38833-38858, 2021.

- Mohammed Alsharif, K. Raju, A. Jahid, **Mahmoud A. M. Albreem**, J. Nebhan, and B. Choi, "Long-Term Techno-Economic Feasibility of Sustainable Zero Grid Green Cellular Base Stations," **IEEE Access**, vol. 9, pp. 54159-54172, 2021.
- **Mahmoud A. M. Albreem**, "A Low Complexity Detector For Massive MIMO Uplink Systems," **National Academy Science Letters (Springer)**, doi.org/10.1007/s40009-020-01034-7,2021.
- **Mahmoud A. M. Albreem**, M. Juntti, and Shahriar Shahabuddin, "Efficient Initialization of Iterative Linear Massive MIMO Detectors Using A Stair Matrix," **IET Electronics Letters**, vol. 56, issue: 1, pp. 50-52, 2020.
- Arun Kumar **Mahmoud A. M. Albreem**, Manoj Gupta, Mohammed Alsharif, Sunghwan Kim, "Future 5G Network Based Smart Hospitals: Hybrid Detection Technique For Latency Improvement," **IEEE Access**, vol. 8, pp. 153240-153249, 2020.
- **Mahmoud A. M. Albreem** and K. Vasudevan, "Efficient Hybrid Linear Massive MIMO Detector Using Gauss-Seidel and Successive Over-Relaxation," **International Journal of Wireless Information Networks (Springer)**, vol. 27, issue: 4, pp. 551 - 557, 2020.
- **Mahmoud A. M. Albreem**, M. Juntti and Shahriar Shahabuddin, "Massive MIMO Detection Techniques: A Survey," **IEEE Communications Surveys & Tutorials**, vol. 21, issue: 4, pp. 3109-3132, 2019.
- **Mahmoud A. M. Albreem** and M. F. M. Salleh, "Radius Selection For Lattice Sphere Decoder-Based Block Data Transmission Systems," **Wireless Networks (Springer)**, vol. 22, issue: 2, pp. 655-662, 2016.
- **Mahmoud A. M. Albreem** and Nur Afiqah Hani, "A Review: Detection Techniques For LTE System," **Telecommunication Systems (Springer)**, vol. 63, issue:2, pp. 153-168, 2016.
- **Mahmoud A. M. Albreem**, "An Efficient Lattice Sphere Decoding Technique For Multi-Carrier Systems," **Wireless Personal Communications (Springer)**, vol. 82, issue: 3, pp. 1825-1831, 2015.
- **Mahmoud A. M. Albreem** and M. F. M. Salleh, "Regularized Lattice Sphere Decoding For Block Data Transmission Systems," **Wireless Personal Communications (Springer)**, vol. 82, issue: 3, pp. 1833-1850, 2015.
- **Mahmoud A. M. Albreem** and M. F. M. Salleh, "Lattice Sphere Decoding Technique For Block Data Transmission Systems With Special Channel Matrices," **Wireless Personal Communications (Springer)**, vol. 79, issue: 1, pp. 265-277, 2014.

Other Papers in Indexed & Peer Reviewed Journals.....

- A. Obadi, A. Hussein, S. Al-Bawri, K. Hossain, A. Abdulhameed, M. Jusoh, T. Sabapathy, A. Al-Ghuri, and **Mahmoud A. M. Albreem**, "High-Bandwidth, Low-Power CMOS Transistor Based CAB for Field Programmable Analog Array," *Computers, Materials & Continua (CMC)*, vol. 74, no. 3, pp. 5885-5900, 2022.
- M. Elhefnawy and **Mahmoud A. M. Albreem**, "Low Complexity Linear Detectors for Massive MIMO with Several Antenna Array Configurations: A Comparative Study," **International Journal of Electrical and Electronic Engineering & Telecommunications**, vol. 11, issue: 6, pp. 410-418, 2022.
- J Iqbal, U. Illahi, M. Yasin, **Mahmoud A. M. Albreem**, and M. Akbar, "Bandwidth Enhancement by Using Parasitic Patch on Dielectric Resonator Antenna for Sub-6 GHz 5G NR Bands Application," **Alexandria Engineering Journal (Elsevier)**, vol. 61, no. 6, pp. 5021-5032, 2022.
- Arun Kumar, R. Dhanagopal, **Mahmoud A. M. Albreem**, and Dac-Nhuong Le, "A comprehensive Study on the Role of Advanced Technologies in 5G Based Smart Hospital," **Alexandria Engineering Journal (Elsevier)**, vol. 60, no. 6, pp. 5527-5536, April 2021.
- I. Ahmad, H. Dildar, W. Khan, S. Shah, S. Ullah, S. Ullah, S. Umar, **Mahmoud A. M. Albreem**, M. Alsharif, and K. Vasudevan, "Design and Experimental Analysis of Multiband Compound Reconfigurable 5G Antenna for Sub-6 GHz Wireless Applications," **Wireless Communications and Mobile Computing (Hindawi)**, vol. 2021, pp. 1-14, 2021.
- K. Cengiz, I Baig, S. Chakravarty, A. Kumar, **Mahmoud A. M. Albreem**, M. Alsharif, and P. Uthansakul, J. Nebhaen, and A. Aly, "Power Domain Multiplexing for 5G Wireless Networks," *Computers, Materials & Continua (CMC)*, vol. 70, no. 1, pp. 2083-2095, 2021.
- M. Alsharif, K. Raju, A. Jahid, **Mahmoud A. M. Albreem**, P. Uthansakul, and J. Nebhan, "Optimal Cost-Aware Paradigm for Off-Grid Green Cellular Networks in Oman," *Computers, Materials & Continua (CMC)*, vol. 68, no. 2, pp. 2665-2680, 2021.
- I. Ahmad, H. Dildar, W. Khan, S. Ullah, **Mahmoud A. M. Albreem**, M. Alsharif, and P. Uthansakul, "Frequency Reconfigurable Antenna for Multi Standard Wireless and Mobile Communication Systems," *Computers, Materials & Continua (CMC)*, vol. 68, no. 2, pp. 2563-2578, 2021.
- A. Jahid, M. Alsharif, K. Raju, **Mahmoud A. M. Albreem**, P. Uthansakul, and J. Nebhan, "Adaptive Cell Zooming Strategy Towards Next-Generation Cellular Networks with Joint Transmission," Accepted for publication in *Computers, Materials & Continua (CMC)*, 2021.
- M. Alsharif, **Mahmoud A. M. Albreem**, A. Jahid, K. Raju, P. Uthansakul, J. Nebhan, and V. Chandrasekaran "Powering Mobile Networks with Optimal Green Energy for Sustainable Development," Accepted for publication in *Computers, Materials & Continua (CMC)*, 2021.

- M. Alsharif, A. Jahid, **Mahmoud A. M. Albreem**, J. Nebhan, P. Uthansakul, and K. Yahya, "Toward Optimal Cost-Energy Management Green Framework for Sustainable Future Wireless Networks," *Computers, Materials & Continua (CMC)*, Vol.68, No.1, pp. 1321-1339, 2021.
- S. Ullah, I. Ahmad, W. Khan, T. Ahmad, U. Habib, **Mahmoud A. M. Albreem**, M. Alsharif, and P. Uthansakul, "Frequency Reconfigurable Antenna for Portable Wireless Applications," *Computers, Materials & Continua (CMC)*, vol. 68, no. 3, 2021.
- A. Kumar, **Mahmoud A. M. Albreem**, M. Alsharif, and P. Uthansakul, "An Efficient Genetic Hybrid PAPR Technique For 5G Waveforms," *Computers, Materials & Continua (CMC)*, vol. 67, no. 3, pp. 3283-3292, 2021.
- M. Alsharif, **Mahmoud A. M. Albreem**, A. Solyman, and S. Kim, "Toward 6G Communication Networks: Terahertz Frequency Challenges And Open Research Issues," *Computers, Materials & Continua (CMC)*, vol. 66, no. 3, 2021.
- M. Alsharif, Y. Alsharif, **Mahmoud A. M. Albreem**, A. Jahid, A. Solyman, K. Yahya, O. Alomari, and M. Hossain, "Applications of machine intelligence technology in the detection of vaccines and medicines for SARS-CoV-2," *European Review for Medical and Pharmacological Sciences*, vol. 24, issue: 22, pp. 11977-11981, 2020.
- M. Alsharif, Y. Alsharif, K. Yahya, **Mahmoud A. M. Albreem**, O. Alomari, and A. Jahid, "Deep learning applications to combat the dissemination of COVID-19 disease: a review," *European Review for Medical and Pharmacological Sciences*, vol. 24, issue: 21, pp. 11455-11460, 2020.
- M. Alsharif, Y. Alsharif, S. Chaudhry, **Mahmoud A. M. Albreem**, A. Jahid, and E. Hwang "Artificial intelligence for diagnosing COVID-19 cases: a review of substantial issues," *European Review for Medical and Pharmacological Sciences*, vol. 24, issue: 17, pp. 9226-9233, 2020.
- S. Bashir, M. Alsharif, I. Khan, **Mahmoud A. M. Albreem**, A. Sali, B. Ali, and W. Noh, "MIMO-Terahertz in 6G nano-communications: channel modeling and analysis," *Computers, Materials & Continua (CMC)*, vol. 66, no. 1, 2020.
- **Mahmoud A. M. Albreem**, A. Kumar, M. Alsharif, I. Khan, and B. Choi "Comparative analysis of data detection techniques for 5G massive MIMO systems," *Sustainability (MDPI)*, 2020.
- M. Alsharif, A. Kelechi, **Mahmoud A. M. Albreem**, S. Chaudhry, M. Zia, and S. Kim, "Sixth generation (6G) wireless networks: vision, research activities, challenges and potential solutions," *Symmetry (MDPI)*, 2020.
- **Mahmoud A. M. Albreem**, M. Alsharif, and S. Kim, "A low complexity near-optimal iterative linear detector for massive MIMO in realistic radio channels of 5G communication systems," *Entropy (MDPI)*, 2020.

- **Mahmoud A. M. Albreem**, M. Alsharif, and S. Kim, "A robust iterative hybrid linear detector for massive MIMO uplink systems," *Symmetry (MDPI)*, vol. 12, no.2, pp. 1–12, 2020.
- **Mahmoud A. M. Albreem**, M. Alsharif, and S. Kim, "Impact of stair and diagonal matrices in iterative linear massive MIMO uplink detectors for 5G wireless networks," *Symmetry (MDPI)*, 2020.
- W. Salah, **Mahmoud A. M. Albreem**, B. Zneid, "Implementation of smart house digital applications for safety and health," *Journal of Engineering Science and Technology (JESTEC)*, vol. 15, issue: 4, 2020.
- S. Mohammed, M. Alsharif, S. Gharghan, I. Khan, and **Mahmoud A. M. Albreem**, "A robust hybrid beamforming scheme for millimeterwave massive MIMO 5G Wireless Networks," *Symmetry (MDPI)*, vol. 11, issue: 11, pp. 1-18, 2019.
- S. Jen, M. Jusoh, T. Sabapathy, S. Albawri, M. Najib, H. Rahim, T. Latef, **Mahmoud A. M. Albreem**, and M. Osman, "Analysis of electronically reconfigurable beam steering antenna array using phase shifter technique," *Journal of Physics*, vol. 1339, issue: 1, pp. 1-8, 2019.
- W. Salah, B. Alsayid, **Mahmoud A. M. Albreem**, B. Zneid, M. Alkhasawneh, A. Mofleh, A. Sneineh, and A. Aish "Electric vehicle technology impacts on energy," *International Journal of Power Electronics and Drive System*, vol. 10, issue: 1, pp. 1-9, 2019.
- N. H. Hussin, M. Azizan, A. Ali, and **Mahmoud A. M. Albreem**, "Comparison of performance based on distance of energy encryption in medium field wireless power transfer," *International Journal of Recent Technology and Engineering*, vol. 7, no. 4, 2018.
- **Mahmoud A. M. Albreem**, Rosnita Md Aspan, "Micro hydropower system design for Gua Kelam electricity supply," *International Journal of Applied Power Engineering*, vol. 7, no. 2, 2018.
- **Mahmoud A. M. Albreem**, SPK Babu, and M. F. M. Salleh, "Hybrid Micro Genetic Algorithm Assisted Optimum Detector for Multi-Carrier Systems," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 9, no. 2, 2018.
- N. H. Hussin, M. M. Azizan, A. Ali and **Mahmoud A. M. Albreem**, "Encryption techniques and wireless power transfer schemes," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 9, no. 1, 2018.
- N. H. Hussin, M. M. Azizan, A. Ali and **Mahmoud A. M. Albreem**, "Performance of Energy Encryption in Medium Field for Wireless Power Transfer Systems," *International Journal on Advanced Science, Engineering and Information Technology*, vol. 7, issue: 5, 2017.

- Omar Faez Yousif, Muataz Hameed Salih, **Mahmoud A. M. Albreem**, "Design and implementation of laser missile jamming system using spatial parallelism on FPGA for better performance and throughput," *ARNP Journal of Engineering and Applied Sciences*, vol. 11, no. 17, 2016.
- **Mahmoud A. M. Albreem** and Azuwa Binti Ali, "Reduced complexity optimum detector for block data transmission system using A_n lattice sphere detection technique," *Applied Mechanics and Materials*, vol. 793, pp. 523-529, 2015.
- **Mahmoud A. M. Albreem** and M. F. M. Salleh, "Near- A_n -lattice sphere decoding technique assisted optimum detection for block data transmissions systems," *IEICE Transactions on Communications*, vol. E96-B, No. 01, pp. 356-359, 2013.
- **Mahmoud A. M. Albreem** and Shahrel Suandi, "A novel computation technique for single and multiface detection using Euclidean distance and principal component analysis," *Journal of Engineering Science and Technology (JESTEC)*, vol. 7, issue: 5, pp. 648-664, 2012.
- **Mahmoud A. M. Albreem**, M. F. M. Salleh, and S. Babu, "Reduced complexity optimum detector for block data transmission systems using lattice sphere decoding technique," *IEICE Electron. Express (ELEX)*, vol. 8, pp. 644-649, 2011.

International Conferences & Proceedings.....

- A. Suliman, A. Humaidi, M. Eid, **Mahmoud A. M. Albreem**, and S. Ansari "An Efficient Massive MIMO Detector Based on Deep Learning and Approximate Matrix Inversion Methods," 2023 IEEE International Conference on Smart Applications, Communications and Networking (SmartNets), Istanbul, Turkey, 2023.
- A. Almasadeh, K. Alnajjar, and **Mahmoud A. M. Albreem**, "Deep Learning Applications in MIMO Systems," 2023 IEEE International Conference on Smart Applications, Communications and Networking (SmartNets), Istanbul, Turkey, 2023.
- A. Almasadeh, K. Alnajjar, and **Mahmoud A. M. Albreem**, "Enhanced Deep Learning for Massive MIMO Detection Using Approximate Matrix Inversion," 2022 IEEE International Conference on Communications, Signal Processing, and their Applications (ICCSPA), 2022.
- **Mahmoud A. M. Albreem**, A. El-Saleh, and A. Sheikh, "Towards a Sustainable Environment with a Green IoT: An Overview," 2022 International Conference on Computer Technologies, Melaka, Malaysia, 2022.
- S. Berra, **Mahmoud A. M. Albreem**, Maha Malek, Rui Dinis, Xingwang Li, and Khaled M. Rabie, "A Low-Complexity Soft-Output Signal Data Detection Algorithm for UL Massive MIMO Systems," 2021 International Conference on Computer, Information and Telecommunication Systems (CITS), Istanbul, Turkey, 2021.

- S. Shahabuddin, **Mahmoud A. M. Albreem**, M. Shahabuddin, and M. Juntti, "FPGA implementation of stair matrix based massive MIMO detection," 2021 IEEE Latin America Symposium on Circuits and System, Arequipa, Peru, 2021.
- S. Shahabuddin, M. Islam, M. Shahabuddin, **Mahmoud A. M. Albreem** and M. Juntti, "Matrix decomposition for massive MIMO detection," 2020 IEEE Nordic Circuits and Systems Conference (NORCAS'2020), Oslo, Norway, 2020.
- **Mahmoud A. M. Albreem** and M. Juntti, "Linear massive MIMO uplink detector based on joint Jacobi and Gauss-Seidel methods," 2020 IEEE Design of Reliable Communication Networks (DRCN'2020), Milan, Italy, 2020.
- S. Berra, **Mahmoud A. M. Albreem** and M. Abed, "A low complexity linear precoding method for massive MIMO," 2020 IEEE International Conference on UK-China Emerging Technologies (UCET'2020), Glasgow, UK, 2020.
- **Mahmoud A. M. Albreem**, "Approximate matrix inversion methods for massive MIMO systems," 2019 IEEE International Symposium on Consumer Technologies (ISCT'2019), Ancona, Italy, 2019.
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