

الانتاج العلمي المدعوم لعام 2010/2009  
ملخصات الأبحاث المدعومة المنشورة في مؤتمرات :  
كلية الهندسة

الأستاذ الدكتور قاسم موسى العبيدي

(Design and Evaluation of Fuzzy – Based CPU Scheduling Algorithm)

الذي نُشر في مؤتمر :

(International Conference on Recent Trends in Business Information Processing)

الذي عُقد في الهند خلال الفترة 26-27/3/2010.

ملخص البحث:

Scheduling in computer science means determining which tasks run when there are multiple runnable tasks. Several CPU scheduling algorithms have different features, and no single one is ideal absolutely for every application. This paper presents an attempt to apply fuzzy logic in the design and implementation of a rule-based scheduling algorithm to solve the shortcoming of well-known scheduling algorithms. Results given in this paper demonstrate that the average waiting time and the average turnaround time in the proposed algorithm are better than that obtained using priority scheduling, and closed to that obtained from shortest-job-first (SJF) scheduling. The new proposed algorithm is a dynamic scheduling algorithm which deals with both task priority and its execution time, while the SJF algorithm doesn't.

**Keywords:** Task Scheduling - Fuzzy Decision Making - Operating Systems - Real-Time Systems.

الدكتور محمد جاسر بني يونس

(Reverse Engineering in Mechatronics Education)

الذي نُشر في مؤتمر :

(ISMA10)

الذي عُقد في الشارقة – الإمارات العربية المتحدة خلال الفترة 20-22/4/2010.

ملخص البحث:

Mechatronics engineering curricula emphasize the importance of integrated engineering systems. Since mechatronics systems include subsystems (electronic, mechanical, and computer), multi-level system analysis skills are essential for mechatronics engineers. Reverse Engineering (RE) can play an important role in the analysis and understanding of mechatronics systems and products. RE can be defined as the process of testing and analyzing a system in order to identify, understand, and document the interactions of its subsystems and functionality. This paper presents the Philadelphia University (PU) experience in establishing and integrating an RE course within the mechatronics engineering curriculum.

(Mechatronic System Design: The Ideal Capstone Course)

الذي نُشر في مؤتمر:

(ISMA'2010)

الذي عُقد في الشارقة / الإمارات العربية المتحدة خلال 2010/4/22-20.

ملخص البحث:

A major focus of mechatronic engineering education is on the design and analysis of integrated engineering systems. Therefore, it is importance to develop a well-structured mechatronic system design course for undergraduate engineering students. This course can be considered as a capstone course that integrates vast amount of knowledge and skills acquired by students throughout their education. This paper presents an overview of a mechatronic design course contents. It also provides the appropriate method of delivering the needed material through case studies and examples.

الدكتور أشرف إسماعيل

(Component – Based Modeling Framework for Mechatronic Systems)

الذي نُشر في مؤتمر:

(ISMA'2010)

الذي عُقد في الشارقة / الإمارات العربية المتحدة خلال 2010/4/22-20.

ملخص البحث:

This paper presents a component-based framework for mechatronic systems modeling. The main concept of component-based approach is to create a model for common system's basic components, which can be reused as many times as required. These components can be then successively aggregated in order to have a model that sufficiently represents the whole system. The proposed framework is a hierarchical structure with three different layers: (1) basic components layer, (2) subsystem components layer, and (3) mechatronic system layer. The proposed framework has many advantages include: (I) reducing the development cost and time, (II) improving system maintainability and flexibility (III) enhancing system quality. A practical example is explained in order to interpret the proposed framework.

(Wavelet and Neural Network Method for Speech Enhancement Objective Evaluation)

(The Use of Biorthogonal Wavelets in Speech Enhancement)

الذي نُشر في مؤتمر:

(ICEENG-7)

الذي عُقد في التقنية العسكرية- القاهرة /مصر خلال 2010/5/27-25.

ملخص البحث:

Wavelet Neural Network Evaluation method WNNEM is proposed as a powerful tool for enhanced speech signal evaluation. This objective evaluation measure utilizes Feed forward back Propagation Neural Network FFBN to train the free of noise signal, and then enhanced signal is simulated to the training output results taken for given target. The distance between simulation and the target, over different wavelet sub bands is studied. Four known speech enhancement method for studying the performance of WNNEM are utilized. The advantage of this method is the evaluation of different band passes of frequency based on wavelet transform by neural network, which is very influential tool for non stationary signals processing. Several objective measures are used to investigate the WNNEM compatibility. Results proved the validity of the proposed method.

الدكتور عبد الرحمن القواسمي

(Improvement of UWB – Multiband OFDM BER Performance Using Barker Signaling)

الذي نُشر في مؤتمر:

(ICEENG-7)

الذي عُقد في التقنية العسكرية- القاهرة /مصر خلال 2010/5/27-25.

ملخص البحث:

Orthogonal Frequency Division Multiplexing (OFDM) technology is a key technique for achieving the high data rate and rate spectral efficiency requirements for wireless communication systems of the near future. UWB – Multiband OFDM has an acceptable BER performance. In a multipath noisy channel the bit error is very high. In this paper we present the Baker code as a code as a coding technique and solution to increase the BER performance using the correlation detection. The system performance is increased up to 11 dB for autocorrelation detection. The drawbacks of the additional required bandwidth, congestion of the channel and the unexpected error position in the Baker sequence. In order to minimize bandwidth, Time – frequency – Time using Direct and reversed Fourier transforms is used based on acoustic electronic processors.

**Keywords:** OFDM. Barker sequence , BER

(ECO – Tourism and Cultural Heritage Conservation in Jordan, Case Study: Umayyad palaces the desert of Jordan)

الذي نُشر في مؤتمر :

(4<sup>th</sup> International Congress on Cultural Heritage and Cooperation for Development)

الذي عُقد في إسبانيا خلال الفترة 2010/6/18-16 .

ملخص البحث:

Due to technical and economic, most of the historic monuments and cultural material of important Umayyad Palaces located in the desert of Jordan is under risk of deterioration, this research illustrates some of these Palaces, their location and relationship with the Jordanian and inter – regional context, the existing use, the physical aspects and state of conversation. It tacks Qasr Amra as a case study, which is one of the most important palaces in Jordan from the architectural and artistic point of views; Specific historic and material analyses will be elaborated in order to evidence some important artistic particularities of this important building.

The objective of research is to highlight the existence of some world heritage Palaces, which necessitate more attention from the international in order to be appropriately protected and managed, tacking into consideration the importance of tourism international networks. The hypothesis concerns a sustainable protection approach, through a national tourism plan and a building conservational approach.

كلية الهندسة

الدكتور وتّاع العزاوي

(Some Aspect of Electronic Properties of Schottky Barrier Photo Detector)

الذي نُشر في مؤتمر :

(SSD'11)

الذي عُقد في تونس خلال الفترة 2011/3/25-22.

ملخص البحث:

The energy band diagram and space charge regions of Schottky barrier (SB) solar cells are different from normal pn solar cells. Many facts and theories must be studied and developed to assist understanding and implementing SB solar cells. Few samples of SB devices were prepared by thermal deposition under vacuum then tested and studied carefully. An interfacial layer was introduced between metal and semiconductor. I-V and C-V are measured, drawn and discussed in details. The current transportation mechanism of the prepared samples is found to be of thermal mechanism type. The current transportation depends on the potential barrier height. From C-V characteristics, it is found that the potential barrier height is decreased as the interfacial oxide becomes thicker.

عضو هيئة التدريس السيد إبراهيم أبو إصبيح

(The Effect of Cell Phones on Human Health)

الذي نُشر في مؤتمر :

(SPS-2011)

الذي عُقد في بولندا خلال الفترة 2011/6/10-8

ملخص البحث:

The effect of cell phone radiation on human health is the subject of recent interest and study, as a result of the enormous increase in cell phone usage throughout the world. Cell phones use electromagnetic radiation in the microwave range, which some believe may be harmful to human health. Other digital wireless systems, such as data communication networks, produce similar radiation. The objective of this survey is to review the effects of cell phones on human health:

A large body of research exists, both epidemiological and experimental, in non-human animals and in humans, of which the majority shows no definite causative relationship between exposure to cell phones and harmful biological effects in humans. This is often paraphrased simply as the balance of evidence showing no harm to humans from cell phones, although a significant number of individual studies do suggest such a relationship, or are inconclusive.

**Keywords:** Human health, mobile phone, effect on human health, cell phone and human health

(The Conservation of Ottoman Hijaz-Jordan Railway)

الذي نُشر في مؤتمر :

(Safeguard of Architectural, Visual, Environmental Heritage)

الذي عُقد في إيطاليا خلال الفترة 2011/6/11-9

ملخص البحث:

The oldest railway in the Arab world was established in 1900 by the Ottoman Caliphate nations of the greater Islamic community for religious, political and economic purposes. The history of the train and its track became of international interest during the first world war. The line, in fact was of strategic importance in controlling and protecting the Arab regions from the British invasion. It was repeatedly damaged by T.E Lawrence (Lawrence of Arabia) who supported the Arab revolt for independence from the Turks.

The importance of the line was reduced consequently to the division of the Bilad Ash-Sham (Syria, Jordan and Palestine) and the Arabian Peninsula into different countries during the last century. Recently, the line has been largely abandoned as a result of serious risk of accidents in different locales. The state of conservation of many Ottoman buildings as well as steam locomotives, carriages and historic industrial tools related to train maintenance are all seriously threatened.

This paper aims to reevaluate the historic importance of the line and its track, which measures over 1300km. This paper is also intended to promote technical restoration programs and appropriate tourist initiatives in order to conserve the material and cultural value of such a historic railway.

**Keywords:** Jordanian Railway Heritage, Abandonment Risks, Analyses, Rehabilitation, Re-use.

الدكتور علي توفيق الخوالدة

(Improvement of the Performance of Hybrid Control of an Induction Motor Drives by Using Robust Neural Networks)

الذي نُشر في مؤتمر :

(International Conference on Electrical, Computer, Electronics and Communication Engineering)

الذي عُقد في فرنسا – باريس خلال الفترة 2011/6/26-24

ملخص البحث:

Neural networks and fuzzy controllers are considered as the most efficient approximators of different functions and also prove their capability of controlling nonlinear dynamical systems So, in this paper , the authors introduce a novel technique of control called "hybrid control " which is Based on feedback Linearization and Field Oriented Control of an controllers (speed and flux ones). In fact, the objectives to perform the control which is shown by simulation result.

**Keywords:** Induction motor , field – oriented control , sliding mode controller ,robust artificial neural networks controller , Lever berg- Mar quart algorithm.

(BER Performance of Parity Selected Codes for 4-ary PAM Communication System)

الذي نُشر في مؤتمر :

(SPS-2011)

الذي عُقد في بولندا خلال الفترة 2011/6/10-8

ملخص البحث:

To ensure reliable communications, (an algorithm has been built for bit error detection and correction). To achieve this goal, special codeword combinations and their related parity codes are used as powerful detection and correction codes. All codeword combinations are divided into four main groups, where each code in a group has a common parity code. In this paper, we used the distance feature between special selected codeword combinations and unique combinations from a fixed set to improve the BER in digital communications systems. The results of using such algorithm show that 100% correction of two errors and 66% of three errors. The probability of detection is very high and up to 8 errors in different positions. All correction and detection processes are achieved with minimum number of transmitted bits representing 4- ary PAM symbols with compression ratio equals to 76% comparing to traditional distance parity check codes.

**Keywords:** Parity codes, position codes, compression.

ملخصات الأبحاث المدعومة المنشورة في مؤتمرات :

الدكتور ونّاع العزاوي

(Optoelectronic Characteristics of Modified Schottky Barrier solar Cell)

الذي نُشر في مؤتمر :

(World Renewable Energy Congress – Indonesia)

الذي عُقد في اندونيسيا – بالي خلال الفترة 2011/10/19-17

ملخص البحث:

In the field of electronic materials research, enormous research papers have been published that help to understand and implement Schottly barrier (SB) solar cells, The focus of this paper is the energy band diagram and space charge regions of SB which are not the same as normal PN solar cell. A number of appropriate sampled of SB were prepared using thermal deposition in vacuum condition with an interfacial layer placed between the semiconductor and metal. The characteristics diagrams I-V were plotted and analyzed fully. It can deduce that the current mechanism of the sample under consideration was thermal mechanisms type while the current transportation was function of the potential barrier height. The C-V characteristics also indicated that potential barrier height inversely proportional with the thickness of the interfacial oxide layer. Variations of photo generated current, responsively and quantum efficiency as a function of incident light wavelength were measured. It was found that the shape of the curves has two maxima; one was around 500 nm and other at a round 700 nm. Ni (100) - SiO<sub>2</sub> - Si structure showed the maximum responsively of 400 m A/W at 550 nm.

**Keywords:** Schottky barrier diode, MOS structures, MOS solar cells.

الأستاذ الدكتور قاسم العبيدي

(Fuzzy – Based Gang Scheduling Approach for Multiprocessor Systems)

الذي نُشر في مؤتمر :

(Ninth International Multi – Conference on Systems, Signals and Devices)

الذي عُقد في المانيا خلال الفترة 2012/3/23-20 .

ملخص البحث:

Different types of task scheduling problems have been formulated due to their importance in operating systems design. However, the problem has been shown to be computationally difficult and it is not possible to obtain optimal solutions. Therefore, more attention has been paid to formulate approximate and heuristic algorithms during recent years. This paper presents an attempt to adopt a modified scheduling algorithm suitable for multiprocessor systems by applying soft computing concepts. It suggests a modified approach for multiprocessor scheduling by combining gang scheduling and fuzzy logic decision maker. The fuzzy decision maker uses incomplete information about current states of the jobs and multiprocessor system to compute a new priority for each runnable task. The proposed scheduling approach is tested on several case studies, and computational results are compared to those obtained with other approaches. The given results proof that the proposed approach achieves the best performance including the computational efficiency, the average waiting time, and the average turnaround time.



(Optical OFDM QoS Improvement based on Wavelet Packet Transform)

الذي نُشر في مؤتمر :

(Ninth International Multi – Conference on Systems, Signals and Devices)

الذي عُقد في المانيا خلال الفترة 20-2012/3/23

ملخص البحث:

An optical Orthogonal Frequency Division Multiplexing (OFDM) has been proposed based on Wavelet packet transform (WF-O-FDM). In this paper, a performance investigation has been made to check the validity of the proposed work. This investigation has been made based on two crucial factors, BER and the Complementary Cumulative Distribution Function (CCDF).

A MATLAB based simulation has been taking over to examine this performance and to compare it with conventional OFDM that is based on FFT. The extracted results show that the WF-O-FDM depicts an improvement of the BER for the same optical bandwidth occupancy, while the Peak to Average Power Ratio (PAPR) values has been reduced for about 85% compared with the conventional one.

الأستاذ الدكتور احمد ابو الهيجاء

(Jordanian Villages and Landscape: More Sustainable Planning, Less Physical And Social Degradation)

الذي نُشر في مؤتمر :

(Less/More Architecture Design Landscape)

الذي عُقد في إيطاليا – نابولي في 2012/6/2-2012/5/31.

ملخص البحث:

In the traditional Jordanian agglomeration, the rapid urban development and the abandonment of most of the rural, due essentially to the lack of national policy in controlling the process of planning, has caused serious variation of architectural character and urban landscape. Local territorial laws and building regulation contributed both positively and negatively in this accelerating transformation.

This paper illustrates some aspects of Jordanian villages concerning their typology and architectural traditional elements. Particular attention is given to the urbanization impacts on the local communities, in light of the transformation of rural activity due to the reduction of agricultural areas, which has negatively affected the physical integrity of the production lands, altering the characteristics of the ecosystem and the system of relations. This process is irreversibly threatening the rural character and natural landscape of valuable and rare areas, whereas 97% of Jordanian consists of desert areas.

The objectives of this research are highlight the importance of conserving the original of these villages and support the characteristics of its rural activities, introducing sustainable concept in Jordanian planning strategy. It also advocates the need for the enactment of specific law for integrated planning – at different levels – and introducing specific guidelines for intervention methodology, concerning landscape and architecture, with particular attention to the European experiences (especially the Italian) in respect of the protection of tangible cultural human values, in terms of conservation of memory of places , traditional identities , in a process of sustainable development . Particular attention is given to the process of formation of the landscape Territorial Plan with regard to the European Landscape Convention.

**Keywords:** Traditional Jordanian settlements, Rural transformation, Integrated planning, Italian Landscape Experience.

(Strategic Map towards the production of Jordan Oil shale and Spent shale )

ومقدم على شكل (Poster Format)

الذي نُشر في مؤتمر :

(المؤتمر الدولي حول الصخر الزيتي بالأردن)

الذي عُقد في البحر الميت

ملخص البحث:

This paper an overview on the use of spent shale in the production of Sodium Carbonate, Ammonium Sulfate, and potassium Sulfate as well as many other uses in the cement and construction industries .Apart from the main focus of producing oil and gas product, such uses will be considered as added value in the overall assessment and evaluation of oil shale industry.

It is possible to develop suitable equipment for the production of oil from oil shale, but with different conditions to control the temperature of the residue of retorted oil shale to enable the calcium carbonate to dissociate into calcium oxide and carbon dioxide which are the main materials for the production of sodium carbonate, ammonium sulfate and potassium sulfate. A schematic flow diagram will be presented to from the basis for the construction of a pilot plant that utilizes the process of producing oil on one fold and the production of the said products on the other fold. Further uses of spent shale in the production of cement. Building bricks and other construction materials will also be highlighted .As an added value is the possible investigation of the rare earth metals that are hidden in the spent shale.

It is concluded that the focus on the production of oil from the oil shale will form a misleading indicator on the oil shale industry if the benefits from utilizing the spent shale was not taken into consideration.

الدكتور أحمد إسماعيل قنديل

(أثر تغيير الديكور المسرحي في صوتيات مسارح الأوبرا الإيطالي)

الذي نُشر في مؤتمر :

(Riassunti AIA 2012)

الذي عُقد في روما- إيطاليا خلال الفترة 2012/7/6-2012/7/4.

ملخص البحث:

Le rappresentazioni di opere liriche nei teatri all' italiana comportano il cambio delle scenografie nella torre senica. Gli allestimenti possono essere, sia per la forma sia I material impiegati .

Scope del lavoro è la valutazione degli effetti delle scenografia sulle sulle proprietà acustiche della sala , ovvero la determinazione di possibili variazione dei parametri acustici nell ' uditorio al variare delle scene in uso. Sulla base di misure sperimentali delle proprietà acustiche è stata effettuata una simulazione numerica del teatro con una "taratura" nella condizione osservata. Il modello poi è stato modificato con il cambio degli allestimenti scenici. Per le simulazioni è stato utilizzato il software "Odeon" I risultati delle simulazioni hanno consentito di verificare che le scenografie modellate hanno un "influenza moodesta.