الخطة البحثية لقسم تقنيات انظمة الحاسوب

ت	اسماء الباحثين	اللقب العلمي	الشهادة	موقف النتاج	جهة النشر	العام الدراسي	عنوان النتاج	ملخص عن النتاج
1	Ali Kadhum Idrees			منشور	IEEE Middle East and North Africa Communications Conference	2018-2019	Distributed Data Aggregation based Modified K-means Technique for Energy Conservation in Periodic Wireless Sensor Networks	One of the big data provider in the future of the Internet of Things (IoT) is the Periodic Wireless Sensor Networks (PWSNs) because of the widespread use of this type of networks in various real life applications. The amount of data clearly grows at an unexpected rate. The high-density deployment of the sensor nodes will lead to high data redundancy in the collected readings of the sensor nodes. An energy-saving data aggregation may be an essential way to remove the data redundancy. In this article, we propose a Distributed Data Aggregation based Modified K-means (DiDAMoK) Technique for enhancement the lifetime of the PWSNs. DiDAMoK is distributed inside each sensor node. It works into periods. Each period is composed of three stages. First, the sensor readings are collected and saved in the sensor node. Second, the modified K-means is employed on these readings to convert them into clusters of readings. The number of clusters is dynamic and depends on the nature of collected readings. In the third stage, One representative reading of each cluster will be transmitted to the sink. The performance of the DiDAMoK technique is evaluated using OMNeT++ network simulator and based on real sensed data of a WSN. Simulation results explain that our DiDAMoK technique can efficiently decrease the consumed energy of the whole PWSN due to reducing the sensed readings number transmitted to the sink node while keeping a suitable data accuracy at the sink.
	Wathiq Laftah Al-Yaseen	أستاذ مساعد	دكتوراه					
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2	Ali Kadhum Idrees			منشور	IEEE	2018-2019	Integrated Divide and Conquer with Enhanced k-means technique for Energy-saving Data Aggregation in Wireless Sensor Networks	In the Internet of Things (IoTs) future, the Wireless Sensor Networks (WSNs) represent one of the big data contributors due to the wide range of real-life applications that use this type of networks. The data volume increases in unexpected ratio. The dense WSN can lead to an increase in the redundant data in the gathered measures of the sensor node. Therefore, it is essential to apply energy-efficient data aggregation to remove the data redundancy and maintain a suitable rate of accuracy. This paper proposes an Integrated Divide and Conquer with Enhanced K-means technique (IDiCoEK) for energy-saving data aggregation in WSNs. The IDiCoEK aggregates the measures in two levels: the node and cluster head levels. A divide and conquer algorithm is applied at the sensor node to remove the redundant data from the collected measures and then send it to the cluster head. The cluster head applies an enhanced K-means approach for clustering the received data sets from the sensor nodes into groups of near similar sets and then the best representative set will be sent to the base station from each group. The IDiCoEK performance is assessed using OMNeT++ network simulator with real data readings of sensor nodes. Results demonstrate that our IDiCoEK technique can save energy by decreasing the measures sent to the sink whilst conserving a suitable level of data accuracy at the sink node.
	Ali Kadhum M. Al-Qurabat							
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	Wathiq Laftah Al-Yaseen	ستاذ مساع	دكتوراه					

It is important to recognize protein classes in order to understand folding patterns. In this paper, we have proposed a method to extract the features based on secondary structure sequence and hydropathy profile. A feature selection algorithm that combines particle swarm optimization and extreme learning machine was employed to select a total of 25 features. The selected features were fed to the classifier in order to classify each protein to an appropriate class. The well-known data sets, i.e. ASTRALtraining, ASTRALtest, 25PDB, 640 and 1189 were used to evaluate the proposed method. Upon comparing the current approach against other approaches based on the same data, it is evident that the proposed method shows higher efficiency in the prediction of structural class of protein, and its overall accuracy reaches up to 1.5%. Moreover, the extracted secondary and hydropathy features are important for us to differentiate the α/β and α+β classes.	PSO Feature Selection and ELM Algorithm for Protein Classification based Secondary Structure and Hydropathy Profile	2019-2020	Journal University of Kerbala	منشور	دكتوراه	ستاذ مساع	iq Laftah Al-Ya	3
The nowadays growing of threads and intrusions on networks make the need for developing efficient and effective intrusion detection systems a necessity. Powerful solutions of intrusion detection systems should be capable of dealing with central network issues such as huge data, high-speed traffic, and wide variety in threat types. This paper proposes a wrapper feature selection method that is based on firefly algorithm and support vector machine. The firefly optimization algorithm has been effectively employed in diverse combinatorial problems. The proposed method improves the performance of intrusion detection by removing the irrelevant features and reduces the time of classification by reducing the dimension of data. The SVM model was employed to evaluate each of the feature subsets produced from firefly technique. The main merit of the proposed method is its ability in modifying the firefly algorithm to become suitable for selection of features. To validate the proposed approach, the popular NSL-KDD dataset was used in addition to the common measures of intrusion detection systems such as overall accuracy, detection rate, and false alarm rate. The proposed method achieved an overall accuracy of 78.89% compared with 75.81% for all the 41 features. The analysis results approved the effectiveness of the proposed feature selection method in enhancing network intrusion detection system.	Improving Intrusion Detection System by Developing Feature Selection Model Based on Firefly Algorithm and Support Vector Machine	2019-2020	IAENG International Journal of Computer Science	منشور	دكتوراه	ستاذ مساع	iq Laftah Al-Ya	4

Generally, the things that have the great role in facilitating the emergence of internet-connected sensory devices can be embodied in the developments that happen in the sphere of software, hardware, and communication technologies. The internet-connected sensory devices present perceptions and measurements of data from the real world. It is suggested that nearly through 2020, the total use of internet-connected devices may reach to 25 to 50 billion. Actually, the relation between technologies and the volume of data being published is kept in one line. That is, if there is growth in the technologies, the volume of the data will be increased. Such technology, i.e. internet-connected devices, can be called as Internet of Things (IoT). Its role is to connect the real world with the cyber one. Furthermore, generating great data with velocity as its main characteristic will help in increasing the volume of IoT. To develop smart IoT applications, one can use such intelligent processing and analyzing such big data. In this paper, we tend to study the impact of implementing machine learning (ML) algorithms and methods and their efficiency in the IoT domain. As well as explore how these algorithms help in founding efficient backbone solutions to analyze and estimate the huge amounts of data that are expected to arise in the coming few years due to the rapid growth on demands for IoT based applications.	Machine Learning Algorithms for Distributed Operations in Internet of Things IoT	2019-2020	Periodicals of Engineering and Natural Sciences	منشور	ماجستير ماجستير ماجستير	مدرس مساعد مدرس مساعد مدرس مساعد	Qusay Abdullah Abed Mohammed Thajeel Abdullah Huda Jalil Dikhil	5
Cell Formation (CF) problem is considered as the most important issue in the cellular manufacturing system. Self Organization Map (SOM). It's used	Self-Organization Map Applied for the Design of Cell Formation in a Cellular Manufacturing System	2018-2019	Journal University of Kerbala	منشور	ماجستير دكتوراه	مدرس مساعد أستاذ مساعد	عمار جهاد د.سناء حمزة	6
Cell Formation (CF) problem considers as the most important issue in the Cellular Manufacturing	HEURISTIC METHOD FOR SOLVING CELL FORMATION PROBLEM IN CELLULAR MANUFACTURING SYSTEM BASED ON HAMMING DISTANCE	2018-2019	The Iraqi Journal For Mechanical And Material Engineering	منشور	ماجستير دكتوراه	مدرس مساعد أستاذ مساعد	عمار جهاد د.سناء حمزة	7