

PROFESSIONAL DETAILS



Fullname Adnan Mohsin Abdulazeez

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Phone 07504460930

Gender male

Birth Date 1970-02-01

Address Iraq - Duhok

Nationality Iraqi

-
- [Technical College of Engineering](#)
 - [Energy Engineering](#)

LANGUAGE

- **Kurdish** (Native)
- **Arabic** (Proficient)
- **English** (Proficient)

SOCIAL LINKS

[googlescholar](#)

EDUCATION

Jan, 2007

Ph.D.

Computer Engineering

Mosul University

Jan, 1998

M.Sc.

Computer and Control Engineering

University of Technology

Sep, 1993

B.Sc.

Electrical and Electronic Engineering

University of Technology

TITLE

Sep, 2014

Professor

PROFESSIONAL EXPERIENCE

Jul, 2019 - Jan, 2010

Head of the curriculum development committee for computer science programs

Zakho University

Zakho

DPU

Dec, 2012 - Jul, 2019

President of the Duhok Polytechnic University

Duhok Polytechnic University

Duhok

DPU

Sep, 2011 - Nov, 2011

Dean of the Duhok Technical Institute

Duhok Polytechnic University

Duhok

Duhok Technical Institute

Jan, 2010 - Jan, 2011

Head of Kurdistan Computer Board for postgraduate and undergraduate studies

Duhok Polytechnic University

Duhok

DPU

SKILLS

Administration Issues:

Administration of public programs requires attention to the ethics and culture of society

Effective Troubleshooting:

Troubleshooting is a form of problem solving, often applied to repair failed products or processes on a machine or a system.

Self-Determination:

1 - Free choice of one's own acts or states without external compulsion. 2 - Determination by the people of a territorial unit of their own future political status.

Team Leadership:

A "team leader" is also someone who has the capability to drive performance within a group of people. Team leaders utilize their expertise, their peers, influence, and/or creativeness to formulate an effective team.

Punctuality/Time Management:

- Punctuality is the habit of doing things exactly on time. - A punctual person will be a winner wherever he or she goes. - A punctual person is always one step ahead of everyone else.

Verbal and Interpersonal Communications:

Effective verbal communication skills include more than just talking. Verbal communication encompasses both how you deliver messages and how you receive them. Communication is a soft skill, and it's one that is important to every employer.

Intellectual Strategic Planning:

Verbal communication is the use of words to share information with other people. It can therefore include both spoken and written communication.

Multi-Tasking:

In other words, you're multitasking. The problem is, there's no such thing as multitasking. As multiple studies have confirmed, true multitasking—doing more than one task at the same time—is a myth.

Highly Analytical and Research Skills:

Analytical skills are kind of problem solving skill.

INTEREST

Soft Computing:

Usable solutions to complex computational problems

Intelligence Systems:

The capacity to learn from experience, security, connectivity, the ability to adapt according to current data and the capacity for remote monitoring and management.

Multimedia:

Represented through audio, video, and animation in addition to traditional media (i.e., text, graphics drawings, images and medical image).

Network Security:

Network security is the practice of preventing and protecting against unauthorized intrusion into corporate networks.

Coding and FPGA Implementation:

A field-programmable gate array (FPGA) is an integrated circuit (IC) that can be programmed in the field after manufacture.

May, 2019

[Unsupervised Learning Approach-Based New Optimization K-Means Clustering for Finger Vein Image Localization](#)

IEEE conference paper (Issue: 2-4-2019) (Volume: 2)

Today, finger vein recognition attracts a lot of attention as a promising approach of biometric identification framework. It still a big challenge since it is not capable to localize and extract finger vein, since most of the datasets have a lot of noise and redundant unwanted object in the background. Image thresholding it seems to be a suitable approach for the binarization stage that is utilized into some exact finger vein image detection and extraction. In this paper, a new optimization methodology was proposed based on an unsupervised learning framework for the purpose of designing a new clustering algorithm that replaces the distance criteria into intensity level majority for group similar image pixels in one cluster. The propose system for finger vein image localization based optimized clustering algorithm has many stages such as using some significant pre-processing steps to enhance the finger vein images such as Wiener filtering, image smoothing and image sharpening for edge detection. Cluster stabilization, cluster random initialization, optimized objective function are the most significant points that have been solved. One of the most challenges dataset is that the finger vein images are not biased, and the images have more background noise and details. The experimental results of the finger vein localization based on an optimized clustering algorithm show that it much faster than the other clustering algorithms such as k-means, FCM by consuming an average time (2.83 sec.) while the k-means and FCM consumed (26.27sec.), and (80.36 sec.) respectively.

May, 2019

[Trainable Model Based on New Uniform LBP Feature to Identify the Risk of the Breast Cancer](#)

IEEE conference paper (Issue: 2/4/2019) (Volume: 2)

In developing countries breast cancer has been found to be one of the diseases that threatens the lives of women, and that is why finding ways of detecting efficiently is of great importance. The detection of breast cancer at an early stage through self-examination is very difficult. In this study, we proposed a new descriptor that can help to identify the abnormality of the breast by enhancing the features of LBP texture and enhance the LPB descriptor by using a new threshold that can help to identify the important information for the detection of abnormal cases. In the next stage, the significant features are extracted from the breast tumours images that have been segmented. Such features could be found in frequency or spatial domain. The extracted features for diagnosing tumour

automatically, are additional and different from those features which the radiologist extracts manually. The proposed method demonstrates the possibility of using the LBP based texture feature with the new proposed method for categorising ultrasound images, which registered a high accuracy of 96%, the sensitivity of 94%, specificity of 97%.

May, 2019

[Machine learning and Region Growing for Breast Cancer Segmentation](#)

IEEE conference paper (Issue: 2-04-2019) (Volume: 2)

One of the main causes of increased mortality among women is breast cancer. The ultrasound scan is the most widely used method for diagnosing geological disease i.e. breast cancer. The first step for identifying the abnormality of the breast cancer (malignant from benign), is the extraction of the region of interest (ROI). In order to achieve this, a new approach to breast ROI extraction is proposed for the purpose of reducing false positive cases (FP). The proposed model was built based on the local pixel information and neural network. It includes two stages namely, training and testing. In the training stage, a trained model was built by extracting the number of batches from both ROI and background. The testing stage involved scanning the image with a fixed size window to detect the ROI from the background. Afterwards, a distance transform was used to identify the ROI and remove non-ROI. Experiments were conducted on the on-data set with 250 ultrasound images (150 benign and 100 malignant) the preliminary results show that the proposed method achieves a success rate of about 95.4% for breast contour extraction. The performance of the proposed solution also has been compared with the existing solutions that have been used to segment different types of images.

Apr, 2019

[Detection of Genes Patterns with an Enhanced Partitioning-Based DBSCAN Algorithm](#)

Journal of Information and Communication Engineering (JICE) (Issue: 4) (Volume: 2)

Microarray datasets are enriched with numerous unknown gene expression patterns that may have significant biological meaning. Detecting well-separated gene expression patterns is a critical task in microarray data analysis. The density-based spatial clustering DBSCAN algorithm has been used to detect patterns with different shapes and sizes in many applications. However, the DBSCAN algorithm is time-consuming when used on big datasets, and microarray datasets are considered as big and complex datasets. Therefore, in this study, we modified the DBSCAN algorithm by combining it with a partitioning around medoids algorithm based on normalized and weighted Mahalanobis distance (NWM). The developed algorithm (NWM_PDBSCAN) was tested on selected microarray expression datasets, which were pre-processed prior to analysis. The results revealed an optimal cluster solution with different shapes and sizes. We further reduced the dataset sizes using a random sampling technique to enhance the

performance of the DBSCAN algorithm. The proposed NWM_PDBSCAN algorithm performed ideally, and was evaluated using Dunn's validity index.

Nov, 2018

[Gene Selection and Classification of Microarray Data Using Convolutional Neural Network](#)

IEEE conference paper (Issue: 29 November 2018) (Volume: 2)

Gene expression profiles could be generated in large quantities by utilizing microarray techniques. Currently, the task of diagnosing diseases relies on gene expression data. One of the techniques which helps in this task is by utilizing deep learning algorithms. Such algorithms are effective in the identification and classification of informative genes. These genes may subsequently be used in predicting testing samples' classes. In cancer identification, the microarray data typically possesses minimal samples number with a huge feature collection size which are hailing from gene expression data. Lately, applications of deep learning algorithms are gaining much attention to solve various challenges in artificial intelligence field. In the present study, we investigated a deep learning algorithm based on the convolutional neural network (CNN), for classification of microarray data. In comparison to similar techniques such as Vector Machine Recursive Feature Elimination and improved Random Forest (mSVM-RFE-iRF and varSeIRF), CNN showed that not all the data have superior performance. Most of experimental results on cancer datasets indicated that CNN is superior in terms of accuracy and minimizing gene in classifying cancer comparing with hybrid mSVM-RFE-iRF.

Nov, 2018

[Gait-Based Human Gender Classification Using Lifting 5/3 Wavelet and Principal Component Analysis](#)

IEEE conference paper (Issue: 29 November 2018) (Volume: 2)

This study describes a representation of gait appearance for the purpose of person identification and classification. The gait representation is based on wavelet 5/3 lifting scheme simple features such as features extracted from video silhouettes of human walking motion. Regardless of its effortlessness, this may lead us to say that, the resulting feature vector contains enough information to perform well on human identification and gender classification tasks. We found out the recognition behaviors of different methods to total features over time functions under different recognition tasks. In addition to that, we provide results of gender classification based on our gait appearance features using a (C4.5 algorithm). So, the result of classification rate for CASIA - B gait databases is 97.98% and the result of recognition rate for OU-ISIR gait Database Large Population Dataset is 97.5%, these results have been obtained from gender classification data. Gait database demonstrates that the proposed method achieves better recognition performance than the most existing methods in the literature, and particularly under certain walking variations.

Nov, 2018

[Dynamic Hand Gesture Recognition System for Kurdish Sign Language Using Two Lines of Features](#)

IEEE conference paper (Issue: 29 November 2018) (Volume: 2)

Hand gesture recognition forms a great difficulty for computer vision especially in dynamics. Sign language has been significant and an interesting application field of dynamic hand gesture recognition system. The recognition of human hands formed an- extremely complicated mission. The solution for such a difficulty requires a robust hand tracking method which depends on an effective feature and classifier. This paper presents a novel, fast and simple method for dynamic hand gesture recognition based on two lines (hundred) of features extracted from two rows of a Real-Time video. Feature selections have been used for hand shape representation to recognize the dynamic word for Kurdish Sign Language. The features extracted in real time from pre-processed hand object were represented through the optimization values of binary captured frame. Finally, an Artificial Neural Network classifier is used to recognize the performed hand gestures by 80% for training and 20% for testing with success 98%.

Nov, 2018

[Hardware Implementation of Firefly Optimization Algorithm Using FPGAs](#)

IEEE conference paper (Issue: 29 November 2018) (Volume: 2)

Mimicking natural phenomenon of social insects, such as bird flocks and insect colonies by merging randomness facility and some other simulation rules, are the core tasks of the artificial meta-heuristic algorithms. Such algorithms are the most efficient and powerful techniques used to solve various complicated real-world optimization problems. Firefly algorithm, which belongs to nature meta-heuristics algorithms, is inspired by mating and flashing behavior or the phenomenon of bioluminescent communication of fireflies in the nature. In this paper, a hardware structure design for firefly algorithm has been proposed. Firefly algorithm is executing sequentially as all meta-heuristic algorithms, due to the nature of the algorithm. Therefore, sequential hardware structure design for the algorithm using Finite State Machine (FSM) system has been proposed. The hardware design structure implementation is mapped into a FPGAs (SPARTAN 3XS1600) device. Numerical results of the comparison between the hardware and the software (using C++ programming language) implementation of Firefly algorithm were obtained. These results indicate that the hardware implementation is executed 461 times faster than the software implementation. Indeed, the required execution time for finding the optimal solution can be reduced rapidly using the proposed hardware design structure.

Aug, 2018

[Design and Implementation of Electronic Learning System for Duhok Polytechnic University](#)

Academic Journal of Nawroz University (AJNU) (Issue: 3) (Volume: 7)

Nowadays, the Information and Communication Technology (ICT) made deep effects in the human life. But still the communication style in most Kurdistan-Region Government sectors is still at the beginning steps. So, the trend is to move towards the E-government system in order to overcome the problems of traditional style. E-university is a field belongs to the E-government. Hence, electronic learning is an important direction within E-university. This direction treats with learning-style and the communications between the academic-staff in one side and students in other side at the universities and keep-tracking their activities during studying-year. The current style of communication needs to be improved by benefiting from the new technology capabilities. However, the universities of Kurdistan Region suffer from lack of using new technology and building the E-university system will push other whole sectors towards the E-government system. As an important direction within Electronic Duhok Polytechnic University (E-DPU), this thesis produces an efficient proposed learning system called Duhok Polytechnic University Electronic Learning System (DPU-ELS). The proposed system serves to: DPU presidency, four colleges and eight institutions belong DPU. The proposed system consists of nine modules that provide four groups of services. First group relates with student services: Lecturers Feedback, Discussion Forums and Course materials that include: Lectures, Assignments, Schedules, Marks and Objections. Second group relates with department services: Academic Staff Authentication, Clearance and Summer Training. Third group relates with Lecturer: Preparing Course Materials and Discussion Forums. And fourth group relates with institution and university services: Exam Committee, Quality Assurance, Curriculum and Statistics. There

are two different study-systems at DPU, two years for institutes and four years for colleges. So, the proposed DPU-ELS is designed according to the structure of DPU. These two different studying systems are depended just at polytechnic universities. The proposed system is implemented and tested practically for six institutions located at three different campuses: Duhok, Zakho and Shekhan. The students and staff of the selected institutions participated with implementation and obtaining the results that been evaluated by using System Usability Scale (SUS). The evaluation score of the questionnaire is (71.82%) which can be considered as a good percentage. Another step towards the E-government is the ability of copying this system at any other Kurdistan university. The proposed system has been designed and implemented using the tools: (MySQL, HTML, CSS, PHP, JavaScript, JQuery, Ajax and Bootstrap).

Feb, 2018

[Gene Clustering with Partition Around Medoids Algorithm Based on Weighted and Normalized Mahalanobis Distance](#)

IEEE (Issue: 2) (Volume: 2)

The partition around medoids (PAM) algorithm is a robust and flexible unsupervised learning algorithm that depends on the underlying distance and default distance metric is Euclidean distance. The PAM algorithm is more efficient than K-Mean since medoids assess a minimum distance from the other objects. In this study, we have integrated the Mahalanobis distance with PAM algorithm, since Mahalanobis distance has been defined in cluster analysis for different applications and is used to overcome the problem of scaling and correlation with Euclidean distance. However, the performance of PAM algorithm based on Mahalanobis distance was found to be inadequate when employed on selected microarray expression datasets, which were pre-processed prior to the analyses. We proposed an enhanced PAM algorithm based on the weighted and normalized Mahalanobis distance, and the results obtained using our proposed algorithm reveal an ultimate cluster solution for selected microarray datasets. The algorithms were evaluated using the Dunn's validity index.

Feb, 2018

[Evaluation of Partitioning Around Medoids Algorithm with Various Distances on Microarray Data](#)

IEEE International Conference on Internet of Things (iThings) (Issue: 2) (Volume: 2)

Data mining is a process which discovers patterns and retrieval knowledge in large datasets. Many learning and data mining algorithms rely on distance metrics. Cluster analysis is one of learning algorithms which adopted to biological data, for example, Microarray expression data. In this study, we assessed the validity of five distance metrics (Euclidean, Manhattan, Minkowski, Cosine and Mahalanobis) with the partitioning around medoids (PAM) algorithm on microarray datasets. Microarray datasets were pre-processed prior to analysis, and the evaluation of the algorithm was undertaken using Krzanowski-Lai validity index. Our results showed When selected microarray datasets were

clustered with partitioning around medoids based on Manhattan distance, Minkowski, Cosine and Euclidean distance for different k partitions all exhibited unsatisfactory performance, however, the partitioning around medoids algorithm generates an optimal cluster solution when used with Mahalanobis distance.

Dec, 2017

[A DIDS Based on The Combination of Cuttlefish Algorithm and Decision Tree](#)

Science Journal of University of Zakho (Issue: 4) (Volume: 5)

Different Distributed Intrusion Detection Systems (DIDS) based on mobile agents have been proposed in recent years to protect computer systems from intruders. Since intrusion detection systems deal with a large amount of data, keeping the best quality of features is an important task in these systems. In this paper, a novel DIDS based on the combination of Cuttlefish Optimization Algorithm (CFA) and Decision Tree (DT) is proposed. The proposed system uses an agent called Rule and Feature Generator Agent (RFGA) to generate a subset of features with corresponding rules. RFGA agent uses CFA to search for optimal subset of features, while DT is used as a measurement on the selected features. The proposed model is tested on the KDD Cup 99 dataset. The obtained results show that the proposed system gives a better performance even with a small subset of 5 features when compared with using all 41 features.

Dec, 2017

[A Normalization Methods for Backpropagation: A Comparative Study](#)

Science Journal of University of Zakho (Issue: 5) (Volume: 4)

Neural Networks (NN) have been used by many researchers to solve problems in several domains including classification and pattern recognition, and Backpropagation (BP) which is one of the most well-known artificial neural network models. Constructing effective NN applications relies on some characteristics such as the network topology, learning parameter, and normalization approaches for the input and the output vectors. The Input and the output vectors for BP need to be normalized properly in order to achieve the best performance of the network. This paper applies several normalization methods on several UCI datasets and comparing between them to find the best normalization method that works better with BP. Norm, Decimal scaling, Mean-Mad, Median-Mad, Min-Max, and Z-score normalization are considered in this study. The comparative study shows that the performance of Mean-Mad and Median-Mad is better than the all remaining methods. On the other hand, the worst result is produced with Norm method.

Sep, 2017

International Journal of Applied Engineering Research (Issue: 12) (Volume: 24)

In the past few decades, a detailed and extensive research has been carried out on K-Means combine with genetic algorithm for clustering of using this combine technique; to focuses on studying the efficiency and effectiveness of most article. The basic aim of this article is to gather a complete and detailed summary and a clear well explained idea of various methods and algorithms. The calculation of the number of clusters in a data user was done automatically. Representation of operator in GA was developed and group based crossover was done to fix the number of clusters. The problem on the large scale was segregated in to various mini problems through the researchers. To solving small-scale combinatorial optimization. Improving the assembling quality with less time complexity and minimization of the total distance that is traveled by the salesman are also discussed. Overall, almost K-means algorithm with GA have high performance quality of clustering with minimum time and evolution process converge fast compared with anthers technique do not combined GA with k-means cluster.

May, 2017

[A Novel Hybrid Bird Mating Optimizer with Differential Evolution for Engineering Design Optimization Problems](#)

Springer Link (Issue: 5) (Volume: 5)

This paper presents the hybridization of the Bird Mating Optimizer (BMO) with the Differential Evolution (DE) approach. BMO is a new meta-heuristic algorithm that still suffers from some drawbacks, namely the convergence speed, the poor solution quality and trapping into local optima. To overcome these insufficient, a novel BMO-DE algorithm is proposed. BMO-DE has been implemented on some standard engineering design optimization problems reported in the specialized literature and are considered to be constrained optimization ones. The original BMO was basically proposed to solve unconstrained optimization problems. Accordingly, a penalty function method has been adopted to handle the different constraints. Experimental results show that the proposed method can put forward better solutions when compared to other state-of-the-art meta-heuristic algorithms that address such a kind of problems. Therefore, this method is a powerful and promising technique for solving this kind of problems as it is executed with a low number of objective function evaluations and comes out with excellent outputs.

May, 2017

[A Comparative Study of a New Hand Recognition Model Based on Line of Features and Other Techniques](#)

Springer Link (Issue: 5) (Volume: 5)

Information technologies are developed and grown all over the world. They

depend on the computer system. Some techniques such as hand recognition are used for performing accurate recognition. The main goal of this research is to develop a system that analyzes specific human gestures then interpret this information by using computer system. This paper represents a comparative study between a new novel system called Real Time Hand Gesture Recognition System RTHGRS based on one line of features and other various techniques. The research has come out with 98% recognition compared to other researches in this filed.

May, 2017

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Springer Link (Issue: 5) (Volume: 5)

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CONFERENCE

Apr, 2019 - Apr, 2019

[ICOAE2019](#)

Iraq, Duhok As Presenter

The Conference is the premier forum for presenting the new results of advanced topics in science, engineering, and their applications. The aim of the conference is to bring together leading academic, scholars and students, in order to discuss theoretical and practical issues through sharing their experiences and research results. Its focus is to create and distribute knowledge about the use of scientific and engineering applications.

Sep, 2018 - Sep, 2018

Iraq, Duhok As Presenter

The IEEE Communications Society Iraq Chapter, in cooperation with the IEEE Iraq section and the IEEE CIS Iraq Chapter, enhanced the technical sponsorship of seven International Scientific Conferences within Iraqi universities. All these conferences were well organized and controlled scientifically by the volunteering academics of the Communications Society Iraq Chapter and Iraq Section, and the CIS Iraq Chapter. There were many great challenges faced by the Iraqi academics to support the realization of these international conferences. One of the important points that needs to be mentioned here is that within the Conference of Zakho University and Duhok Polytechnic University, papers from all countries were submitted in addition to the papers submitted from Iraq. This is the first time that this many countries participated in an international conference held in Iraq.