# KHAIZURAN BIN ABDULLAH

- KULLIYYAH OF ENGINEERING
- IIUM Gombak Campus
- Email address: khaizuran@iium.edu.my

## KELAYAKAN AKADEMIK

- Electrical Engineering
- Master of Engineering (Electrical)
- Electrical Engineering

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### TANGGUNGJAWAB MENGAJAR

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| ADAPTIVE SIGNAL PROCESSING | 2011/2012 2012/2013 2013/2014 |
| COMMUNICATION ENGINEERING | 2004/2005 2009/2010 2010/2011 |
| COMMUNICATION ENGINEERING LAB IV | 2012/2013 2013/2014 |
| COMMUNICATIONS ENGINEERING I | 2009/2010 2010/2011 2011/2012 |
| COMMUNICATIONS ENGINEERING LAB I | 2009/2010 2010/2011 2011/2012 2018/2019 2019/2020 |
| COMMUNICATIONS LAB | 2003/2004 |
| DIGITAL SIGNAL PROCESSING | 2009/2010 |
| ELECTRIC CIRCUITS | 2013/2014 |
| ENGINEERING ETHICS FROM ISLAMIC PERSPECTIVE | 2019/2020 |
| ENGINEERING LAB I | 2010/2011 2014/2015 |
| FINAL YEAR PROJECT I | 2018/2019 2019/2020 |
| FUNDEMENTAL OF COMMUNICATION ENGINEERING | 2011/2012 2014/2015 |
| MOBILE COMMUNICATION | 2014/2015 2015/2016 |
| MOBILE COMMUNICATIONS | 2011/2012 2012/2013 2013/2014 2014/2015 2015/2016 2017/2018 2018/2019 2019/2020 2020/2021 |
| PROGRAMMING FOR ENGINEERS | 2010/2011 2011/2012 2012/2013 2017/2018 |
| PROJECT I | 2018/2019 |

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| SELECTED TOPICS IN COMMUNICATION ENGINEERING | 2018/2019 |
| SEMINAR | 2004/2005 |
| SIGNALS AND SYSTEMS | 2003/2004 2004/2005 2017/2018 2020/2021 |
| WIRELESS COMMUNICATION SYSTEMS | 2019/2020 |
| WIRELESS TECHNOLOGY | 2015/2016 |
| Wireless Communications | 2018/2019 2019/2020 2020/2021 |

## PROJEK PENYELIDIKAN

### In Progress

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|---|---|
| **2020 - Present** | Industry@University: 4IR Competence Centre |
| **2019 - Present** | Decision and Game Theory based Comprehensive Tactical Modelling of Node Misbehaviour for Threat Computing in MANET based IoT System |
| **2018 - Present** | Investigation of Techniques to Mitigate Interference in Multi-Tiers Heterogeneous Wireless Network |
| **2018 - Present** | An investigation of low cost and energy efficient 3D hybrid beamforming technique of 3D antenna array for 5G standards |
| **2018 - Present** | A hybrid-Discrete Wavelet Transform for New Diversity Technique in Millimeter Wave 5G System with Energy Harvesting |
| **2017 - Present** | The Design of Hybrid Precoding Technique for Multiuser mm-Wave MIMO System |
| **2016 - Present** | The Investigation and Application of Statistical Process Control in Controlling Perceptual Speech Quality |
| **2016 - Present** | Ingenious Technique to Diminish Peak Average Power Ratio (PAPR) Obstacle in the Future 5th Generation (5G) Wireless Systems |
| **2011 - Present** | IIUM STRATEGIC TECHNOLOGIES AND ENGINEERING UNIT (ISTEU) |
| **2008 - Present** | Intelligent Cyberspace Security |

### Completed

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| **2016 - 2020** | An Investigation to Identify Possible Technological Challenges in the 5G Wireless Heterogeneous Network |
| **2016 - 2019** | The Investigation and Application of Statistical Process Control in Controlling Perceptual Speech Quality |

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| **2016 - 2019** | RF Characterization Enhancement of Material for 3D Printing Application |
| **2013 - 2016** | Measurement of Landslide Properties Using FMCW Radar |
| **2013 - 2016** | 3-D Spherical Antenna Array |
| **2013 - 2016** | Novel Algorithm Error Control Codes for Interference Suppression in Orthogonal Frequency Division Mulplexing System |
| **2012 - 2015** | Estimation of Specific Attenuation Radar Reflectivity ( Y-Z ) Relation using Razaksat's Signal Readings and Multi-Parameter Weather Radar Measurements |
| **2012 - 2016** | Correction of Radar Reflectivity and Differential for Improved Estimation of rainfall Rate at S-Band Wavelength |
| **2012 - 2015** | Femtocell Interference Assessments in Orthogonal Frequency Division Multiplexing Access (OFDMA) System |
| **2011 - 2013** | RU 2011: Novel Mitigation Techniques for Narrowband Interference in Wavelet Based Orthogonal Frequency Division Multiplexing |
| **2011 - 2015** | Development of Spectrum Utilisation Database |
| **2010 - 2013** | Novel Algorithms on Speech and Audio Coding Based on Compressive Sensing Principle |
| **2010 - 2013** | Surveillance system using webcam for mobile phone users |
| **2010 - 2012** | Modeling and Development of Dual Function Wide-band EDFA |
| **2010 - 2012** | Position-based quality of service (QoS) multicast Routing Protocol for Mobile Ad-Hoc Networks |
| **2009 - 2011** | Wavelet based OFDM System with an Application of Image Processing |

## PENERBITAN

**Article**

| | |
|---|---|
| **2020** | Modification of distance factor in rain attenuation prediction for short-range millimeter-wave links. IEEE Antennas and Wireless Propagation Letters , 19 (6) pp.1027-1031 |
| **2020** | Rain attenuation for 5G network in tropical region (Malaysia) for terrestrial link. Progress In Electromagnetics Research Letters , 90 pp.99-104 |
| **2019** | SIC-MMSE method based wireless precoding technique for millimetre-wave MIMO system. Indian Journal of Science and Technology , 12 (9) pp.1-11 |
| **2019** | A wireless precoding technique for millimetre-wave MIMO system based on SIC-MMSE. Telkomnika (Telecommunication Computing Electronics and Control) , 18 (2) pp.2782-2789 |

**2019** [Adaptive control of nonlinear system based on QFT application to 3-DOF flight control system.](#) Telkomnika (Telecommunication Computing Electronics and Control) , 17 (5) pp.2595-2606

**2019** [Diversity technique using discrete wavelet transform in OFDM system.](#) International Journal of Engineering and Advanced Technology , 8 (2) pp.284-287

**2019** [Designing large-scale antenna array using sub-array.](#) Bulletin of Electrical Engineering and Informatics , 8 (3) pp.906-915

**2019** [Performance of BER with different diversity techniques for millimeter-wave communication system.](#) International Journal of Innovative Technology and Exploring Engineering , 8 (6S4) pp.1149-1152

**2019** [Hybrid precoding design using MMSE baseband precoder for mm-wave multi-user MIMO systems.](#) International Journal of Recent Technology and Engineering ( IJRTE ) , 8 (2S11) pp.3486-3490

**2018** [Performance comparison of DFT, DCT and DWT based OFDM with wavelet family to minimize PAPR.](#) Journal of Fundamental and Applied Sciences , 10 (2 (Special issue)) pp.138-150

**2018** [Interference avoidance using dynamic frequency reuse for LTE-A system.](#) International Journal of Engineering & Technology , 7 (3.7) pp.1-3

**2017** [Null positioning of dipole antenna array considering coupling effect.](#) International Journal on Communications Antenna and Propagation , 7 (5) pp.370-377

**2017** [Dynamic frequency reuse: a method for interference mitigation in OFDMA Based LTE-A Networks.](#) International Journal of Future Generation Communication and Networking , 10 (4) pp.11-18

**2017** [Hybrid MMSE precoding for Millimeter-Wave (mmW) Multi-user Massive MIMO systems.](#) International Journal of Future Generation Communication and Networking , 10 (5) pp.29-38

**2015** [GAMMA shaped monopole patch antenna for tablet PC.](#) ARPN Journal of Engineering and Applied Sciences , 10 (23) pp.17433-17437

**2015** [Cognitive power adjustment for OFDM-based wireless communication system: an empirical study .](#) Lecture Notes on Software Engineering , 3 (1) pp.35-39

**2015** [Performance evaluation of joint path and spectrum diversity based routing protocol in Cognitive Radio Ad Hoc Networks under critical conditions .](#) Research Journal of Applied Sciences, Engineering and Technology , 10 (6) pp.694-700

**2015** [RACARP: a robustness aware routing protocol for cognitive radio ad hoc networks.](#) Journal of Theoretical and Applied Information Technology , 76 (2) pp.246-257

**2015** [Gamma shaped monopole patch antenna for tablet PC.](#) ARPN Journal of Engineering and Applied Sciences , 10 (23) pp.17433-17350

**2014** [A modified rain attenuation prediction model for tropical V-band satellite earth link.](#) International Journal of Satellite Communications and Networking , 32 (1) pp.1-11

**2014** [Performance analysis of interference coordination techniques in heterogeneous network.](#) Research Journal of Applied Sciences, Engineering and Technology , 7 (8) pp.1536-1550

**2014** [Effect of modulation technique in Mach-Zehnder Modulator (MZM) in optical OFDM system.](#) International Journal of Computer Networks and Wireless Communications (IJCNWC) , 4 (4) pp.257-263

**2014** [The use of convolutional code for narrowband interference suppression in OFDM-DVBT System.](#) ARPN Journal of Engineering and Applied Sciences , 9 (8) pp.1183-1189

**2014** [FTCARP: a fault-tolerant routing protocol for Cognitive Radio Ad Hoc Networks .](#) KSII Transactions on Internet and Information Systems , 8 (2) pp.371-388

**2013** [The performance evaluation of AODV-based and DSR-based multi-radio routing protocols in cognitive radio Ad Hoc network.](#) Research Journal of Applied Sciences, Engineering and Technology , 6 (7) pp.1276-1282

**2013** [Rain fade estimations for the X-Band satellite communication link in the tropics.](#) International Journal of Computer and Communication Engineering , 2 (4) pp.408-412

**2013** [Predicting radio frequency radiation from mobile communication base stations.](#) International Journal of Computer and Communication Engineering , 2 (4) pp.482-486

**2013** [Mobile multicast in hierarchical proxy mobile IPV6.](#) IOP Conference Series: Materials Science and Engineering , 5 pp.012078-1-5

**2013** [A comprehensive study of routing protocols for cognitive radio networks.](#) Journal of Theoretical and Applied Information Technology , 47 (2) pp.1-16

**2013** [Performance analysis of multi-radio routing protocol in cognitive radio ad hoc networks under different path failure rate.](#) IOP Conference Series: Materials Science and Engineering , 53 pp.012044-1

**2012** [Development of low bit rate speech encoder based on vector quantization and compressive sensing.](#) Journal of Applied Sciences pp.1-11

**2012** [Analyses of worst month rain fade for ku band(26Ghz) in the tropics.](#) Radiomatics Journal on Communications Engineering , 3 (2) pp.22-27

**2009** [Performance analysis of an optimal circular 16-QAM for Wavelet Based OFDM Systems.](#) International Journal of Communications, Network and System Sciences , 2 (9) pp.836-844

### Conference or Workshop Item

**2020** [Performance of MIMO DWT for millimeter wave communication system.](#) **In: 14th IEEE Malaysia International Conference on Communication, MICC 2019**

**2019** [Enhancing cloud data security using hybrid of advanced encryption standard and Blowfish encryption algorithms.](#) **In: 2nd East Indonesia Conference on Computer and Information Technology, EIConCIT 2018**

**2019** [Performance of MIMO DWT for millimeter wave communication system.](#) **In: 2019 IEEE 14th Malaysia International Conference on Communication (MICC), 2-4 December 2019**

| 2018 | Rain attenuation for 5G network in tropical region (Malaysia) for terrestrial link. In: 13th IEEE Malaysia International Conference on Communications, MICC 2017 |
| --- | --- |
| 2018 | Scalability analysis for designing large-scale antenna array using sub-array. In: 2018 7th International Conference on Computer and Communication Engineering (ICCCE) |
| 2018 | Specific rain attenuation analysis and modeling For 5G communication. In: 7th International Conference on Computer and Communication Engineering (ICCCE) 2018 |
| 2017 | Advanced inter-cell interference management technologies in 5G wireless Heterogeneous Networks (HetNets). In: 14th Student Conference on Research and Development, IEEE (SCOReD2016) |
| 2017 | Optimum concentric circular array antenna with high gain and side lobe reduction at 5.8 GHz. In: 6th International Conference on Mechatronics - ICOM'17 |
| 2017 | Inter cell interference mitigation technique in femtocell and macrocell in LTE system. In: 14th Student Conference on Research and Development, IEEE (SCOReD2016) |
| 2017 | Interference avoidance using dynamic frequency reuse for LTE-A system. In: MDSG Conferences Penang 2017 |
| 2017 | Hybrid precoding design using MMSE baseband precoder for mm-wave multi-user MIMO systems. In: Malaysia Doctorate Support Group Conference 2017 (MDSG Conferences 2017) |
| 2016 | Frequency diversity improvement factor for rain fade at terrestrial link in tropical region. In: 6th International Conference on Computer and Communication Engineering (ICCCE 2016) |
| 2016 | QoS downlink schedulers in LTE towards 5G network. In: 12th IEEE Malaysia International Conference on Communication (MICC 2015) |
| 2016 | Wireless smart health monitoring system via mobile phone. In: 6th International Conference on Computer and Communication Engineering (ICCCE 2016) |
| 2016 | Case study of rain attenuation At 26 GHz in tropical region (Malaysia) for terrestrial link. In: The 12th IEEE 12th Malaysia International Conference on Communications (MICC 2015) |
| 2015 | Energy efficient modulation technique on 10Gb/s coherent detection optical OFDM. In: 2015 Information and Communication Technology Convergence (ICTC 2015) |
| 2015 | U-slot rectangular patch antenna for dual band application. In: International Conference on Communication and Computer Engineering (ICOCOE 2014) |
| 2015 | Frequency diversity improvement factor for rain fade mitigation in Malaysia. In: The IEEE International Women in Engineering (WIE) Conference on Electrical and Computer Engineering 2015 (WIECON-ECE 2015) |
| 2015 | Gamma shaped monopole patch antenna for tablet PC. In: The International Postgraduate Conference on Engineering Research (IPCER 2015) |

**2015**   QOS downlink schedulers in LTE towards 5G network. **In: The 12th IEEE Malaysia International Conference on Communications (MICC 2015)**

**2014**   Self-organizing joint sensing and power allocation scheme (SJSPA) to coordinate cross-tier interference for LTE-A heterogeneous networks. **In: 2014 2nd IEEE International Symposium on Telecommunication Technologies (ISTT2014)**

**2014**   Assessment of ITU-R predictions for ku-band rain attenuation in Malaysia. **In: 2014 IEEE International Symposium on Telecommunication Technologies (ISTT)**

**2014**   E-D2CARP: a joint path and spectrum diversity based routing protocol with an optimized path selection for cognitive radio ad hoc networks. **In: 2nd IEEE International Symposium on Telecommunication Technologies (ISTT 2014)**

**2014**   Rain attenuation prediction for higher frequencies in microwave communication using frequency scaling technique. **In: 5th International Conference on Computer and Communication Engineering**

**2014**   Design of embedded parallel resonant circuit multiband microstrip patch antenna for tablet PC. **In: 5th International Conference on Computer and Communication Engineering (ICCCE 2014)**

**2014**   Analysis of the synthetic storm technique using rain height models to predict rain attenuation in tropical regions. **In: 5th International Conference on Computer and Communication Engineering (ICCCE 2014)**

**2014**   An efficient modulation technique to mitigate nonlinearities in optical OFDM. **In: Australasian Telecommunication Networks and Applications Conference (ATNAC), 2014**

**2014**   BER performance of OFDM system with the effect of error control code. **In: Australasian Telecommunication Networks and Applications Conference (ATNAC), 2014**

**2013**   Rain analysis on Ka-Band for terrestrial link point to point communication in Malaysia. **In: 2013 IEEE 11th Malaysia International Conference on Communication (MICC 2013)**

**2013**   Inter-cell interference coordination in LTE-A HetNets: a survey on self organizing approaches. **In: 2013 International Conference on Computing, Electrical and Electronics Engineering (ICCEEE)**

**2013**   Lightweight inter-cluster synchronization scheme for femtocell network. **In: 2013 International Conference on Computing, Electrical and Electronics Engineering (ICCEEE)**

**2013**   Impulsive noise mitigation in Haar DWT based OFDM systems. **In: 2013 IEEE 11th Malaysia International Conference on Communications**

**2013**   Performance analysis of two component carrier selection algorithms in the downlink LTE-A. **In: 2013 IEEE 11th Malaysia International Conference on Communications**

| 2013 | [Inter-cell interference coordination in heterogeneous network: a qualitative and quantitative analysis.](#) **In: 11th Malaysia International Conference on Communications** |
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| 2012 | [Analyses of rain fade countermeasure technique time diversity at 26 GHz.](#) **In: 2012 IEEE Asia-Pacific Conference Antennas and Propagation (APCAP)** |
| 2012 | [Pre-FFT and post-FFT adaptive antenna array for OFDM transmission over cognitive radio network.](#) **In: International Conference on Computer and Communication Engineering, ICCCE 2012** |
| 2012 | [A study of packet scheduling with mobile cellular channel impairments.](#) **In: International Conference on Computer and Communication Engineering, ICCCE 2012** |
| 2012 | [Performance evaluation of uncoordinated beamforming over cognitive radio network.](#) **In: 2012 International Symposium on Telecommunication Technologies (ISTT 2012)** |
| 2012 | [A study of packet scheduling with mobile cellular channel impairments.](#) **In: International Conference on Computer and Communication Engineering (ICCCE 2012)** |
| 2012 | [An investigation of packet scheduling algorithms for long term evolution-advanced.](#) **In: 2012 IEEE Conference on Open Systems (ICOS)** |
| 2011 | [Effects of Impulsive Noise on Fourier Based OFDM and Wavelet Based OFDM.](#) **In: ICACSIS 2011** |
| 2011 | [Impulsive noise effects on DWT-OFDM versus FFT-OFDM.](#) **In: The 17th Asia Pacific Conference on Communications** |
| 2010 | [An optimal circular 16-QAM modulation technique for wavelet and fourier based OFDM.](#) **In: International Conference on Computer and Communication Engineering (ICCCE 2010)** |
| 2010 | [Design and optimization of linear array antenna based on the analysis of direction of arrival (DOA) estimation and beamforming algorithms.](#) **In: International Conference on Computer and Communication Engineering (ICCCE 2010)** |
| 2010 | [Rain fade characteristics analyses for V-band link in tropical region.](#) **In: 2010 International Conference on Microwave and Millimeter Wave Technology (ICMMT)** |
| 2008 | [An interference cancellation algorithm for fourier-based and wavelet-based OFDM systems.](#) **In: International Conference on Advanced Technologies for Communications** |
| 2007 | [Performance of fourier-based and wavelet-based OFDM for DVB-T systems.](#) **In: Australasian Telecommunication Networks and Applications Conference (ATNAC)** |

## Book
## Book Section

| 2015 | [A fault-tolerant multi-path multi-channel routing protocol for Cognitive Radio Ad Hoc Networks.](#) **In: Information science and applications** Springer Berlin Heidelberg . ISBN 978-3-662-46577-6 , pp.43-50 |
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**2015** [A robust on-demand routing protocol for cognitive radio ad hoc networks.](#) **In: Mobile and wireless technology 2015** Springer International Publishing . ISBN 978-3-662-47668-0 , pp.33-43

**2015** [The use of convolutional code for narrowband interference suppression in OFDM-DVBT system.](#) **In: Advanced Computer and Communication Engineering Technology** Springer . ISBN 978-3-319-07673-7 (P) 978-3-319-07674-4 (O) , pp.183-194

**2011** [Cognitive radio vs intelligent antenna.](#) **In: Interfacing electronic for measurement, signal processing and wireless communication** IIUM Press . ISBN 9789674181710 , pp.123-133

**2011** [Simulation of models and BER performances of DWT-OFDM versus FFT-OFDM .](#) **In: Discrete wavelet transforms: algorithms and applications** InTech . ISBN 9789533074825 , pp.57-66

**2011** [Wireless IP camera based on motion detection surveillance system.](#) **In: Topics in coding, cryptography and information security** IIUM Press . ISBN 9789674181697 , pp.217-222

**2011** [Design of mobile phone jammer.](#) **In: Topics in coding, cryptography and information security** IIUM Press . ISBN 9789674181697 , pp.223-229

**2011** [Cognitive radio vs intelligent antenna .](#) **In: Principle of Transducer devices and components** IIUM Press . ISBN 978-967-418-172-7 , pp.327-339

**2011** [Overview of smart antenna systems.](#) **In: Antennas and propagation: Modeling, simulation & measurements** IIUM Press . ISBN 9789674181383 , pp.89-96

**2011** [Direction of arrival algorithms for array antenna design.](#) **In: Antennas and propagation: Modeling, simulation & measurements** IIUM Press . ISBN 9789674181383 , pp.97-107

**2011** [Analysis of beamforming algorithms.](#) **In: Antennas and propagation: Modeling, simulation & measurements** IIUM Press . ISBN 9789674181383 , pp.108-120

**2011** [Design of linear array antenna for smart antenna application.](#) **In: Antennas and propagation: Modeling, simulation & measurements** IIUM Press . ISBN 9789674181383 , pp.121-136

**2011** [Low voltage powerline analysis and simulation results.](#) **In: Electrical Automation Systems Towards Intelligent and Energy Efficiency Applications** IIUM Press . ISBN 9789674181703 , pp.125-132