

ملخصات الأبحاث المدعومة المنشورة في مؤتمرات :

كلية تكنولوجيا المعلومات

الدكتور فادي فايز عبد الجابر

(A traffic load comparison of red and DRED analytical models)

الذي نُشر في مؤتمر :

(Internet technologies and applications "ITA09")

الذي عُقد في بريطانيا خلال الفترة 8-2009/9/12.

ملخص البحث :

One of the Random Early Detection (RED) algorithm drawbacks is the dependency of the congestion metric (average queue length) on the traffic load level. So, when the traffic load is high the average queue length might exceed the maximum threshold location at the router queue, and thus every arrived packet will be dropped, which leads to poor network performance. One of the methods that deal with the above issues is the Dynamic Random Early Drop (Dear) analytical model, which maintains its network performance regardless the traffic load level. In this paper, we propose a DEAR analytical model and contrast it with the classic RED algorithm with regards to the following evaluation measures. Average queue length, throughput, average queuing delay. Packet loss rate. And packet dropping probability function, aiming to specify the one that offers better Quality of service (QoS) for the traffic load. We show that our DRED analytical model produce better result than that of RED with respect to average queue length. Throughput, packet loss rate, and packet dropping probability when the traffic loads are high whereas, RED generates similar performance to the DRED model when the traffic loads are low.

Keywords: DRED Analytical Model, RED, Discrete –time Queue, Performance Measures.

(XQpoint: A Queriable Homomorphic XML Compressor)

الذي نُشر في مؤتمر :

(Innovations 2009)

الذي عُقد في دولة الامارات العربية المتحدة/العين خلال الفترة 2009/12/17-15.

ملخص البحث :

XML has becoming the standard way for representing and transforming data over the World Wide Web. The annoying problem with XML documents is that they have a very high ratio of redundancy, which makes these documents storage demanding and require a large network band-width for transmission. To remedy this problem, a lot of approaches had been conducted in order to compress XML documents. Some of these approaches supply querying the compressed documents, while others compress the XML documents for archival purposes. In this paper we propose a new XML compression technique that obeys the structure of the XML documents and provides the ability to querying the compressed document with both content and structure (CAS) queries type. XML elements and attributes names are encoded by using fixed-point dictionary-based technique. Other XML data are organized into special containers according to their path from the root attribute, and the containers are compressed using the same fixed-point technique. Using different types of XML documents and different styles of user queries, the XQPoint has been experimented to test its effectiveness in both the compression ratio and the querying performance.

الدكتور محمد محافظة

(Hamming Code for Compressing Audio Files )

الذي نُشر في مؤتمر :

(The 2009 World Congress in Computer Science Computer Engineering and Applied Computing)

الذي عُقد في الولايات المتحدة الامريكية في الفترة 2009/7/16 -13 .

ملخص البحث :

Audio files if large size need to be compressed before being stored or transmitted. A bitwise code on hamming code was proposed and lightly tested on text files. This paper extends the proposed idea to a Fixed Length based on Hamming (FLH) algorithm. It investigates the performance of applying the FLH for compression audio files. The performance of the FLH was compared with the performance of other algorithms: Arithmetic Coding (AR) FGK, Huffman (HU) and lapel – (LZ). The FLH performed better than FGK and LZ – in terms of compression ratios and entropies for most of the tested files. In terms of entropy, the FLH becomes next to HU when compressing samples of windows and Biblical files.

**Keywords:** Arithmetic Coding, Compression Ratio Entropy, Fixed – Length Hamming, Huffman.

(Use Case Patterns Driven Requirements Engineering)

الذي نُشر في مؤتمر :

(The 2<sup>nd</sup> International Conference on Computer Research and Development  
"ICCRD2010")

الذي عُقد في كوالالمبور – ماليزيا خلال الفترة 7 – 2010/5/10 .

ملخص البحث :

Based on a novel multi-phases process, a new use case patterns catalogue is constructed. This catalogue is then utilized as a framework for a new use case patterns driven approach for requirement engineering. The application of the approach in a Test Warehouse environment showed two main promising results. First, the approach could save up to 30% of the time required for the requirements engineering phase of software development projects. Second, resulted requirements models from the proposed approach showed high completeness percentage between 85% and 95%. Nevertheless, users raised a number of concerns that has been considered to outline prospective phases of this research.

الدكتور ادیب حمدون سليمان

(Fractal Based Fragile Watermark)

الذي نُشر في مؤتمر :

(ICCEE 2009)

الذي عُقد في دبي – الإمارات العربية المتحدة خلال الفترة 28-2009/12/30.

ملخص البحث :

The protection of ownership and the protection of unauthorized tampering of multimedia data (audio, image, video, and document) have become a major concern for the authors of multimedia. Image authentication verifies the originality of an image by detecting malicious manipulation. The protection of ownership and the protection of unauthorized tampering of multimedia data (audio, image, video, and document) have become a major concern for the authors of multimedia. Image authentication verifies the originality of an image by detecting malicious manipulations. Digital watermarking researches have generally focused on two classes of watermarks, fragile and robust. Fragile watermarks are used for authentication purposes and are capable of detecting even minute changes of the water marked images. Robust watermarks are designed to be detected even when attempts are made to remove them. In this paper, we focus on the first class of watermarking for digital images authentication by creating a mark based on the self similarities blocks properties of fractal encoding. We start with fractal encoding algorithm, then, partitioning the tested image into ranges and domains blocks, finding the pieces of ranges and their corresponding domains by minimizing the distances between them, finally, we create the mark by partitioning the same image into four columns of equal size and compute the mark through the determination of location for domain block parameters in which column number occurs.

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الدكتور فادي فايز عبد الجابر

(Performance Analysis of the Proposed Adaptive Gentle Random Early Detection Method Non Congestion and Congestion Situations)

الذي نُشر في مؤتمر :

(The International Conference on Digital Enterprise and Information Systems "DEIS2011")

الذي عُقد في لندن – بريطانيا خلال الفترة 20-22/7/2011.

ملخص البحث :

The developments in computer networks in recent days such as the internet have increased rapidly. Connections of these networks necessitate resources in order to send their data to their prospective destinations. Further, the connections require high speed router buffers which they route data in high speed. Congestion is one of the main issues that occur at the router buffer cause deterioration of the network performance, i.e. increasing average waiting time, decreasing throughput, etc. Gentle Random Early Detection (GRED) is one of the known congestion control algorithms proposed to detect congestion before the router buffer overflows. In fact, GRED improves the setting of the parameters for the maximum threshold position (max *threshold*) at the router buffer and the maximum value for the packet dropping probability ( $D_{max}$ ). This paper proposes an Adaptive GRED algorithm that detects congestion at router buffers in an preliminary stage, and enhances the parameters setting of the max *threshold* and the  $D_{max}$ . During congestion, the simulation results reveal that the Adaptive GRED drops fewer packets than GRED, and it marginally offers better performance results than that of GRED.

(Ontology Alignment Technique for Improving Semantic Integration)

الذي نُشر في مؤتمر :

(The Forth International Conference on Advances in Semantic Processing  
"SEMAPRO 2010")

الذي عُقد في فلورنس/إيطاليا خلال الفترة 25-2010/10/30 .

ملخص البحث :

A new technique for ontology alignment has been built by integrating important features of matching to achieve high quality results when searching and exchanging Information between ontologies. The system is semiautomatic and enables syntactical and semantic interoperability among ontologies. Moreover, it is a multi-strategy algorithm which can deal with and solve more than one critical problem. Therefore, it is likely to be more conveniently applicable in different domains. Also, we improve a semantic matcher based on combining lexical matcher with several rules and facts. Moreover, our technique illustrates the solving of the key issues related to heterogeneous ontologies, which uses combination-matching strategies to execute the ontology-matching task. Therefore, it can be used to discover the matching between ontologies. The main aim of the work is to introduce a method for finding semantic correspondences among heterogeneous ontologies, with the intention of supporting interoperability over given domains. Our goal is to achieve the highest number of accurate matches.

**Keywords-**Ontology; Semantic Interoperability; Heterogeneous; Ontology Alignment.

الدكتور وائل هادي

(Automated Arabic Text Categorization Using SVM and KNN )

الذي نُشر في مؤتمر :

(The 15<sup>th</sup> IBIMA Conference on Knowledge Management and Innovation)

الذي عُقد في القاهرة – جمهورية مصر العربية خلال الفترة 6-2010/11/7 .

ملخص البحث :

Text classification is a supervised learning technique that uses labeled training data using to derive a classification system (classifier) and then automatically classifier unlabelled text data using the derived classifier. In this paper, we investigate K-Nearest Neighbor method (KNN) and Support Vector Machine algorithm (SVM) on different Arabic data sets. The bases of our comparison are the most popular text evaluation measures. The experiment results against different Arabic text categorization data sets reveal that SVM algorithm outperforms the KNN with regards to three known measures.

**Keywords:** Text Categorization K- Nearest Neighbor , Arabic Text Data, Support Vector Machine.

كلية تكنولوجيا المعلومات

الدكتور أيمن أحمد يوسف عيسى

(Towards Well Documented and Designed Agile Software Development)

الذي نُشر في مؤتمر :

(The 22nd IASTED International Symposia on Modeling and Simulation MS 2011)

الذي عُقد في كندا (Calgary, AB, Canada) خلال الفترة 4-6/7/2011.

ملخص البحث :

Software development is moving towards agility with light requirements and design documentation. This resulted in delivering tenuous software systems that are very difficult to maintain. This paper reports on new automated approach for requirements engineering that is inline with agile aims of use case based and fast software development. Also, the proposed approach reflects on system design being integrated with an open source computer aided software engineering tool that will automatically generate models for systems elicited using the proposed approach. Practical application of the proposed approach showed its ability to save up to 30% of software development time. Further work is being carried out to generalize the approach to fit the context of other software development life cycles.

**Keywords:** Agile methods, requirements modelling, software modelling.

الدكتورة روان أبو ليل

(General and Special – Purpose methodologies for agent oriented software engineering)

الذي نُشر في مؤتمر :

(2012 International Conference Information and Education Technology)

الذي عُقد في موبايي - الهند خلال الفترة 14-15/1/2012

ملخص البحث :

This paper provides of software engineering process and it's in open system industry .It focuses on orientation of multi agent systems and on some representative agent oriented software engineering methodologies such as Gaia, ROADAP, Tropos MaSE ADELFE and SADDE with their strength and weaknesses. This it describes the agent oriented software engineering development lifecycle it also presents a comparative evaluation of Agent oriented software engineering methodologies, finally it recommends further research and improvements for the existing methodologies. This an important conclusion in support of agent – oriented methodologies, as it may promote these enhancements and help arriving at industry – grade methodologies.

**Keywords:** Software engineering process, Multi agent systems, Agent oriented software engineering methodologies.

(Determinants of Relationship Quality in E – Banking Services: A Customers Perspective in Jordan)

الذي نُشر في مؤتمر :

(International Business Information Management Conference "18<sup>th</sup> IBIMA")

الذي عُقد في اسطنبول – تركيا خلال الفترة 9-10/5/2012 .

ملخص البحث :

Drawing upon the marketing literature, relationship quality has emerged as a paradigm that indicates the extent that the customer trusts the service provider and has confidence in the service provider's future performance. Jordanian banks have invested heavily to develop its- e-banking services, in order to strengthening the relationship with existing customers, enhancing their trust with the bank and attracting of new customers. This paper aims to identify the key dimensions that shape the relationship quality between Jordanian banks and their customers who are utilizing the e \_Banking services. Based on an extensive review of relevant literature, we have formulated three hypotheses and identified three factors (satisfaction, trust, and commitment) that may affect the competitiveness and success of Jordanian banks.

Survey data from 200 customers from four banks in Amman city the capital of Jordan were collected and used to test the proposed hypotheses. Based on descriptive statistics and multiple linear regression analyses, our empirical analysis demonstrates several key findings. These findings indicate the importance of investigation the dimensions of relationship quality so as to provide feedback in a set of recommendation that will be key sources of superior performance and competitive advantage.

Keywords: e-banking Relationship Marketing, Relationship Quality, Jordan.