

# KHAIRUL AZAMI BIN SIDEK



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## المؤهل العلمي

- Computer Science
- Engineering (Communication & Computer)
- Engineering (Hons) in Computer & Information

## مسؤوليات التدريس

BIOMEDICAL ELECTRONIC AND SYSTEMS	2018/2019 2019/2020 2020/2021
COMPUTING SYSTEMS & PROGRAMMING	2007/2008
COMPUTER ORGANIZATION AND ARCHITECTURE	2015/2016
COMPUTER SECURITY	2016/2017
COMPUTING SYSTEMS & PROGRAMMING	2007/2008 2008/2009
DATA COMMUNICATIONS AND NETWORKING	2013/2014 2014/2015
DIGITAL LOGIC DESIGN	2006/2007
DIGITAL SIGNAL PROCESSING	2013/2014 2014/2015 2015/2016 2016/2017 2017/2018 2018/2019 2019/2020 2020/2021
ELECTRIC CIRCUITS	2013/2014 2019/2020 2020/2021
ELECTRONICS	2014/2015
ENGINEERING LAB I	2007/2008 2008/2009 2013/2014 2014/2015
FINAL YEAR PROJECT 1	2019/2020
FINAL YEAR PROJECT I	2018/2019 2019/2020 2020/2021
FINAL YEAR PROJECT II	2018/2019
FUNDAMENTALS OF ELECTRICAL AND ELECTRONIC	2020/2021
PROGRAMMING FOR ENGINEERS	2013/2014 2014/2015 2015/2016 2017/2018 2018/2019
PROJECT II	2019/2020

SEMINAR	2007/2008 2008/2009 2013/2014 2014/2015 2015/2016 2016/2017
SEMINAR I	2013/2014
SEMINAR II	2007/2008 2008/2009
SUSTAINABLE DEVELOPMENT: ISSUES, POLICIES AND PRACTICES	2020/2021

## المشاريع البحثية

### In Progress

<b>2020 - Present</b>	Research Component for APPGM-SDG 2020
<b>2020 - Present</b>	Development of an Autonomous Seabed Mapping System
<b>2020 - Present</b>	Industry@University: 4IR Competence Centre
<b>2019 - Present</b>	Development of Ocean-Grade ASV for geo inspection and survey application
<b>2018 - Present</b>	Internet of Things Based Water Quality Monitoring System for Aquaponics
<b>2018 - Present</b>	SYNGAS PRODUCTION USING EFB PELLET AS FEEDSTOCK
<b>2018 - Present</b>	Pembangunan Modul e-Pembelajaran Akademi Audit Negara
<b>2018 - Present</b>	TRANSFERRING KNOWLEDGE TO AGROPRENUERS FOR MONITORING WATER QUALITY IN AN AQUAPONICS SYSTEM USING INTERNET OF THINGS (IOT)
<b>2018 - Present</b>	Associating Electrocardiogram Signal with Driver Drowsiness Level in the Effort to Improve Road Safety
<b>2016 - Present</b>	Development of Novel Algorithm using Features of Respiratory Sounds Abnormalities for Detection of Lung Cancer
<b>Unknown - Present</b>	Internet of Things Based Water Quality Monitoring System for Aquaponics
<b>Unknown - Present</b>	SYNGAS PRODUCTION USING EFB PELLET AS FEEDSTOCK
<b>Unknown - Present</b>	EMPOWERING THE ORANG ASLI COMMUNITY AT KG SG. DUA OLAK VIA HANDS-ON TRAINING WITH KNOWLEDGE AND SKILLS ON RIVER RESTORATION AND CONSERVATION PRACTICES

<b>Unknown - Present</b>	TRANSFERRING KNOWLEDGE TO AGROPRENUERS FOR MONITORING WATER QUALITY IN AN AQUAPONICS SYSTEM USING INTERNET OF THINGS (IOT)
<b>Unknown - Present</b>	A Unified Holistic Architectural Framework for IoT Applications using SEaaS
<b>Completed</b>	
<b>2018 - 2020</b>	Internet of Things Based Water Quality Monitoring System for Aquaponics
<b>2018 - -1</b>	Pembangunan Modul e-Pembelajaran Akademi Audit Negara
<b>2016 - 2018</b>	Development of a Novel Lie Detection Technique Using Photoplethysmogram Signal
<b>2016 - 2019</b>	Investigation of Novel Algorithm using Features of Respiratory Sounds Abnormalities for Detection of Lung Cancer
<b>2015 - 2018</b>	Characterization for Verification of Electrostatic Generator's Effectiveness for Power Generation
<b>2014 - 2016</b>	Design and Development of Portable Classroom Attendance System Based on Fingerprint Biometric
<b>2014 - 2017</b>	Study of Photoplethysmogram Based Biometric Identification Incorporating Different Age Groups and Physiological Conditions
<b>2014 - 2019</b>	An Efficient Algorithm to Discover Large and Frequent Itemset in High Dimensional Data
<b>2014 - 2016</b>	Cardioid Based Graph ECG Biometric Recognition Incorporating Physiological Variability
<b>2009 - 2011</b>	Physical Layer Security Algorithm for Broadband Wireless Data Communication.

## المنشورات

### Article

- 2020** [Water quality monitoring system for aquaponics and fishpond using Wireless Sensor Network.](#) International Journal of Innovative Technology and Exploring Engineering (IJITEE) , 9 (3) pp.51-54
- 2020** [A review of ECG data acquisition for driver drowsiness detection.](#) COMPUSOFT: An International Journal of Advanced Computer Technology , 9 (7) pp.3749-3754
- 2019** [Electrocardiogram \(ECG\) based stress recognition integrated with different classification of age and gender.](#) Indonesian Journal of Electrical Engineering and Computer Science , 15 (1) pp.199-210
- 2019** [Distinctive features for normal and crackles respiratory sounds using cepstral coefficients.](#) Bulletin of Electrical Engineering and Informatics , 8 (3) pp.875-881

- 2019** [Portable water quality monitoring system for aquaponics using We MOS.](#) International Journal of Innovative Technology and Exploring Engineering (IJITEE) , 9 (1) pp.4181-4184
- 2019** [Portable health monitoring kit using photoethismogram signal.](#) Indonesian Journal of Electrical Engineering and Computer Science , 15 (2) pp.638-649
- 2019** [Emotion recognition using electroencephalogram signal.](#) Indonesian Journal of Electrical Engineering and Computer Science , 15 (2) pp.786-793
- 2019** [EEG based biometric identification using correlation and MLPNN models.](#) International Journal of Online and Biomedical Engineering , 15 (10) pp.77-90
- 2018** [Preliminary study on designing and development of a synthesis gas analyser in the process of gasification.](#) Journal of Advanced Research in Fluid Mechanics and Thermal Sciences , 52 (1) pp.76-84
- 2018** [Biometric recognition for twins inconsideration of age variability using PPG signals.](#) Journal of Telecommunication, Electronic and Computer Engineering , 10 (1-5) pp.97-100
- 2018** [Photoplethysmogram based biometric identification incorporating different age and gender group.](#) Journal of Telecommunication, Electronic and Computer Engineering , 10 (1-5) pp.101-108
- 2018** [Preliminary study on designing and development of biogas analyser and monitoring system using IoT.](#) Journal of Advanced Research in Biofuel and Bioenergy , 3 (1) pp.1-8
- 2018** [Study of emotional variability using photoplethysmogram signal.](#) Journal of Telecommunication, Electronic and Computer Engineering , 10 (1-6) pp.1-6
- 2018** [Lie detection using acceleration plethysmography signal.](#) Journal of Telecommunication, Electronic and Computer Engineering , 10 (1-6) pp.7-10
- 2018** [Development of a driver drowsiness monitoring system using electrocardiogram.](#) Journal of Telecommunication, Electronic and Computer Engineering , 10 (1-6) pp.11-15
- 2018** [The study of PPG and APG signals for biometric recognition.](#) Journal of Telecommunication, Electronic and Computer Engineering , 10 (1-6) pp.17-20
- 2018** [Heart abnormality detection using acceleration plethysmogram signal.](#) Journal of Telecommunication, Electronic and Computer Engineering , 10 (1-6) pp.21-24
- 2017** [Study of acceleration plethysmogram based biometric identification incorporating different time instances.](#) Advanced Science Letters , 23 (11) pp.11335-11339
- 2017** [Identical and fraternal twin recognition using photoplethysmogram signals.](#) ARPN Journal of Engineering and Applied Sciences , 12 (8) pp.2576-2580
- 2017** [Stress recognition using photoplethysmogram signal.](#) Indonesian Journal of Electrical Engineering and Computer Science , 8 (2) pp.495-501
- 2016** [Time variability analysis of photoplethysmogram biometric identification system.](#) Indian Journal of Science and Technology , 9 (28) pp.1-6

- 2016** [Real time PPG data acquisition with GUI based application for HRV measurement.](#) Indian Journal of Science and Technology , 9 (28) pp.1-5
- 2016** [Photoplethysmogram based biometric recognition for twins.](#) Indian Journal of Science and Technology , 9 (36) pp.1-9
- 2016** [Development of an acceleration plethysmogram based cardioid graph biometric identification.](#) International Journal of Bio-Science and Bio-Technology , 8 (3) pp.9-20
- 2016** [Cardiac irregularity detection using photoplethysmogram signal.](#) Journal of Telecommunication, Electronic and Computer Engineering , 8 (4) pp.161-166
- 2016** [Development of an electrocardiogram based biometric identification system: a case study in the university.](#) Journal of Telecommunication, Electronic and Computer Engineering , 8 (4) pp.115-120
- 2016** [Non-destructive testing of meat using interdigital and meander type sensors.](#) Journal of Telecommunication, Electronic and Computer Engineering , 8 (4) pp.167-172
- 2016** [Development of a photoplethysmogram based heart abnormality detection technique.](#) International Journal of Bio-Science and Bio-Technology , 8 (4) pp.87-96
- 2016** [Portable anti forgery recognition for attendance system using fingerprint based biometric.](#) ARPN Journal of Engineering and Applied Sciences , 11 (1) pp.396-403
- 2016** [Non-contact electrocardiogram \(ECG\) smart chair for ST segment elevation myocardial infarction detect.](#) Journal of Theoretical and Applied Information Technology , 84 (3) pp.315-320
- 2016** [Heart abnormality detection technique using PPG signal.](#) Journal of Telecommunication, Electronic and Computer Engineering , 8 (12) pp.73-77
- 2016** [Photoplethysmogram based biometric identification for twins incorporating gender variability.](#) Journal of Telecommunication, Electronic and Computer Engineering , 8 (12) pp.67-72
- 2016** [Sleep apnea detection using cardioid based grap.](#) International Journal of Bio-Science and Bio-Technology , 8 (5) pp.13-22
- 2015** [Development of cardioid based graph ECG heart abnormalities classification technique.](#) ARPN Journal of Engineering and Applied Sciences , 10 (21) pp.9759-9765
- 2015** [Compressed ECG biometric using cardioid graph based feature extraction.](#) ARPN Journal of Engineering and Applied Sciences , 10 (22) pp.17219-17224
- 2015** [The development of human biometric identification using acceleration plethysmogram.](#) ARPN Journal of Engineering and Applied Sciences , 10 (23) pp.17438-17443
- 2014** [Data mining in mobile ECG based biometric identification.](#) Journal of Network and Computer Applications , 44 pp.83-91

- 2014** [ECG biometric with abnormal cardiac conditions in remote monitoring system.](#) IEEE Transactions on Systems, Man, and Cybernetics: Systems , 44 (11) pp.1498-1509
- 2013** [Enhancement of low sampling frequency recordings for ECG biometric matching using interpolation.](#) Computer Methods and Programs in Biomedicine , 109 (1) pp.13-25
- 2012** [ECG biometric recognition in different physiological conditions using robust normalized QRS complexes.](#) Computing in Cardiology , 39 pp.97-100
- 2011** [Automobile driver recognition under different physiological conditions using the electrocardiogram.](#) Computing in Cardiology , 38 pp.753-756
- 2011** [Identification of cardiac autonomic neuropathy patients using cardioid based graph for ECG biometric.](#) Computing in Cardiology , 38 pp.517-520
- 2004** [AntNet: a robust routing algorithm for data networks.](#) International Islamic University Malaysia Engineering Journal , 5 (1) pp.1-12

#### **Conference or Workshop Item**

- 2020** [Cardioid graph based ECG biometric in varying physiological conditions using compressed QRS.](#) In: **International Conference on Telecommunication, Electronic and Computer Engineering 2019, ICTEC 2019**
- 2020** [Stress recognition using Electroencephalogram \(EEG\) signal.](#) In: **International Conference on Telecommunication, Electronic and Computer Engineering 2019, ICTEC 2019**
- 2020** [IoT based water quality monitoring system for aquaponics.](#) In: **International Conference on Telecommunication, Electronic and Computer Engineering 2019, ICTEC 2019**
- 2020** [Driver drowsiness detection using different classification algorithms.](#) In: **International Conference on Telecommunication, Electronic and Computer Engineering 2019, ICTEC 2019**
- 2020** [Automated aquaponics maintenance system.](#) In: **International Conference on Telecommunication, Electronic and Computer Engineering 2019, ICTEC 2019**
- 2018** [Distinctive features for classification of respiratory sounds between normal and crackles using cepstral coefficients.](#) In: **2018 7th International Conference on Computer and Communication Engineering (ICCCE)**
- 2017** [Biometric identification for twins using photoplethysmogram signals.](#) In: **6th International Conference on Information and Communication Technology for The Muslim World (ICT4M), 2016**
- 2017** [Real time electrocardiogram identification with multi-modal machine learning algorithms.](#) In: **2nd International Conference of Reliable Information and Communication Technology (IRICT) 2017**
- 2016** [A hasty approach to ECG person identification.](#) In: **2016 International Conference on Computer and Communication Engineering (ICCCE)**

- 2016 [Electrocardiogram identification: Use a simple set of features in QRS complex to identify individuals.](#) In: **12th International Conference on Computing and Information Technology (IC2 IT)**
- 2015 [Development of a photoplethysmography signal processing method for oxygen measurement concentration.](#) In: **5th International Conference on Computer and Communication Engineering (ICCCE 2014)**
- 2015 [Measurement of photoplethysmography signal for heart rate variability and comparison of two different age groups .](#) In: **2015 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)**
- 2015 [Acceleration plethysmogram based biometric identification.](#) In: **2015 International Conference on BioSignal Analysis, Processing and Systems (ICBAPS 2015)**
- 2015 [Cardioid graph based ECG biometric using compressed QRS complex.](#) In: **2015 International Conference on BioSignal Analysis, Processing and Systems (ICBAPS 2015)**
- 2015 [A framework for non-contact ECG signal detection device on smart chair and its implementation.](#) In: **Second International Conference on Advanced Data and Information Engineering (DaEng-2015)**
- 2015 [Health monitoring system using pulse oximeter with remote alert.](#) In: **International Conference on Computing, Control, Networking, Electronics and Embedded Systems Engineering, 2015**
- 2014 [Cardioid graph based ECG biometric recognition incorporating physiological variability.](#) In: **2014 IEEE Student Conference on Research and Development (SCOReD)**
- 2014 [Photoplethysmographic based heart rate variability for different physiological conditions.](#) In: **2014 IEEE Student Conference on Research and Development (SCOReD)**
- 2014 [Power spectrum density based analysis of photoplethysmographic signal for different physiological conditions.](#) In: **2014 IEEE International Conference on Smart Instrumentation, Measurement and Applications (ICSIMA 2014)**
- 2014 [Posture characterization based on time and frequency domains parameters for erector spine SEMG signal.](#) In: **5th International Conference on Computer and Communication Engineering (ICCCE 2014)**
- 2014 [A comparative analysis of QRS and cardioid graph based ECG biometric recognition in different physiological conditions.](#) In: **IEEE International Conference on Smart Instrumentation, Measurement and Applications (ICSIMA2014)**
- 2014 [Design and development of portable classroom attendance system based on arduino and fingerprint biometric.](#) In: **5th International Conference on Information and Communication Technology for The Muslim World (ICT4M 2014)**
- 2013 [Simple and efficient multibiometric technique for subject recognition using multilead electrocardiogram signal.](#) In: **IEEE International Conference on Smart Instrumentation, Measurement and Applications (ICSIMA)**

- 2012 [ECG biometric recognition in different physiological conditions using robust normalized QRS complexes.](#) In: **Computing in Cardiology (CinC) 2012**
- 2012 [Biometric sample extraction using Mahalanobis distance in cardioid based graph using electrocardiogram signals.](#) In: **34th Annual International Conference of the IEEE EMBS**
- 2011 [Person identification in irregular cardiac conditions using electrocardiogram signals.](#) In: **33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS 2011**
- 2011 [Data mining technique on Cardioid graph based ECG biometric authentication.](#) In: **The Eighth IASTED International Conference on Biomedical Engineering (Biomed 2011)**
- 2011 [Application of data mining on polynomial based approach for ECG biometric.](#) In: **5th Kuala Lumpur International Conference on Biomedical Engineering, BIOMED 2011**
- 2010 [An efficient method of biometric matching using interpolated ECG data.](#) In: **2010 IEEE EMBS Conference on Biomedical Engineering & Sciences (IECBES 2010)**

**Book  
Book Section**

- 2019 [Stress recognition using photoplethysmogram \(PPG\) signal incorporating gender and age variability.](#) In: **Lecture Notes on Advanced Research in Engineering and Information Technology II** Malaysia Technical Scientist Association , pp.83-90
- 2019 [Development of lie detector using photoplethysmogram signal.](#) In: **Lecture Notes on Advanced Research in Engineering and Information Technology II** Malaysia Technical Scientist Association , pp.91-97
- 2019 [Development of fatigue detection technique using photoplethysmogram signal.](#) In: **Lecture Notes on Advanced Research in Engineering and Information Technology II** Malaysia Technical Scientist Association , pp.106-113
- 2018 [Wearable smartphone sync wireless remote health monitoring system.](#) In: **Lecture Notes on Advanced Research in Engineering and Information Technology II** Malaysia Technical Scientist Association , pp.98-105