

**4th International Conference on Islamic
Applications in Computer Science and
Technologies (IMAN 2016)**

20 – 22 December 2016



**International Conference on Islamic Applications in
Computer Science and Technologies**

IMAN2016

المؤتمر الدولي للتطبيقات الإسلامية في علوم الحاسوب وتقنياته

إيمان 2016

Organized by



Universal Academy of Science and Technology



Africa City of Technology



Design for Scientific Renaissance Sdn. Bhd

International Conference on Islamic Applications in Computer Science and Technologies – IMAN 2016

Background

Information Technology and its applications in different aspects of life have had a significant impact in serving Islam and Sharia in all its forms, including the service to the Holy Quran, Hadith, Fiqh and other Sharia sciences. This conference aims at providing the most important applications and Software that could contribute to serving Muslims and their religion and community, and aims to encourage scientific research by using IT tools in Sharia sciences as well as presenting and evaluating Muslims Contributions in Computer Science Applications and Technology. The conference shall also be a platform to serve Arabic language, Machine Translation to and from Arabic, Natural Language Processing of Arabic Language and voice & character recognition of Arabic language.

Tracks of IMAN 2016:

- Muslim Contributions in Computer Science Applications and Technology
- IT in the service of the Holy Quran and its Sciences
- IT in the service of the Hadith and the Sunnah
- IT in development of Islamic society
- IT in the service of Islamic Jurisprudence and its Sciences
- IT in the service of Islamic History and Civilization
- IT in the service of Islamic knowledge and the role of Muslim Scholars
- IT ethics from Islamic point of view
- Islamic Databases
- Evaluation of Islamic Software
- Computer Applications in the service of Arabic language and Machine Translation
- Natural Language Processing of Arabic Language

المؤتمر الدولي للتطبيقات الإسلامية في علوم الحاسب

والتقنية - إيمان 2016

المقدمة

تقنية المعلومات بإمكاناتها المذهلة، وبتطبيقاتها المتعددة في مختلف جوانب الحياة كان لها الأثر الكبير في خدمة الإسلام والعلوم الشرعية بكافة أشكالها بما في ذلك خدمة القرآن الكريم والحديث الشريف والسيرة والفقہ وغيرها من العلوم الشرعية. يهدف هذا المؤتمر إلى تقديم أهم تطبيقات وبرامج الحاسوب التي ساهمت في خدمة المسلم في دينه ومجتمعه وأسرته، كما يهدف إلى تشجيع البحث العلمي في العلوم الشرعية بمساعدة الحاسوب ونشر انتاجات المسلمين في هذا المجال والوقوف على جوانبها. وكان للغة العربية نصيبها من هذا الاهتمام عن طريق المعالجة الآلية وإدراك النص المكتوب أو المقروء بالإضافة إلى الترجمة الآلية من العربية وإليها

مواضيع المؤتمر

- انتاجات المسلمين في تطبيقات علوم الحاسوب وتقنياته
- تقنية المعلومات في خدمة القرآن الكريم وعلومه
- تقنية المعلومات في خدمة الحديث الشريف والسنة النبوية
- تقنية المعلومات في خدمة التاريخ والحضارة الإسلامية
- تقنية المعلومات في خدمة المعارف الإسلامية ودور علماء المسلمين
- الأخلاق في مجال تقنية المعلومات من وجهة نظر إسلامية
- تطبيقات الحاسوب في خدمة اللغة العربية والترجمة الآلية
- تطبيقات قواعد البيانات في المجالات الشرعية
- تقييم البرامج الإسلامية
- المعالجة الآلية للغة العربية
- أية مواضيع أخرى في تقنية المعلومات تخدم الإسلام.

IMAN 2016 Participants Countries

الدول المشاركة في المؤتمر

Algeria
Bangladesh
Canada
Egypt
India
Indonesia
Iraq
Jordan
Kuwait
Libya
Malaysia
Morocco
Nigeria
Saudi Arabia
Sudan
Tunisia
USA
United Kingdom

GENERAL CHAIR FORWARD



By the grace of Allah, it is a great pleasure to introduce the program of the fourth

International Conference on Islamic Applications in Computer Science and Technology

After the success of the first conference held in Kuala Lumpur, Malaysia on 1-2 July 2012, the second conference in Amman, Jordan on 12-13 October 2014 and the third conference in Konya, Turkey on 1-3 October 2015, this fourth conference was supposed to be held in African City of Technology –Khartoum in 20-22 December 2016. Unfortunately we are forced to hold it online for local circumstances in Kharoum. The program includes over 30 papers both in Arabic and English languages. The authors of these papers come from Algeria, , Malaysia, Morocco, Kuwait, Jordan, Tunisia, Indonesia, Egypt, Saudi Arabia, Sudan, United Kingdom and United States.

May Allah give his guidance and grace to all those who shared in organizing and contributing to this conference.

General Chair

Professor Mohammed Zeki Khedher

تقديم

الحمد لله والصلاة والسلام على رسول الله وعلى آله وصحبه ومن والاه .

إنه من داعي الغبطة والسرور أن نقدم هذا الكتيب بين يدي المؤتمر الرابع للتطبيقات الإسلامية في علوم الحاسوب وتقنياته الذي كان من المقرر أن يعقد بين 20-22 كانون الأول/ ديسمبر 2016 في مدينة افريقيا التكنولوجية بالخرطوم، السودان، إلا أننا نأسف لتحويله إلى مؤتمر عن بعد بسبب ظروف محلية في الخرطوم . ويأتي هذا المؤتمر بعد النجاح الذي حققه المؤتمر الأول الذي عقد في 1-2 تموز 2013 برعاية جامعة المدينة العالمية في كوالمبور بماليزيا والمؤتمر الثاني الذي عقد في الجامعة الإسلامية العالمية في عمان بالأردن في 12-13 تشرين الأول /أكتوبر 2014 والمؤتمر الثالث الذي عقد في 1-3 تشرين الأول /أكتوبر 2015 في رحاب جامعة نجم الدين أربكان في قونية - تركيا .

ينضمّن برنامج المؤتمر تقديم أكثر من 30 بحثاً علمياً باللغتين العربية والإنكليزية. وتتوزع البلدان التي ينتمي لها الباحثون الذين قدموا أبحاثهم للمؤتمر إلى عدد كبير من البلدان يشمل الجزائر والأردن وماليزيا والمغرب والمملكة العربية السعودية والسودان وبريطانيا والولايات المتحدة وإنдонيسيا وتونس ومصر .

ندعو الله أن يوفق كل من ساهم في إنجاح هذا المؤتمر وكافة الذين قدموا أبحاثهم له وأن يكمل المساعي في خدمة الإسلام بالنجاح من خلال هذا الحقل العلمي الهام والله ولي التوفيق

رئيس المؤتمر

أ.م.د محمد زكي خضر

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KEYNOTE SPEAKER 1

Prof. Hany Ammar

West Virginia University, USA



Topic: Cloud Computing, the Internet of Things, and Islamic Applications

Abstract: The evolution of Cloud Computing enabled the technology of the Internet of Things (IoT) which is described as the next technological revolution. IoT describes several technologies and research disciplines that enable the Internet to reach out into the real world of physical objects. Technologies like RFID, short range wireless communications, real-time localization, and sensor networks are becoming increasingly pervasive, making the IoT a reality. This talk will describe the concepts of cloud computing and the IoT and their Islamic applications.

Biography: Prof. Ammar is a Professor of Computer Engineering in the Department of Computer Science and Electrical Engineering at West Virginia University. He has published over 150 articles in international journals and conference proceedings. He is currently the Editor in Chief of the Communications of the Arab Computer Society On-Line Magazine, and he previously served as the Editor in Chief of the Journal of Computer Science and Engineering, in Arabic. He co-authored a book entitled Pattern-Oriented Analysis and Design: Composing Patterns to Design Software Systems published by Addison-Wesley, and a book entitled Software Engineering: Technical, Organizational and Economic Aspects, an Arabic Textbook. He was awarded a Fulbright Specialist Scholar Award in Information Technology funded by the US State Department - Bureau of Education and Cultural Affairs. He has been a Principal Investigator on a number of research projects funded by the Qatar National Research Fund (QNRF), the US National Aeronautics and Space Administration (NASA), the US National Science Foundation (NSF), and the US National Institute of Justice (NIJ). Dr. Ammar has been teaching in the areas of Software Engineering and Computer Architecture since 1987.

KEYNOTE SPEAKER 2

Assoc. Prof. Dr. Refaat Hassan Al-Zanfally
Taibah University, KSA



**Topic: Computer service for training
Koranic readings (Quranic Qira'at
"Recitations")**

Abstract: This talk focuses on the science of Quranic Qira'at "Recitations", which is a very broad study domain, and has its importance among Quranic sciences, and assists students to learn the Quran and its multiple Recitations in self-learning manner, and allows for the identification of aspects and rules pertaining to the Quranic Recitations.

There is no doubt that the Ten Quranic Readings are a compilation of the above Famous Quranic Readings of imams whose Sanads are linked to the Prophet, peace be upon him. Ibn Al-Jazari has collected that in his poem including his book titled " Al-Tayyibah"poem in the Ten Readings" (منظومة طيبة النشر في القراءات العشر) , also including in his poem other books like "Al-Taysser", "Al-Tadhkira", "Al-Irshad", "Al-Ghaya" and "Al-Tabssira". The combination of Quranic reading are made by verse or section of the verse through "Al-Tayyibah"poem , called also the Big Ten Readings because all the Narrators have more than one way linked to the Imams .

In this study, we provide an data-base management system (DBMS) to educate, train and recite the Holy Quran through the Combination of the Ten Famous Readings from Al-Tayyibah poem , where are presented aspects of reading the section of the verse in all aspects mentioned in Al-Tayyibah (i.e. Ossoul, Farsh of each Imam, Narrator, and Way). This is done in writing, and reading from scholars who have completed reading the Quranic Quiraats; alongside with mentioning the evidence from Al-Tayyibah. This has been applied to the first face (first page) of Al-Anaam Chapter (from verse 1 to verse 8).

The DBMS system also allows selection of the Chapter and the verse that the trainee wants to know, aspects of reading and explaining the origins and furnished with the possibility of repetition to make sure of

reading comprehension; and taking into account the individual differences of the learner.

The proposal for such system takes advantage of information technology in learning, acquiring and developing some skills learned readings; and to contribute to raising the achievement of students and prepare them for mastery of Quranic Qira'at and "Recitations".

Biography: Dr. Al-Zanfally is an Associate Professor of Community College, Dept. of Computer Science & Informatics, Taibah University, Al Medina Al Munawara, KSA. He is also a Standing Committee member of the Center for Information Technology Research to serve the Holy Quran and its Sciences (Noor), Taibah University. He received his M.SC. in Computer Science & Communication at Faculty of Engineering, Cairo University in 1984 and his Ph.D. in Digital Communication in Satellite Channels, M.T.C, Cairo, in 1988. Dr. Al-Zanfally supervised many master and PhD theses in the area of specialization faculties of Engineering Mansoura, and Al-Azhar, University of Ain Shams in Egypt. He is a Principle-Investigator in (Noor project NRC-170) " Development and Implementation of Computer Software for the Teaching and Training of the Recitations of the Holy Quran using the Seven Recitation Methods of Al- Chatebei". He was a keynote speaker in several International conferences and published many research papers in scientific journals and international conferences.

الأبحاث المقبولة باللغة الانجليزية
Accepted Papers in English

Enable Deaf Community From Inviting Others To Islam By Development Of a Program Automatic sign language to Speech Translator

Fatma Ahmad Shaban

Abstract

The participation of the deaf and communication with others about the Islamic religion and its rituals or talk and communicate with others about the Islamic religion and its rituals interest every deaf Muslims. Hence the idea of developing a program that translates the signal into speech language or text concerning Islamic sentences and Islamic terminology. In this study will be the development of the program automatic translation of the sign language Whether based on computer vision or based on sensors of the gloves movement concerning Islamic sentences and Islamic terminology Automatic translation of sign language programs represent a difficult challenge in the field converting The movement of Gloves into sound using sensors or in the field of images processing and graphic computerized which had its contributions in translating the lexical form of gestures and signals and the development of algorithms that apply around effectively on a large segment of the vocabulary processing.

This research will be develop sign language databases whether Arabic or English language to include Islamic vocabulary ,Islamic sentences and Islamic terminology, which will be developed so that gathering images and videos of the vocabulary and terminology of Islamic sign language recognition system for vocabulary and sentences and terminology of Islamic that collects images and videos in the field of computer vision using bare hands the system is able to match and compare the input sign trajectory with each of the prototype trajectories contained in the database with lower. The developed Islamic sentences and Islamic terminology recognition system has attained significant performance in term of recognition accuracy and speed that allows a real time translation of sign into text and/or voice.

Android App for Muslim Daily Activities

Adnan Shaout, Ibrahim Alafeef, Abdelwahed Motwakel

Abstract

There are many Android applications that serve Muslims all over the world and the most important applications are those that provide information to help M in their daily Islam activates. In this paper we will present an Android application that includes many features that could serve Muslims in their daily life such as providing a Muslim with a map of all mosques around him, give the ability for an Islamic cleric to post his lecture schedules, live streaming from Makah etc.

A Hybrid Recognition System for Islamic Annotation and Historical Arabic Handwritten Manuscripts

Omar Balola and Adnan Shaout

Abstract

In this paper, a multi neural-fuzzy recognition system with two combined statistical features, to solve the recognition problem of Historical Arabic Handwritten (HAH) manuscripts will be presented. The first set of statistical features are center of mass, crosshair, outlier and blank ink histogram (CCOB). The second feature is the principal component analysis (PCA). The new method will use two stages (levels) which are based on two classifiers, a public and a private according to the similar features among characters. In the first level, we built a public classifier to deal with all character groups. Each group contains characters with overlapped features. The public classifier classifies the characters in the segmented character data set, which is captured from HAH manuscripts to specified groups. In the first stage, the system was applied to 34 Arabic characters and achieved 97.15% recognition rate for the tested dataset. In the second level, we created a private classifier for each group to recognize and classify the characters within a group which achieved 99.34% recognition rate for the tested dataset using the two level model.

Fingerprint Intelligent System for Servicing the Holy Sites in Saudi Arabia

Abdelwahed Motwakel, Adnan Shaout and Malak Osman

Abstract

In this paper, a full fingerprint identification system with a fingerprint image quality analysis and enhancement system (FIQAE) will be presented. The FIQAE system has the ability to identify three types of fingerprint images; oily, neutral and dry. The FIQAE system is based mainly on fuzzy inference system and fuzzy morphology. The FIQAE system extracts four features from a fingerprint image which are the local clarity score (LCS), global clarity score (GCS), ridge_valley thickness ratio (RVTR) and the contrast, to analysis the fingerprint image. The FIQAE system determines the method of enhancement based on the state of fingerprint image quality. The FIQAE system has the ability to discover fraud in a fingerprint image for three cases dry, neutral and oily fingerprint image alterations. The FIQAE system can be used to serve the holy sites by first enhancing the pilgrims fingerprint images then identify fingerprint image fraud.

Developing a Centralised Approach for authentication of Online Quran with Assistance of Muslim Scholars

Zahida Parveen and Samina Naz

Abstract

The Magnificent Qur'an, the Muslims' sacred and the most authentic Book, was revealed in Arabic the most immense language all over the world. Prophet Muhammad (PBUH) upon who this book was revealed in twenty three (23) years make complete arrangements for its authenticity by transferring Allah's message to His Companions through reciting exact word by word preserving the accurate order. Nowadays with huge advancement in information technology(IT) the preferences are given to the new advance and smart devices for reading, reciting and memorizing the Quran instead of Printed copy of the Holy Quran that is considered more reliable and authentic. No doubt this advancement has made it easy to access the Quran anytime, anywhere for everyone but has opened a real threat in the authenticity of digital Quran. This paper introduces the Centralised mechanism using blended approach of Digital signature and Zero-watermarking technique authentication of digital Quran. The skills to control the authenticity of digital Quran with the help of scholars can be challenging in the current situation. Now a days it is the big challenge for the users to identify the valid copy of digital (online) Quran. The Muslims everywhere in the world are facing deficiency of attentiveness in distribution of fake digital versions of Quran without acknowledgment of approved Muslims scholars. Muslims around the world individuals as well as groups have been putting huge effort to detect and eradicate illegal copies of Holy Quran. There should be one committee of Muslims scholars and IT experts which has both type of technological and Islamic knowledge about Quran. We therefore are going to propose digital Quran centralized authentication system by using latest authentication approach. The system is aimed to combining sophisticated knowledge of our outstanding Muslim scholars and extraordinary technological experts to provide the authentic, valid and error proof digital Quran to every Muslim.

Authentication Systems of Digital Quran, a Review

Nazish Fatima and Zahida Parveen

Abstract

The progression in data innovation has empowered the expansion of electronic adaptation of the Holy Quran. Numerous designers have thought of the electronic adaptation of the Blessed Quran which can be perused online on PC or on cell phones .While such expansion empowers more extensive spread of Islam. The coming of electronic variant of Quran and an expansion of Quran learners around the world have come about the innovation of number of IT (Information Technology) applications that facilitate the recovery of learning from the Quran, being the significant wellspring of credible and un-changed Islamic learning. The presentation of electronic form of the Holy Quran likewise acquaints a prominent risk with Islam. Electronic variant of fake or false Quran has been identified. The likelihood to safely validate electronic variant of the Holy Quran would unravel a greater part of the dangers. This study introduces a far reaching review of cutting edge, discourse, and an examination study of works led here. An answer is critically expected to give a decent substance security, and respectability of electronic adaptation of the Holy Quran. This study closes by abridging issues, strategy and prospects for verifying electronic adaptation of Quran.

Fuzzy Logic Computational Model for Islamic Websites Evaluation

Mohamed Yousif and Adnan Shaout

Abstract

The excellence of Islamic Websites can be effectively evaluated and classified by systematic and objective design criteria, which participates in disseminating Islamic knowledge. In the first phase of this study, we reviewed the literature, determined and defined suitable quantitative and qualitative criteria and then designed and exploited pairwise comparison and evaluation forms through a survey to get experts opinions/preference on the evaluation criteria that are used to measure the Islamic websites. This paper presents a fuzzy logic computational model based on this survey to measure and classify Islamic websites, which includes computation of criteria weights and overall evaluation of Islamic websites using AHP and TOPSIS fuzzy techniques.

Locating Pilgrims during Hajj Using Fuzzy Logic and Mobile Sensor Networks

Malak Osman, Adnan Shaout and Abdelwahed Motwakel

Abstract

Locating pilgrims during Hajj season is an important and difficult issue which needs to be solved. Pilgrims can communicate with each other to exchange road information. One of the challenging issue during the pilgrim season is to determine the location of a pilgrim in the holly city. In this paper, an intelligent localization method is proposed, which is based on fuzzy logic and neighbors' location information. The main objective of the proposed method is to estimate the location of a pilgrim by utilizing the location information of its neighboring pilgrims. To achieve accurate localization, pilgrims' weights are modelled using fuzzy logic system, which utilizes the distance and heading information in order to obtain the weight values. By assigning weights to neighboring pilgrims' coordinates, the concept of centroid localization (CL) is expanded. The proposed method is evaluated and its performance is also compared against CL. Results obtained from the simulation are promising and demonstrate the effectiveness of the proposed method in varying pilgrim densities.

Comparison Criteria for Computational Qur'anic Search Methods

Mohammad Alqahtani and Eric Atwell

Abstract

This paper reviews most of search tools constructed for the Holy Quran. Then, this paper evaluated these different search tools against 13 criteria depending on search features, output features, the precision of the retrieved verses, recall database size and types of database contents. Based on this Comparison, most of the Quranic search tools still cannot solve the ambiguity in the retrieved results because these tools use traditional query analysing and limited usage of Quranic ontology.

Automated Quranic Tajweed Checking Rules System Through Recitation Recognition: A Review

Mohamed Mahmud and Akram Zeki

Abstract

In the last few years, research into Automatic Speech Recognition (ASR) software for the Arabic language has gained importance. The way in which any Quranic verse is recited can differ from one person to another, as can even the same verse, as this is totally dependent on the reciters' level of understanding of pronunciation rules while reading the recitation of the Quran while delivering the verse. In this paper we review some techniques and methods that are used for building systems that are able to check Quranic Tajweed rules (pronunciation rules while reading the recitation of the Quran) through recitation recognition. This review explains and illustrates the main stages in speech recognition field starting from preprocessing, feature extraction to feature classification and recognition. In addition, this review focuses on using Mel-Frequency Cepstral Coefficients technique for feature extraction and using it together with Hidden Markov Model for feature classification.

Using Arabic numbers (singular, dual, and Plurals) Patterns To Enhance Question Answering System Results

Mohamed Adany and Eric Atwell

Abstract

In the field of information retrieval, it is very difficult to answer the question entered by the user, because the search engine retrieve a ranked documents that contain any key word or phrase inside the documents, this need another extra effort to search the answer inside the documents, and there may be no answer. The alternative of search engine is a question answering system, which it retrieves the exact answer of the question in the natural language if found. A question answering system accepts the question in the natural, then many processes were done to extract the exact answer. In general a question answering system is composed of three main components: question classification module, information retrieval module and answer extraction module. A question answering system is applied in holy Quran which written and cited in Arabic language, some characteristic of the Arabic language were used to enhance the answer extraction, one of these important characteristics is numbering, singular, dual and plural. A prototype build uses special pattern used to process the number in Arabic language, which enhance the answers by adding more words and meaning. A corpus of questions and its answers from holy Quran used to test and answers the question.

Semantic-based Ontology for Malay Qur'an Reader

Nor Diana Ahmad, Brandon Bennett and Eric Atwell

Abstract

The Quran has been translated into various languages around the world by Muslim experts. One of them is in Malay. There are numerous applications built to facilitate the retrieval of knowledge from the Malay Qur'an. However, there are limited resources and tools that are available or made accessible for the research on Malay Qur'an. Furthermore, there are several issues that need to be considered when dealing with Malay Qur'an translation; such as ambiguities of words, lack of equivalence words between Malay and English or Malay and Arabic, and different structures of word, sentence, and discourse in these two languages. Therefore, this research summarizes the search techniques used in existing research on Qur'an. Moreover, this paper also studied the previous research conducted on Qur'an Semantic Search and Quran Ontology-Based Search focusing on Malay Qur'an. This review helps the research in addressing the general problems and limitations in Malay Qur'an that influence its accessibility. This research proposed the research framework for new semantic based ontology for Malay Qur'an. The final outcome will be an accessible tool that can help a Malay reader to understand the Qur'an in better ways.

Extending the Quranic Arabic Corpus to a Warsh variant

Zahed Ahmed

Abstract

This paper describes the ongoing work to extend the Quranic Arabic Corpus which is currently based on the riwayat (recitation) of Imam Hafs (the most common form of Quranic reading) to the riwayat of Imam Warsh, based on the classical rules (phonetic and grammatical) that underpin the riwayat of Warsh. This paper demonstrates how to computationally generate the Warsh recitation of the Quran based on encoding ancient linguistic rules into a rules engine and then extending the existing Quranic Arabic Corpus with a parallel version for Warsh. Firstly, the concept of riwayat and a summary of the authentic riwayat (pl. riwayat) are introduced. Secondly, an overview of the rules which define the Warsh riwayat are presented with some detailed illustrations. Thirdly, the detailed implementation steps to convert from Hafs to Warsh are described. Finally the performance of the implementation is evaluated.

Intelligent Information Retrieval Approach using Discrete Wavelet Transform for Holy Quran in Smartphone Application

Huda Aljaloud, Mohammed Dahab and Mahmoud Kamal

Abstract

Answering mobile users' queries intelligently is one of the significant challenges in information retrieval (IR) in intelligent systems. Current popular Quranic retrieval application ranks the document by counting the occurrences of each of the terms and ignoring any other information in the document to solve the Verses of Quran retrieval problem. Considering the proximity between the query terms assists in the efficiency of ranking results and increases IR performance. The Spectral-Based Information Retrieval Model (SBIRM) considers the query terms' proximity by examining the term patterns that occur in the documents. To do this, SBIRM utilizes term signal representation and discrete wavelet transform (DWT). In this paper, we solve the Verses of Quran retrieval problem by proposing a novel document model, termed the Dynamic Document Model with Discrete Wavelet Transforms (DDMDWT). The DDMDWT exploits the variations in Verses of Quran length and mathematical transforms for document representation. The proposed model will enhance the existing term signal concept by additionally taking into consideration differing lengths of Verses of Quran. We designed and implemented an intelligent Quranic retrieval (IQR) Android application. In this IQR, the DDMDWT model contributes to reducing the time complexity of SBIRM and decreasing the index size by 20.98%, all while achieving improvement in precision, recall, F-measure, and MAP with compared to SBIRM. This paper also demonstrates how the DDMDWT model delivers a notable increase in the precision of the P@1 and P@3.

Contributions of Learning Machine in the decision and its impact on the management of organizations in Big Data

Yousef Farhaoui

Abstract

Big Data could be defined as an emerging phenomenon which refers to the practice of treatment of large and complex data volumes, with technical systems associated such as algorithms used to visualize and analyze real-time or not (real-time or batch) these massive data, to create added value for the organization. In parallel, the Data Mining also experiencing a rapid development (neural networks, genetic algorithms ...) and it is now possible to create self-learning IT structures. This is the Machine Learning: analysis and implementation of automated methods that allow a machine (at large) to evolve through a process of learning, and so perform tasks that are difficult or impossible to fill by more conventional algorithmic means. Combining the two concepts could lead to an Artificial Intelligence (AI) low which could upset the modes of decision-making within organizations. Possible opportunities are enormous for organizations: risk management, efficiency, adaptation ... a rational structure managed by the data rather than "political" decisions could enable new performance. However, the information system is now recognized as a highly strategic component for any organization (private company, government agency, etc.) because it brings it sustainable competitive advantages (operational excellence, better quality of service, increased sales business, better knowledge / relationship with its customers and suppliers, better decision making), or simply survival skills in a globalized world, complex, unstable and highly competitive.

The Quran corpus and its impact on linguistic studies

Jawharah Alasmari, Janet Waston and Eric Atwell

Abstract

The Quranic Arabic corpus is one of the most important computational tools that has been produced in Arabic language service. Therefore, the main purpose of this papers is to provide some details of morphological and syntactic structures of Arabic and English verbs through deep computing studies of the Quran. The paper will also highlight some investigations into the use of a sub-verb corpus, along with translations, in order to consider how Quranic contexts employ verb forms to indicate time and how Arabic verbs are rendered into English.

A comparative analysis between Arabic and English of the verbal system using google translate

Jawharah Alasmari, Janet Waston and Eric Atwell

Abstract

The Arabic language has not been widely studied in computational terms. Therefore, the main purpose of this study is to provide an understanding of morphology and forms of Arabic and English verbs in their syntactic context, in order to reveal details that can be used in current machine processing systems .

A Hybrid-based Term Extraction method on the Arabic text of the Qur'an

Sameer Alrehaili and Eric Atwell

Abstract

Identifying relevant domain terms is a crucial step of many Natural Language Processing (NLP) applications. Term Extraction is a process of obtaining a set of terms that represent the domain of a given text. Most of Term Extraction research projects conducted for the Quran, used translation text instead of the original text of Quran. Extracting terms from the original Arabic text of the Qur'an may help in retrieving more relevant terms than from a translation of the Qur'an due to the lack of Islamic equivalence for some Quranic terms in other languages. This paper demonstrates a hybrid-based method for acquiring a list of domain-specific terms from the Arabic text of the Quran. The produced list of terms validated a common evaluation for ranked list, precision of up to 0.81 is achieved for top-200 terms. We discussed the low precision was achieved when evaluating against two existing datasets from previous research .

The phylogeny of the quran: Text prediction technique for searching the text of the quran

Monther Tarawneh

Abstract

This paper reviews some of the common search techniques that have been applied to the Quránic text as well as their limitations and advantages. In addition, the paper investigates auto-completion techniques and their challenges to the Arabic language. Finally, it proposes a new auto-completion technique for the Quránic text, which improves the accuracy of the retrieved results when searching the text of the Qurán.

Requirements Model For Hajj and Umrah Mobile Healthcare System (HUMHS)

Amar Ibrahim Sharaf Eldein and Hany H Ammar

Abstract

Millions of Muslims embark on a religious pilgrimages "Hajj and Umrah" to Saudi Arabia every year. Saudi Hajj and Health authorities provide health facilities, services, and medical help during Hajj and Umrah seasons for the pilgrims. Due to pilgrims mobility in different religious places, proper healthcare procedures become a major concern. Providing proper and accurate patients' healthcare during religious pilgrims "Hajj and Umrah" is a big challenge especially for elder people. Many people do not know how to convey their medical history or even their current medication. A mobile healthcare informatics system, where patients can have the details of their medical history, can be an adequate solution. The objective of the study to develop the requirements for healthcare mobile cloud application that can improve healthcare procedures during Hajj and Umrah.

An Interdisciplinary Approach to Understand and Interpret the Religious Legislative Sources

Fairouz Bendjamaa and Nora Taleb

Abstract

This paper presents an interdisciplinary approach which allows us to understand and interpret the religious legislative sources. Its main objective is the analysis on ontologies. This approach will be applied on ontologies representing the knowledge in the Arabic religious legislative sources to help decision makers in the field of El-fatwa.

Structure Extraction and Keyword-based Filtering for Applying Malik Bennabi's Ruler on Intellectual Property of Islamic Finance and Banking

Roslina Othman, Mohamad Fauzan Noordin, Ria Hari Gusmita, Zahidah Zulkifli and Tengku Mohd Tengku Sembok

Abstract

This paper presents our work in structure extraction and keyword-based filtering for implementing Malik Bennabi's ruler on Intellectual Property (IP) of Islamic Finance and Banking. These two processes are the first two parts in the architecture of the system after retrieving the data. We applied Malik Bennabi's thoughts as the benchmark in measuring process and used journal articles as one of IP form as the data to be processed in the ruler. Structure extraction is aimed at providing the most important structure of the article so that they can be measured by the ruler to identify whether the article's content is in line with Malik Bennabi's thought. We extracted abstract and keywords parts of the article as they represent the entire information in the article. In order to have an efficient measurement process, we did filtering on the articles to distinguish those that derived Malik Bennabi's thought from ones that do not. This filtering was done by checking the article keywords whether they exist in the list of keywords derived from Malik Bennabi's articles (MB keywords). Surprisingly, structure extraction results show that not all articles have the keywords. It was shown there were only 66.92 % papers came with keywords inside. Meanwhile, results in keyword-based filtering process delivered a worse performance where there were only 2.26 % articles filtered on MB keywords.

A Proposed Framework of Intelligence Arabic-based Chatbot for Educating Islamic History

Omima El-Saadawi, Ahmed El-Saadawi and Magdi El-Saadawi

Abstract

A Chatbot is a conversational software agent, which interacts with users using natural language such as English or Arabic. Many Chatbots exist, with different knowledge-bases programmed by the Chatbot builders. Reviews of relevant researches show that there is a shortage in Arabic Chatbot. The purpose of the current study is to propose a framework of intelligence Arabic-based Chatbot to educate Islamic history, which can be used to create Arabic Chatbot like human. The study presents an application on the use of the proposed Chatbot for educating Prophet Muhammad Life (Seerah).

Ethics for The Facebook Users

Md. Mahfuzul Islam, Umar Bin Qushem, Akram Zeki and Md. Masbahul Islam

Abstract

Currently, the social networking sites are playing the most vital role in the human's life which is one of the most significant IT services. Especially, Facebook is most influential social networking website, except it the life is so monotonous. Facebook has more than 1 billion users in this world and it is connected to the general public which is also giving an opportunity to make a global network beyond family and friends. It is a platform where people can share their feelings and all news updates. The dark side of Facebook is- the users can use it in their ways, sometimes people use as a tool to abuse or humiliate others. Also there are so many unethical issues on Facebook, suppose- fake profile, fake account, fake information, The importance of the ethics for the Facebook users is a buzz for all. This significance of the study relies on the recommendation of Tawhidic Paradigm as ethical standard to be followed by all Facebook users regardless for the Muslims but also for the non-Muslims as well. Additionally, a suggestive S-T-N Formula, Prophetic Tradition, essential Intellectual and Spiritual Training are also discussed for effective ethical decision making.

Semantic Architecture for Islamic Fatwa Retrieval System

Ewies A. Sharaf

Abstract

The information retrieval based on ontology, WordNet and semantic web can be applied on Islamic Fiqh Fatwa (IFF) domain. The IFF retrieval agents assess the input IFF text from two paths, the first path is a historical completed Fatwa text, and the second is an online user Fatwa query. The architecture presented in this paper is considered an adaptation model that converts from syntactic search to semantic search. Semantic searching has already received a substantial amount of interest as a way to search specific contents on the web. The development of ontologies has proven their worth in providing interesting solutions to knowledge validation. Sentences of Islamic Fatwa are annotated with ontology propositions that recognize an instance of their content. Distributing ontology-based Information extraction to agents enables parallel processing and eases tracking of decisions and their explanation to users. An application example for the proposed system is introduced to show the advantages of using ontology to represent the semantic of Islamic Fatwa. The Resource Description Framework (RDF) for Islamic Fatwa is also proposed.

Accepted Papers in Arabic

الأبحاث المقبولة باللغة العربية

التكنولوجيا في خدمة البلاغة القرآنية

فواز شخير العنزي، ضياء الدين محمد أسعد أبوزينة

ملخص البحث

يقدم هذا البحث دراسة علمية تتعلق بدور التكنولوجيا الحديثة في خدمة اللغة العربية والقرآن الكريم. تم التطبيق العملي لآحد المواضيع الهامة في مجال خدمة القرآن الكريم والعاملين عليه الا وهو ايجاد المتشابهات في القرآن الكريم. ولقد بذل علماء البلاغة القرآنية جهودا كبيرة لخصر الآيات المتشابهة بهدف بيان الواجه البلاغية لهذه الآيات القرآنية. في هذا البحث نقدم دور التكنولوجيا في تسهيل عملية إيجاد المتشابهات بحيث يتم الاستغناء عن الطريقة التقليدية والانتقال الى استخدام ما توفره التكنولوجيا الحديثة في هذا المجال. تم استخدام طريقة فهرسة الدلالات الكامنة (LSI) وطريقة التقسيم (ME clustering) لإنجاز العمل المطلوب، كما تم استخدام مدونة (corpus) قرآنية تحتوي على 4781 آية. تكمن أهمية هذه الدراسة في استعراض الطرق الحديثة المستخدمة في أنظمة معالجة اللغات الطبيعية بشكل عام للإفادة منها في مجال حوسبة اللغة العربية.

تطوير وبناء نظام تقنية معلومات لتعليم وتدريب وقراءة القرآن العظيم بالقراءات العشرة الكبرى جمعاً من طريق طيبة النشر

رفعت الزنقلى، مۇلاي إبراهيم الخليل غمبازة، أمير عادل الديب، محمد ياسر بنى

ملخص البحث

يعتبر علم القراءات القرآنية من علوم القرآن الهامة جداً، وله العديد من القواعد والمعلومات التي يجب إتقانها وتعلمها لكل طالب علم يرغب في تعلم وإتقان هذا العلم. ولاشك أن القراءات القرآنية بالعشر الكبرى هو تجميع لما سبق من القراءات القرآنية المتواترة عن الأئمة الذين اتصلت أسانيدهم إلى النبي صلى الله عليه وسلم. وفي هذا البحث نقدم نظام تقنية معلومات لتعليم وتدريب وقراءة القرآن العظيم بالقراءات العشر الكبرى جمعاً من طريق طيبة النشر. والمنهجية التي اتبعناها في نظامنا لعرض القراءات جمعاً التزمنا فيها بالقواعد العامة للجمع، ويرمز القراء والرواة والطرق في متن الطيبة لابن الجزري الذي حدا فيه حدو الشاطبي في منته الشاطبية ولم يخالف فيه طريقته في الترميز. وطريقة الجمع التي استخدمناها هي الجمع بالآية أو مقطع منها، حسب طول الآية، وعدد الأوجه، وفيما يصح الوقف عليه، مع التنبيه على التحريرات المختلفة. ويتم عرض خطوات قراءة المقطع من الآية بجميع الأوجه والمذكورة في طيبة النشر؛ وذلك كتابةً وتلاوةً من شيوخ أئمتنا قراءة القرآن الكريم جمعاً بالعشر الصغرى والكبرى على علماء القراءات والمجازين بذلك. وقد تم ربط التسجيلات الصوتية، الآيات، الأصول، والفرش مع الآية المعروضة ودليلها من أبيات متن الطيبة لكل تسجيل مقطعي. وقد تم تصميم وبناء النظام وتطبيقه على الآيات من 1 إلى 8 من سورة الأنعام. ويتيح النظام كذلك اختيار السورة والآية التي يريد المتدرب معرفة أوجه قراءتها وشرح أصولها وفرشها مع إمكانية التكرار للتأكد واستيعاب القراءة لما في ذلك من أثر كبير في زيادة التركيز أثناء التعلم؛ ومراعاة الفروق الفردية للمتعلم. وقد تم اقتراح هذا النظام من أجل الاستفادة من تقنية المعلومات في تعلم واكتساب وتثبيت وتنمية بعض مهارات علم القراءات القرآنية؛ والإسهام في رفع تحصيل طلبة العلم وتأهيلهم لإتقان نطق الكلمة القرآنية لمختلف الروايات والطرق؛ ومعرفة القواعد الكلية والجزئية لعلم القراءات، والكلمات المنثورة في سور القرآن والمختلف فيها بين القراء.

استخدامات تقنية المعلومات للبحث في القرآن العظيم بالرسم العثماني دراسة تقييمية للمواقع القرآنية

أمير الحمامي

ملخص البحث

شهدت مؤخرًا أجهزة الحاسب الآلي وشبكات الاتصالات وخاصة الأنترنت بالإضافة إلى الجولات الذكية تطورًا ملحوظًا ونقلًا كبيرة عما كانت عليه في البداية مما أدى إلى إنتشار هذه الوسائط بين الناس فلا يكاد يخلو بيت من الإنترنت أو من جوال. كل هذه العوامل ساعدت على إقبال الناس على المواقع الإسلامية وبالأخص على المواقع التي تستعرض القرآن الكريم سواء كتابيا أو سمعيا أو حتى بصريا. لكن من ناحية أخرى، هناك عوامل سلبية تتمثل في أن العديد من المواقع والبرامج خاصة تلك التي تقدم خدمة البحث في القرآن الكريم، تستعرض الآيات بالرسم الإملائي لا الرسم العثماني وأحيانا بلغات غير عربية مما قد يؤدي إلى تحريف القرآن العظيم. ولخطورة الأمر ورغبة في صيانة كتاب الله من التحريف، نقدم في هذا البحث مشروعين إثنين. الأول هو عبارة عن تطبيق ويندوز يُمكن المستخدم من بحث كلمة أو كلمات في المصحف الشريف وتظهر النتيجة بالرسم العثماني. المشروع الثاني هو موقع ويب يُسدي نفس خدمة البحث لكن هذه المرة النتيجة تظهر في صفحة ويب والرسم العثماني كذلك.

تلخيص تفسير القرآن الكريم باستخدام خورزميات التعلم بعمق

هويدا علي، نازك ابراهيم، نسرين صالح

ملخص البحث

النص الملخص هو عملية الحصول على مستندات تزود المستخدم بالمحتويات الضرورية بشكل مختصر من غير أن يغير في المعنى وبطريقة فعالة تقابل إحتياجات المستخدم والتطبيق. ويمكن أن يطبق على مستند واحد أو أكثر من مستند للحصول على ملخص.

موقع إحصاءات في القرآن الكريم وأفاقه المستقبلية

محمد الخطيب

ملخص البحث

موقع إحصاءات في القرآن الكريم (www.stquran.net) هو موقع تفاعلي يُعنى بتقديم إحصاءات دقيقة وموثقة لحروف القرآن الكريم، وحركاته، وأحوال انثلافيهما، ويضم أول قاعدة بيانات لحروف القرآن الكريم وحركاته، تحوي كل حرف مع حركته في سجلّ مستقل مع تمييز ما هو منطوق أو غير منطوق، وما هو مكتوب أو غير مكتوب، مما يمكن من تقديم الإحصاءات بسهولة ودقة عالية، وهذا ما ليس متوفر حاليًا في أي برنامج أو موقع من المواقع المتعلقة بالقرآن الكريم، وتُعد سابقة في المجال القرآني، وقَدّمت نتائج لم يُسبق إليها من قبل، ويُنوّع أن تفتح بابًا واسعًا للبحث العلمي في اللغة العربية بشكل عام، والقرآن الكريم بشكل خاص؛ كونها تتعامل مع أصغر وحدة في القرآن الكريم، ألا هي الحرف والحركة، وتقدم هذه الورقة تعريفًا بالموقع، والآفاق المستقبلية التي سيفتحها -بإذن الله .

تطبيق السيرة النبوية

علاء الدين موسى ، محمد عبدالله، نزار صالح يعقوب، محمد عدني حمد السيد

ملخص البحث

نسبةً للتطور الذي حدث في حياة الناس وتحولهم للتقنيات الحديثة، وتوفر البيئة المناسبة بتوفر أجهزة الهاتف المحمول الذكي، وهجر الناس للقراءة فقد تم تصميم تطبيق نظام السيرة النبوية لعرضها وتوفيرها لكل من يحتاج إليها في أي وقت ومكان وذلك بحوسبتها وإثراء الحوسبة باللغة العربية في هذا المجال. تم تصميم التطبيق بنظام الاندرويد فهو يتكون من عدة قوائم: المقالات، مولد النبي صاى الله عليه وسلم، وتعامله مع أهل بيته وأصحابه، وبعض الأحداث المهمة، وقوائم أخرى تشتمل على بعض المواضيع والشبهات التي دار وكيف فندت، وقائمة بالملفات الصوتية التي تضم ثلاثة من الشيوخ يتحدثون فيها عن سيرة النبي صلى الله عليه وسلم حيث لكل واحد ميزته التي تميزه عن غيره. يحمل المستخدم التطبيق لهاتفه المحمول الذي يعمل بنظام الاندرويد ، ويجب أن يكون متصلاً بالانترنت لكي يستطيع الوصول الى قاعدة البيانات وتحميل البيانات منها ليتم عرضها في التطبيق. يدار التطبيق بواسطة موقع الكتروني وهو مجموعة من صفحات الويب تساعد في التحكم في قاعدة البيانات ومن ثم التحكم في التطبيق- بعملية تسجيل الدخول أولاً وبعد ذلك تقوم بعمليات الإضافة والتعديل والحذف وغيرها من العمليات التي يمكن أن تقوم بها.

تطبيق لحماية صحة المستهلك باستخدام الهواتف الذكية

مصطفى علي ابوزريدة, خولة عمران عامر, سعاد عبد الرحمن زوبي, فاطمة الزرقاني

ملخص البحث

في هذا الوقت أصبحت المواد الغذائية لها مشاكل كثيرة وهذه المشاكل لها تأثير على صحة الانسان لما يدخل في صناعتها من مواد حافظة ومواد ملونة ومواد معطرة وهذه المواد تسبب خطرا على صحة الانسان فمنها ما يسبب مرض السرطان ومشاكل صحية أخرى وبعض المواد الغذائية قد تحتوي على دهن الخنزير والذي هو محرم شرعا, وهذه المواد المسرطنة أو التي تحتوي على دهن الخنزير لا يتم كتابتها صراحة على المادة الغذائية وإنما تكتب على هيئة رموز عادة ما تبدأ بالحرف اللاتيني E متبوعا برقم, بحيث لا يتم معرفة هذه المادة ماذا تكون مباشرة من قبل الزبون. ومن هنا جاءت فكرة هذا المشروع وهو انشاء تطبيق بنظام الأندرويد بحيث يتم معرفة هذه الرموز من خلال هذا التطبيق.

التعرف الآلي على تلاوة القرآن الكريم: المدود نموذجاً

بلال يوسفى ، أكرم محمد زكي ، امينة حاجي

ملخص البحث

قراءة القرآن الكريم وتعليمه من اهم العلوم وارفعتها. يجب على القارئ ومعلم القرآن مراعاة احكام التجويد وتلقينها بشكل صحيح. يأتي هذا البحث مدعماً لهذا العلم الرفيع حيث يبين استعمال تقنية التعرف على الكلام (ASR) Automatic speech recognition للتعرف على القراءة الصحيحة لحد احكام المدود من رواية حفص وهو حكم المد البدل والمد اللين لتمكين المستخدم من التعرف وتصحيح هذا النوع من المد عن طريق مطابقة قراءته مع مجموعة من البيانات مسجلة في قاعدة البيانات من طرف مجموعة من الشيوخ مجازين. في هذا البحث المقترح يتيح تصميم برنامج تعليمي تفاعلي

لقواعد التجويد للقرآن الكريم المسموعة لقراءة حفص عن عاصم حيث تم استخدام-Mel Frequency cestrum coefficient (MFCC) للاستخراج ميزات الأصوات و HMM من اجل هذا النظام باستخدام نماذج ماركوف الخفية Hidden Markov Models وهي عبارة عن سلسلة نهائية من الحالات والملاحظات والتي يتم توليدها عشوائياً ويتم الانتقال من حالة الى حالة اخرى عن طريق مصفوفة الاحتمالات.

IMAN 2013

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IMAN 2014
12-13 October 2014 Amman, Jordan



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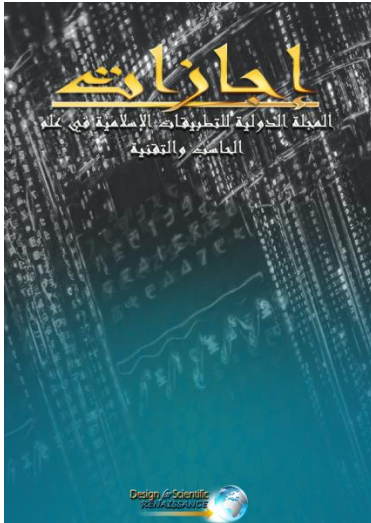
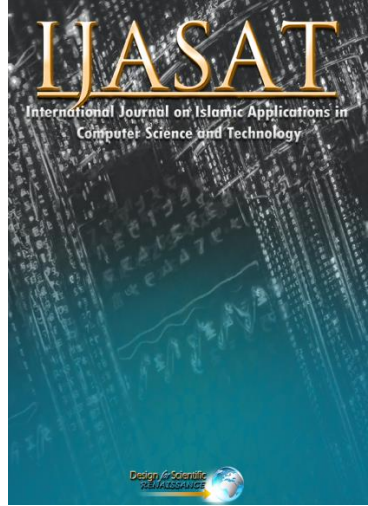
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المجلة تدعوكم لتقديم أبحاثكم عبر البريد الإلكتروني التالي:

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