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BOOK ABSTRACT

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Plenary session 1: Kayyali Mohamed

Title- Big Data and NanoSatellites

Abstract- The increasing of daily life actions and technology use, drive a bigger volume in data each single second of our entire life, when it comes to analysis and processing the gathered data, it comes to defining first the source of gathering these data from, in order to draw a better strategy for pre-processing and post processing the given data. For nano satellites, the next era of geo-space and mapping data, is a great choice of application how we manage and process big data from space to ground stations to data centers, and how far can nanosatellites go with data mining and large daily volume of data. Big Q initiative as R&D project.

Keywords- geo-space, nano satellites, data mining.

Session CBI17_1.1: Signal, Image and Video processing

Chair: Prof. Mohammed ERRITALI, Sultan Moulay Sliman University, Morocco

Detection and Recognition of the Faces in the Mixed Document

Bouhou Lhoussaine, Rachid El Ayachi, M. BASLAM, Mohamed OUKESSOU

Abstract- A face is a complex representation, with shapes and colors that may differ. Face detection is a field of computer vision consisting of detecting a human face in a digital image. It is sought to detect the presence and precise location of one or more faces in an image. Face detection has many direct applications, such us: video surveillance, biometrics, robotics, man-machine interface control, photography, indexing of images and videos, image search by content, and so on. It also facilitates the full automation of other processes like facial recognition or recognition of facial expressions.

In this work, we will focus on the recognition of face in a mixed document containing text and images, from which we will detect the existence or not of a human face and if a face exists we pass to the next step or one must recognize it among the faces of a database of existing faces.
The process of our system consists in applying two methods, for the detection step, being the Hybrid Method and the Template Matching method that will be compared to a third method called the method of Haar Feature-based Cascade Classifiers. As for the second step, our system will be based on the PCA as a method of describing the characteristics of the faces and on the neural networks and the K-nearest neighbors as methods of face recognition.
Keywords- Face Detection; Face Recognition; Hybrid Method; Template Matching; Neural Networks; K-nearest neighbors

Study of an Inverse Problem in Image Reconstruction

Ismail ELOUARGUI, Mourad NACHAOUI, Rachid EL AYACHI

Abstract- This work focuses on the study of the ill-posed inverse problems involved in many signal processing areas and image analysis. Indeed, the image degradation during the data acquisition process is inevitable. The degradation can be introduced by the imaging process, the image recording, image transmission, etc. These random distortions make it difficult to image processing. To restore the original image, it is also necessary that important to provide additional information. This results in adding a regularization term. In this context, several regularization techniques were presented and numerical results were discussed, particularly Tikhonov regularization and the total change of the first order (TV) and second order (TV2). So we conducted a comparative study of the methods TV, TV2 and the combination method (TV handset TV2). The numerical results presented and demonstrated the efficiency and effectiveness of the strategy.
Keywords- Inverse Problems, Variational Methods, Image

Restauration, Total Variation.

Classification of Mathematical Expressions for Visually Impaired Persons

Zahra Asebriy and Bencharef Omar

Abstract- Visually impaired persons, face many problems to communicate and to study scientific documents specially those containing mathematics expressions. To provide solutions in this topic, we propose an assistive system to help blind person to categorize mathematical formulas. The system acts on four steps: first the translation of query math formula into MathML code, and then we extract the structural and semantic meaning from the MathML expressions. In the classification phase, we used a deep learning algorithm to classify the category of the query mathematical expression. Finally, the query result is transformed into Braille code. Experiments were done using an experimental dataset composed of 1120 math expressions.
Keywords- Braille, MathML, Deep learning, Translator Braille.

Session CBI17_1.2: Database and Web environment

Chair: Prof. Belaid Bouikhalene, Sultan Moulay Sliman University, Morocco

Approach founded on software components

Fadoua REHIOUI

Abstract- The new trend of the software development is moving towards building and modeling software component. The focus of this new approach is on systems development by identifying and assembling the set of system components and their interfaces from use case. This paper presents the proposed software component approach, comprising three phases based on the

cutting process into Modeling Component representing a logical grouping of use cases that achieves a given Work. After, the Modeling Component cutting in Parts designating functions, and cutting the use case in activities to develop the component interfaces to get final system software components.

Keywords- Use Cases; Modeling Components; Parts; Functions; Activities; subcomponent; Provided / Required Interface.

Optimization of the logistics system for the distribution of petroleum products with ERP syteme in Morocco

Mouncif Chaimae, BAHLAOUI Ahmed and MOUNCIF Hicham

Abstract- Physical distribution is one of the key functions in logistics systems, involving the flow of products from manufacturing plants or distribution centers through the transportation network to consumers (service stations). It is a very costly function, especially for the distribution industries. Petrol tankers play a fundamental role in every offshore petroleum supply chain. Its optimization is usually divided in three levels: strategic, tactical and operational. Strategic decisions deal with fleet sizing, facility location and capacity sizing.Tactical decisions deal with production and distribution planning, transportation mode selection, storage allocation and order picking strategies. Finally, operational decisions deal with shipment and vehicle dispatching. In this project, the optimization model of delivery of fuel to the final station can be modeled as a Petrol Station Replenishment Problem (PSRP) with ERP system the aim is to support data "drill down," to eliminate the need to reconcile across functions, and to integrate the working of the operations, service and process functions is intended to enable organizations to compete on the performance along the entire supply chain management.

Keywords- logistic system, Fuel delivery, Replenishment, ERP system

Migrating Association in Object Relational Database into UML class

Soumiya AIN EL HAYAT and BAHAJ Mohamed

Abstract- UML has a very rich notation offers many aspects of software engineering and applications development, it is a standard language for object oriented analysis that is able to specify a wide range of object oriented concepts by modeling a database schema. This paper presents a methodologies for the conversion of ORDB (Object Relational Data Base) into UML (unified modeling language) using some techniques of database design modeling. This modeling introduces an effective mechanism for representing general structure of database. The migration shows how to transform the table schema created By ORDB into association relationships for many cardinalities (1:N , N:N), using meta-model technique, ORDB concepts and UML mechanism. In this work, we will evaluate the exited modeling approaches to preserve the information structured in the system.
Keywords- ORDBUML, Association, relationship, modeling

RCrawler : An R package for parallel web crawling and web scraping

Salim Khalil and Mohamed Fakir

Abstract- RCrawler is a contributed R package for domain-based web crawling indexing and web scraping. It supports data collection of web content under R environment. It is designed to crawl, parse, store web pages and produce data that can be directly used for web content mining applications. However, it's flexible and could be adapted to other applications.

The main features of RCrawler are multi-threaded crawling, content extraction and duplicate content detection, in addition it includes functionalities such as URL and content-type filtering, depth level controlling, robot.txt parser and others. Our crawler has a highly optimized system and it can download a large number of pages per second while being robust against some crashes and spider traps.
In this paper, we describe Rcrawler design and functionalities, we report on our experience implementing it under R environment including optimizations and limitation. Also we discuss experimental results.
Keywords- Web crawler, Parallel crawling, Web content mining, Data collection, R package

Session CBI17_1.3: Signal, Image and Video processing

Chair: Prof. Muhammad Sarfraz, Kuwait university, Kuwait

Implementation of an Image Compression System Using Neural Network

Houda Chakib, Brahim Minaoui, Mohamed Fakir, Abderrahim Salhi and Imad Badi

Abstract- Nowadays, digital images compression requires more and more significant attention of researchers. Even when high data rates are available, image compression is necessary in order to reduce the transmission cost. An ideal image compression system must yield high-quality compressed image with high compression ratio. In this paper, a neural network is implemented for image compression using the feature of wavelet transform. The idea is that a back-propagation neural network can be trained to relate the image contents to its ideal

compression method between two different wavelet transforms: orthogonal (Haar) and biorthogonal (bior4.4).

Keywords- image compression, orthogonal wavelet, biorthogonal wavelet; back-propagation; neural network.

A Content Based Image Retrieval Method Based on K-means Clustering Technique

Mohamed Ouhda, Khalid El Asnaoui, Mohammed Ouanan and Brahim Aksasse

Abstract- with the appearance of many devices that are used in image acquisition, hence they produce a large number of images every day. The rapid access to these huge collections of images and retrieve similar image of a given image (Query) from this huge collection of images presents major challenges and requires efficient algorithms. The main goal of the proposed system is to provide an accurate results with lower computational time. For this purpose, we apply a new method based on k-means clustering technique to match image's descriptors. This work provides a detailed view of the solution we have adopted, and that perfectly meets our needs. For validation, we apply all of these techniques on two image databases in order to evaluate the performance of our system.

Keywords- k-means, segmentation, indexing, similarity, mesure, CBIR, classification.

Pascal's algorithm For the Extraction of frequent itemsets

Mohamed Fakir and Mohamed Sekkoume

Abstract- Discovery of frequent patterns has been studied in a variety of data mining settings. In its simplest form, known from association rule mining, the task is to discover all frequent itemsets, i.e., all combinations of items that are found in a sufficient number of examples. The fundamental task of association rule and frequent set discovery has been extended in

various directions, allowing more useful patterns to be discovered with special purpose algorithms. In this paper, we propose the algorithm PASCAL which introduces a novel optimisation of the well-known algorithm Apriori. This optimization is based on a new strategy called pattern counting inference that relies on the concept of key patterns. We show that the support of frequent non-key patterns can be inferred from frequent key patterns without accessing the database.

Keywords- frequent patterns, association rule, algorithm PASCAL, optimization

The resonant frequency determination of a microstrip patch antenna using ANN and analytical methods

Lahcen Aguni, Abdelouahab Zeroual, Moha Mrabet Hassani

Abstract- In this paper we are interested to calculate the resonant frequency of rectangular patch antenna using artificial neural networks (ANN) based on the multilayered perceptrons (MLP). The resonant frequency is an important parameter to design a microstrip patch antenna. The proposed method based on ANN is compared to some analytical methods using some statistical criteria. The obtained results demonstrate that ANN is more adequate to achieve the purpose than the other methods and present a good argument with the experimental results available in the literature. The ANN can be used by researchers to predict the resonant frequency of a rectangular patch antenna knowing length (L), width (W), thickness (h) and dielectric permittivity with a good accuracy

Keywords- Artificial neural network multilayer perceptron microstrip patch antenna resonant frequenc

Session CBI17_1.4: Optimization and Decision support

Chair: Prof. Mourad Nachaoui, Sultan Moulay Sliman University, Morocco

Portfolio optimization using the peinguins search optimization Algorithm

Hamza Kamili and Mohammed Essaid Riffi

Abstract- The peinguins search optimization algorithm (PeSOA) is a meta-heuristic based on the observation of the peinguins behaviour. This method has been used in many important studies,Obtaining efficient results. In this paper we have applied this algorithm to the portfolio optimization problem using the cardinality constrained efficient frontier model (CCEF) the results obtained are optimal and very approximate to the performances done with the model without constrained called the unconstrained efficient frontier (UEF).

Keywords- Peinguins search optimization algorithm, cardinality constrained efficient frontier, unconstrained efficient frontier, meta-heuristic

Particle Swarm Optimization of BP-ANN Based Soft Sensor for Greenhouse Climate

Mohamed Outanoute

Abstract- In this study we develop the Particle Swarm Optimization algorithm (PSO) in order to optimise the BP network in order to elaborate an accurate dynamic model that can describe the behavior of the temperature and the relative humidity under an experimental greenhouse system. The PSO algorithm is applied to the back-propagation neural network (BP-NN) in the training phase to search optimal weights baded on neural networks. This approach consists of minimising the reel function which is the mean squared difference between the real

measured values of the outputs of the model and the values estimated by the elaborated neural network model. In order to select the model which possess higher generalization ability, various models of different complexity are examined by the test-error procedure. The best performance is produced by the usage of one hidden layer with fourteen nodes. A comparison of measured and simulated data regarding the generalization ability of the trained BP-NN model for both temperature and relative humidity under greenhouse have been performed and showed that the elaborated model was able to identify the inside greenhouse temperature and humidity with a good accurately.

Keywords- Greenhouse climate model, Neural Networks, PSO Optimisation

A Simulation of Neutron Transport by The Monte Carlo Method and using a multi-parameters spatial biasing technique

Khanouchi Abderrazak, Fakir Mohamed, Sabri Mohamed and Jehouani Abdellatif

Abstract- Frequently, the neutron transmission through the shields used for protection against radiation is an unavoidable phenomenon, so we have interested in this work to study the neutron transmission through shields. We have considered an infinite homogenous slab witch characterized by his scattering probability noted Ps, with a different thickness and an infinite plane source of neutrons which arrived on the left side of the slab and on the right side detector with fixed window is placed to detect transmitted neutrons and evaluate the neutron transmission probabilities. We used the simulation Monte Carlo method for sampling the neutron history in the slab and in order to accelerate the calculation convergence we have developed a new multi-parameters spatial biasing technique with 4 parameters. For each thickness of the slab and for several values of Ps we have determined the detector response and calculated the neutron transmission probability. We compared our result by

results obtained with the spatial biasing technique with 2 parameters and 1 parameter. Then we have determined the FOM (Figure Of the Merit) for each method. We can also notice that our method presents bests results by obtaining the greatest FOM for a large thickness of the slab having high scattering probability Ps.

Keywords- simulation monte carlo, spatial biaising, neutron, transmission, slab.

Blind Channel Equalization by Adaptive Filter Algorithms

Elkassimi Said, Safi Said and Bouzid Manaut

Abstract- In this paper we propose an algorithm for blind channel equalization. The proposed algorithm will be compared with the adaptive filter algorithms such as Constant Modulus Algorithm (CMA), Fractional Space CMA (FSCMA) and Sign Kurtosis Maximization Adaptive Algorithm (SKMAA). However, the simulation results in noisy environment and for different SNR values shows that the proposed algorithm gives good results compared to CMA, FSCMA and SKMAA algorithms.The channel equalization is performed using the ZF and MMSE algorithms.

Keywords- blind equalization, CMA, FSCMA, SKMAA, ZF, MMSE, SER

A Markov Decision Model for Area Coverage in Autonomous Demining Robot

Abdelhadi Larach, Cherki Daoui and Mohamed Baslam

Abstract- A review of literature shows that there is a variety of works studying coverage path planning in several autonomous robotic applications. In this work, we propose a new approach using Markov Decision Process to plan an optimum path to reach the general goal of exploring an unknown environment containing buried mines. This approach, called Goals to Goals Area Coverage

on-line Algorithm, is based on a decomposition of the state space into smaller regions whose states are considered as goals with the same reward value, the reward value is decremented from one region to another according to the desired search mode. The numerical simulations show that our approach is promising for minimizing the necessary cost-energy to cover the entire area.
Keywords- Markov Decision Process,Robotic Path planning, Shortest Path Planning, Coverage Path Planning.

Session CBI17_1.5: Natural Language Processing

Chair: Prof. Mohamed BASLAM, Sultan Moulay Sliman University, Morocco

Arabic Stemmer Based Big Data

Mohammed Erritali, Youness Madani and Bengourram Jamaa

Abstract- By its morphological and syntactic richness, the Arabic language is considered among the most difficult languages to deal with it in the field of Information search. This is due, in particular, to the various difficulties encountered in its Stemming, which has not yet experienced a standard approach.,Stemming algorithm for Arabic words has been an important topic in Arabic information retrieval. Our work is to parallelize a stemming algorithm for Arabic by proposing a distributed stemming algorithm in a big data system using the Hadoop framework, the MapReduce programming model for the development of the algorithm and the distributed file system HDFS for the Storage of stemming result.
Keywords- Arabic Language, Stemming Algorithm, Distributed, Stemming, Big Data, Hadoop, MapReduce, HDFS

Base de données de corpus oraux : Applications

Noura Tigziri, Remi Jolivet and Ramdane Boukherrouf

Abstract- We have set up in our laboratory a database of oral corpus, digitized, transcribed and annotated for the Amazigh language, which is exploitable for scientific purposes and aimed mainly at linguist research teachers. The first objective is to provide linguists with a linguistic resource, which implies consequences on how to define metadata and annotations. This research is also an opportunity to document all varieties of Kabyle, in all its geographical forms.In our paper, we will present a first application made from this database. This is an Atlas called, Talking Atlas, which allows to associate to each point of inquiry, an oral corpus, its transcription and the synchronization text / sound.
Keywords- Base de données, corpus oraux, annotation, synchronization.

Handwritten Tifinagh Character Recognition using graphs

Youssef Ouadid, Abderrahmane Elbalaoui, Mehdi Boutaounte, Mohamed Fakir and Brahim Minaoui

Abstract- In this article, we present a handwritten Tifinagh character recognition system based on a structural approach which is a graphical representation. It is composed of three main steps: pre-processing, features extraction and classification. In the preprocessing step, RGB thresholding, Morphological operations, normalization and thinning are applied to remove unwanted information from the image. In the feature extraction step, corners are extracted using a proposed algorithm then represented by a graph. In the classification step, graphs are compared using a spectral graph matching method. Experimental results are obtained using a recently created database of handwritten Tifinagh characters to test the effectiveness. The system shows good results in terms of accuracy.
Keywords- Graph matching, Optical Character Recognition, Tifinagh Characters, Structural approach.

Optimizing Ontology Alignments by using Neural NSGA-II

Mohamed Biniz, Rachid El Ayachi and Mohamed Fakir

Abstract- In this paper, we propose a new hybrid approach based on a continuous Non-dominated Sorting Genetic Algorithm II and neural networks to refine the alignment results. This approach consists of three phases: (i) pre-alignment phase which allows to identify the formats of input ontologies, to adapt them and to transform them into Ontology Web Language (OWL) to solve the problem of heterogeneity of representation. (ii) alignment phase which combines syntactic and linguistic matching techniques and methods, based on the relevant attributes per different points of syntactic and structural technic. (iii) The post-alignment phase which optimizes the matching by a hybrid technique of continuous Nondominated Sorting Genetic Algorithm II and networks of neurons. This approach is compared with the best systems per the Ontology Alignment Evaluation Initiative (OAEI) standard. The experimental results show that the proposed approach is effective.

Keywords- ontology alignment, optimization, genetic algorithm, neural network

Plenary session 2: Muhammad Sarfraz

A Novel Appraoch for Designing Amazigh Fonts

Abstract- An approach, based on conic splines, is proposed here for capturing image outlines of Amazigh fonts. It has various phases including extracting outlines of images, mining feature points from the detected outlines, and curve fitting. The idea of particle swarm optimization has been incorporated to optimize the shape parameters in the description of the conic spline. The method ultimately produces optimal results for the approximate vectorization of the digital contours obtained from the generic shapes. Demonstrations also make the essential part of the paper.

Keywords- Amazigh fonts, extraction, curve fitting countours

Session CBI17_2.1: Biomedical Engineering

Chair: Prof. Mohamed FAKIR, Sultan Moulay Sliman University, Morocco

Markovian Segmentation of Brain Tumor MRI Images

Ameur Meryem, Idrissi Najlae and Daoui Cherki

Abstract- Image segmentation is a fundamental operation in image processing, which consists to divide an image in the homogeneous region for helping a human to analyse image, to diagnose a disease and take the decision. In this work, we present a comparative study between two iterative estimator algorithms such as EM (Expectation-Maximization) and ICE (Iterative Conditional Estimation) according to the complexity, the PSNR index, the SSIM index, the error rate and the convergence. These algorithms are used to segment brain tumor Magnetic Resonance Imaging (MRI), under Hidden Markov Chain with Indepedant Noise (HMC-IN). We apply a final Bayesian decision criteria MPM (Marginal Posteriori Mode) to estimate a final configuration of the resulted image $ X $. The experimental results show that ICE and EM give the same results in term of the quality PSNR index and error rate, but ICE converges to a solution faster than EM. Then, ICE is more complex than EM.

Keywords- Iterative estimator algorithms, ICE, EM, HMC-IN, brain tumor MRI images, final Bayesian decision criteria, MPM

Exudates detectionin fundus images using Mean Shift and adaptive thresholding.

A.Elbaalaoui, M. Fakir, A. Merbouha, K. Taifi

Abstract- Diabetic retinopathy affects changes to retinal blood vessels that can cause them to bleed or leak fluid, distorting vision, an early detection using automated detection techniques can prevent blindness among diabetic patients.Exudates are the most important sign of the disease, Therefore, exudates

detection is our major purpose, but we must extract the OD prior to the process because it appears with similar color, intensity and contrast to other characteristics of the retinal image. This paper presents anautomated method for segmentation of the exudates in retinal images, employing a combination of Mean Shiftof adaptive thresholding.Output of the proposed method is evaluated using public databases and produces sensitivity, specificity and accuracy as 98.80%, 98.25% and 98.65%, respectively. The ROC curve gives 0.984 as area under curve. The sensitivity, specificity, accuracy and area under curve of ROC indicate the effectiveness of the method.

Keywords- exudates detection, fundus image, Mean Shift, Adaptive Threshold

Geodesic Distance On Riemannian Manifold Using Jacobi Iterations In 3d Face Recognition System

Rachid Ahdid, Said Safi, Fakir Mohamed and Bouzid Manaut

Abstract- In this paper, we present an automatic application of 3D face recognition system using geodesic distance in Riemannian geometry. We consider, in this approach, the three dimensional face images as residing in Riemannian manifold and we compute the geodesic distance using the Jacobi iterations as a solution of the Eikonal equation. The problem of solving the Eikonal equation, unstructured simplified meshes of 3D face surface, such as tetrahe-dral and triangles are important for accurately modeling material interfaces and curved domains, which are approximations to curved surfaces in R3. In the classifying step, we use: Neural Networks (NN), K-Nearest Neighbor (KNN) and Support Vector Machines (SVM). To test this method and evaluate its performance, a simula-tion series of experiments were performed on 3D Shape REtrieval Contest 2008 database (SHREC2008).

Keywords- 3D face recognition, geodesic distance, Rieman-nian geometry, Jacobi iterations, Eikonal equation.

Proteomic study to predict colon cancer - Data mining approach

Anwar RHEMIMET, Said RAGHAY and Omar BENCHAREF

Abstract- Today, colon cancer is the third of its impact and mortality rates for men and women in Western countries: one million new cases are reported each year in the word and 600,000 people die. The survival rate at five years of patients with colorectal cancer is about 65%, but only 10% for patients with metastatic. Chemotherapy currently used for early stages of colon cancer, remain the reference treatment following examinations complexities for the detection of the disease. In this analysis, it was based on a recent study by the biological medical department of Shanghai. They established two pairs of the primary fibroblast cultures from colorectal adenocarcinoma tissues and the normal counterparts and identified 227 proteins in the colonic fibroblast secretomes; half of these proteins were novel [1]. The aim of our analysis is to examine a sample of proteins and explore the results so that a simple blood test is sufficient for screening and finding a solution to avoid complex analysis of saddle and intestinal purging with general anesthesia.
Keywords- Data mining, Classification, Tumor microenvironment, Colorectal cancer, Cancer associated fibroblast, Proteomics, Secretome

Session CBI17_2.2: Imaging Application

Chair: Prof. Rachid El Ayachi, Sultan Moulay Sliman University, Morocco

Two-Dimensional Face Surface Analysis using Facial Feature Points Detection Approaches

Rachid Ahdid, Es-Said Azougaghe, Said Safi and Bouzid Manaut

Abstract- Automatic detection of facial feature points plays an important role in applications such as facial feature tracking, human-machine interaction and face recognition. The majority of facial feature points detection methods using two-dimensional or three-dimensional data are covered in existing survey papers. In this article chosen approaches to the facial features detection have been gathered and described. This overview focuses on the class of researches exploiting facial feature points detection to represent facial surface for two-dimensional or three-dimensional face. In the conclusion, we discusses advantages and disadvantages of the presented algorithms.
Keywords- facial feature points, face recognition, facial feature, tracking, two-dimensional data, three-dimensional data

Decision Making System for Remote Laboratory using Data Mining Algorithm

Fahd Ouatik, Mohamed Elmohadab, Mustapha Raoufi, Belaid Bouikhalene and Mohamed Skouri

Abstract- Remote laboratory is new technologies apply in E-learning system for allows student to Realizes the practical work of physique via the web as they also exist in the laboratory In order to solve a set of problem. The research realized by the university Cadi ayyad and its partnerships to develop this system of e-learning reaches an important and advanced level Begin with laboratory management Then respects the system the norms pedagogic of the teaching , Arriving at the last stage which is the evaluation of the student According to a set of criteria Then makes the decision to target student gaps Based on the data mining algorithm and the university information system.
Keywords- E-Learning, Remote laboratories, Data Mining Algorithm, evaluation grid, php

Word and Sub-Word Arabic Font Size and Style Recognition Using Majority-Vote of Different Classifiers

Said Nouri and Mohamed Fakir

Abstract- Arabic printed script segmentation and recognition techniques change from font to other i.e. each font has particular properties calligraphic and structural which differ with other. Majority of segmentation system suffer in word or sub word segmentation into characters because they consider one algorithm to segment all kind of Arabic printed font, style and size.

The goal of this work is to prepare a system of word or sub word Optical Font Arabic Recognition (OFAR) for different font size and style of Arabic printed script, in order to integrate it in global Arabic Optical Character Recognition (AOCR) to choose preferred and good segmentation algorithm. APTI database was used to extract last ten pixels for each word or sub word to build new database of last 10 pixels for each word; OFAR is based upon this new database and our extraction approach called Pixels Continuity (PC) algorithm in different matrix direction and some histogram statistics to extract 20 features. Three KNN classifiers with K=5 and three different distances using Cityblock, Euclidean and Correlation based upon majority-vote are used to evaluate the system robustness. This classifier is compared in the first time with Back propagation Neural Network and Steerable Pyramid (SP) algorithm to re cognize three font families, then in the second time with Gaussian Mixture Models (GMMs) to recognize font and size. The average recognition results obtained was 99.55% about font and size and 98.17% for font, size and style recognition.

Keywords- OFAR, word, sub-word, characters, APTI, last 10 pixels, Pixels Continuity (PC), Histogram, KNN, Majority Vote.

New Trends In FOREX Speculation: Literature Review

Hana Jamali

Foreign Exchange market Forex is the largest and the most popular financial market; it manages all monetary financial transactions, in this paper we are interesting by a literature review about the application of Artificial Neural Network (ANN) and Genetic Algorithm (GA) to maximize speculation profits. More than 60 articles published between 2013 and 2016, 15 articles from the most main bibliographic database were chosen. These articles were treated and grouped according to the techniques used (Artificial Neural Network, Genetic Algorithm, Hybrid model).Most articles insist on the input data as a crucial components to increase profits.

Keywords- FOREX, Speculation, Forecasting, Artificial neural network, Genetic algorithm.

Session CBI17_2.3: Networking

Chair: Prof. Mohamed BASLAM, Sultan Moulay Sliman University, Morocco

Analyse the Economic Relationship Between Content Provider and Internet Service Provider in the Internet

Hamid Garmani, Mohamed El Amrani, Mohamed Baslam and Rachid El Ayachi

Abstract- In the telecommunications domain they are several providers, but customers seeking those that there are good services. In this paper, a study is seek on two types of providers: content providers and Internet service providers. In this study, we analyzed the impact of competition between content providers, the impact of competition between internet service prociders and the influence of the existing economic relationship between them on their decision strategies. Yet, we formulate our problem as a non-cooperative game among multiple CPs,

multiple ISPs competing for the same market. We prove through a detailed analysis uniqueness of pure Nash Equilibrium (NE). Furthermore, a fully distributed algorithm to converge to the NE point is presented. Finally, we provide an extensive numerical study to point out the importance of QoS and credibility in the market and the influence of the existing economic relationship between content providers and Internet service providers.

Keywords- Princing, Cridibility, QoS, QoC, Nash equilibrium, Price of anarchy, game theory.

The Competition Between ISPs in Presence of the Net Neutrality

Mohamed El Amrani, Hamid Garmani, Mohamed Baslam and Rachid El Ayachi

Abstract- In this work, we present an economic model of computer networks that describes the interaction between Internet Service Providers (ISP), customers and content provider. The competition between ISPs may be translated by the prices they require and the qualities of service (QoS) they offer. The customer demand for service from an ISP does not only depend on the price and quality of service (QoS) of the ISP, but it is influenced by all those offered by its competitors. This behavior has been extensively analyzed using game theory as a decision support tool. We interpret a non-neutral network when a content provider privileges ISPs by offering them more bandwidth to ensure proper QoS to support applications that require more data transport capacity (voice over internet protocol (VOIP) the live video streaming, online gaming). In addition, our work focuses on the price game analysis and QoS between ISPs in two cases: if network neutral and non-neutral network. After showing the existence and uniqueness of equilibrium in terms of quality of service, we analyzed the impact of net neutrality on competition between ISPs. We also validated our theoretical study with numerical results, which show that the game has an equilibrium point which depends on all the parameters of the system.

Keywords- Net Neutrality, Economic Model of Networks, Game Theory, Nash Equilibrium, Quality of Service(QoS), Social Welfare.

Customers and Rational Choice of Services Providers In Telecommication Market: Resolution by Inverse Problems Theory

Ait Omar Driss, Baslam Mohamed, Nachaoui Mourad and Fakir Mohamed

Abstract- For this reason, customers face problems in choosing operators that meet their needs in terms of price, quality of service (QoS), etc..., while taking into account the margin between what is advertising and what is real. Therefore, we are led to solve a problem of decision support. Mathematical modeling of this problem led to the solution of an inverse problem. Specifically, the inverse problem is to find the function of the quality of service (QoS) real knowing the quality of theoretical QoS service. To solve this problem we have reformulated in an optimization problem of minimizing the difference between the real quality of service (QoS) and theoretical Quality service (QoS). This model will help customers who seek to know the degree of sincerity of the operator, as well as it is an opportunity for operators who want to maintain their resources so that they gain the trust of customers. The resulting optimization problem is solved using evolutionary algorithms. The numerical results showed the reliability and credibility of our inverse model and the performance and effectiveness of our approach.

Keywords- Rational Choice, Rationality, QoS, Optimization, Genetic Algorithm, Inverse Problem

Development of Parallel-Distributed Images Processing System using Multimedia Sensor Networks

Hicham Ouchitachen, Abdellatif Hair and Najlae Idrissi

Abstract- The availability of low-cost hardware such as CMOS cameras has fostered the development of Wireless Multimedia Sensor Networks (WMSN). However, sensing systems, including cameras, raise new challenges in video¬ processing algorithms developed in this context. In this paper, we propose a novel distributed processing system images using WMSN. The proposed approach is detailed through a sample application to monitor a forest area by a set of sensors. We target the minimization of the processing time, taking into account the communication capabilities, the mission cost of each sensor and the specific requirements of the feature extraction. To evaluate the accuracy of our proposed scheme, several experiments have been conducted using Feature Selection methods; CENTRIST, GIST, ZERNIKS. For the classification phase, we used the neural network method and support Vector Machine (SVM). The obtained results illustrate that using the proposed method: Majority Voting (MV) and Parallel Processing (PP) increases greatly the performance of our System.
Keywords- Wireless Sensor Networks, Distributed Processing, Communication Quality, Mission Cost, Majority Voting, Support Vector Machine.

Towards Emergency Transportation Improvement Based Vanet by using Traffic Congestion Detection

Ahmed Adart, Hicham Mouncif and Mohamed Naimi

Abstract- Emergency transportation improvement in urban areas is a major issue in the transportation field, it has taken an immense attention from intelligent transportation system ITS researchers since last decade. Due to huge number of vehicles, the challenge of emergency vehicle is to make a smart decision to avoid congested paths by the determination of the path from its departure to known destination whatever their natures: hospital, police station, accident location... E-transportation

improvement comes as a solution for highly populated cities with complex transport network. The proposed approach implements Vehicular Ad-Hoc network (VANET) as a solution, with the enhancement of its main component On-Board Unit (OBU) by distinction between two types: Normal vehicle as an (OBU) and Emergency vehicle as an E-OBU. The system obtained using this approach detects high traffic density areas as far as helps E-OBU driver to avoid getting stuck in congestion based on both vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) communications . This paper highlights road congestion detection problem and its solution for making better emergency vehicles transportation as far as finding shortest path to destination in real-time, with data collected and disseminated from vehicles or infrastructures with respect of such criteria.

Keywords- Road Congestion, Congestion Detection, Emergency Transport, E-OBU, RSU, Intelligent Transportation, System Shotest, Path Construction.

Session CBI17_2.4: Web Environment

Chair: Prof. Noura Tigziri1, Université Mouloud Mammeri de Tizi-Ouzou, Algeria

XSD2OWL2: Automatic mapping from XML Schema into OWL2 Ontology

Oussama El Hajjamy, Larbi Alaoui and Mohamed Bahaj

Abstract- XML (extensible Markup Language) nowadays is a common format widely used by domain experts to exchange data and information on the internet. It allows systems to agree on a common syntax and understand each data source that they access. On the other hand, OWL (Ontology web language) contains a group of concepts and properties to make the information in the Web processable and semantically understandable by machines. Compared to XML, OWL provides additional vocabulary to formally describe the meaning of the

terminology used to annotate Web resources. In this paper we provide and develop a new solution that converts the XML schema into OWL2 ontology. This solution takes an existing XML schema (XSD) as input, loads the XSD document and parses it using DOM parser. Then it extracts its elements with as much constraints as possible and applies our mapping algorithm to create the resulting OWL2 document. Our aim in this work is to take a further step in the existing research works by considering other important XSD aspects and minimizing our algorithm execution cost. In order to apply our approach in real environments, we have developed a tool XSD2OWL2 that implements our mapping algorithm for our conversion model and demonstrates the effectiveness and power of our strategy.

Keywords- XML schema, XSD, OWL2, ontology, DOM parser

Web service for incremental and automatic data warehouses fragmentation

Ettaoufik Abdelaziz and Ouzzif Mohammed

Abstract- The data warehouses (DW) are proposed to collect and store heterogeneous and bulky data. They represent a collection of thematic, integrated, non-volatile and histories data. They are fed from different data sources through transactional queries and offer analytical data through decisional queries. Generally, the decisional queries execution cost on large tables is very high. Reducing this cost becomes essential to enable decision-makers to interact in a reasonable time. In this context, DW administrators use different optimization techniques such as fragmentation, indexing, materialized views and parallelism. They always has to manually design a new fragmentation scheme from the new frequent queries load. Having an automatic fragmentation tool of DW becomes important. The approach proposed in this paper aims at an incremental horizontal fragmentation technique of the DW through a web service. This

technique is based on the updating of the queries load by adding the new frequent queries and eliminating the queries which do not remain frequent. The goal is to automate the implementation of the incremental fragmentation in order to optimize the new queries load. An experimental study on a real DW is carried out and comparative tests show the satisfaction of our approach.

Keywords- Data Warehouse, horizontal fragmentation, incremental fragmentation, frequent queries, web service

Analysis of Competition Fronting the Popularity of Content in Social Networks

Hafidi Siham, Baslam Mohamed and El Ayachi Rachid

Abstract- In recent years, on the Internet, there is a real phenomenon: the development of social networks that are becoming more popular and more used.

Social networks have millions of users worldwide. This provides an opportunity for companies to reach out a large and diverse audience for their advertising campaigns. They do this by creating and spreading content across the social network, which will increase the chance of visibility for their contents, which for them is the assurance of being popular. In this article, we study competition between several contents that look for attracting more consultations, each characterized by some given popularity. There is competition between the contents of a limited set of destinations. We first model our system, we then study the competition between contents by using the game theory to analyze this behavior. We finally provide numerical results, which provide insights into the effect of various parameters of the system.

Keywords- social networks, popularity, visibility, game theory

Elaboration of a Data Warehouse and XML Documents Warehouse for OLAP analysis

Hafsa Ait Idar, Mohamed Fakir and Bouzekri Moustaid

Abstract- The data needed for decision-making purposes are becoming more complex. They have heterogeneous sizes from various sources and are presented in varied supports. The language XML allows to take account of the complexity of these data according to a unified description. Therefore, the data are becoming more described in XML documents, hence the emergence of XML document warehouses. Our work is within the decision support systems context that integrate all data types for decision makers. They aim to present models, methods and software tools to elaborate and manipulate data and document warehouses. Our work has specifically focused on two complementary issues: elaboration of a data warehouse and XML document warehouse for OLAP analysis.

Keywords- Data Warehouse XML Document Warehouse, Multidimensional model, OLAP analysis, Extract Transform Load

Session CBI17_2.5: Telecommunications & Networking

Chair: Prof. Ahmed Boumezzough, Sultan Moulay Sliman University, Morocco

Dual Metal Gate-Graded Channel-Dual Oxide Thickness of Surrounding Gate MOSFET: Analytical models of the threshold voltage and DIBL

Hind Jaafar, Abdellah Aouaj and Ahmed Bouziane

Abstract- We proposed models of threshold voltage shift and DIBL characteristics for Dual Metal Gate-Graded Channel-Dual Oxide thickness of metal–oxide–semiconductor field-effect

transistors (MOSFETs) Surrounding Gate SG MOSFET. Models were derived by solving 2-D Poisson's equation using parabolic approximation technique to investigate short-channel effects (SCEs). The results show that the use of two oxide thickness with high dielectric constant could significantly reduce the threshold voltage shift and DIBL. It is also revealed that a small gate oxide thickness with high dielectric constant is needed to improve device characteristic. The models were verified by comparing with Numerical simulations results.

Keywords- Dual Oxide Thickness (DOT), Threshold voltage, Drain Induced Barrier Lowring, Short channel effects, Parabolic approximation method

Energy Optimization of Routing Protocols in Wireless Sensor Networks

Fatima Es-Sabery, Hicham Ouchitachen and Abdellatif Hair

Abstract- The hierarchical routing of data in WSNs is a specific class of routing protocols it encompasses solutions that take a restructuring of the physical network in a logical hierarchy system for the optimization of the consumption of energy. Several hierarchical routing solutions proposed, namely: the protocol LEACH (Low Energy Adaptive Clustering Hierarchy) consist of dividing the network in distributed clusters at one pop in order of faster data delivery and PEGASIS protocol (Power Efficient Gathering in Sensor Information Systems) which uses the principle of constructing a chain's sensor nodes. Our contribution consists of a hierarchical routing protocol, which is the minimization of the energy consumption by reducing the transmission distance of data and reducing the data delivery time. Our solution combines the two hierarchical routing approaches: chain based approach and the cluster based approach. Our approach allows for multi-hop communications, intra- and inter-cluster, and a collaborative aggregation of data

at each Cluster, and a collaborative aggregation of data at each sensor node.

Keywords- WSNs, Hierarchical routing, LEACH, PEGASIS, Optimization of energy

An agent architecture for QoS-based web service composition using the skyline algorithm

Ayoub El-Alami and Abdellatif Hair

Abstract- Web service composition is a concept based on the built of an abstract process, by combining multiple existing class instances, where during the execution, each service class is replaced by a concrete service, selected from several web service candidates. This approach has as an advantage generating flexible and low coupling applications, based on its conception on many elementary modules available on the web. The process of service selection during the composition is based on several axes, one of these axes is the QoS-based web service selection. The Qos or Quality of Service represent a set of parameters that characterize the non-functional web service aspect (execution time, cost, etc...). The composition of web services based on Qos, is the process which allows the selection of the web services that fulfill the user need, based on its qualities. Selected services should optimize the global QoS of the composed process, while satisfying all the constraints specified by the client in all QoS parameters. In this paper, we propose an approach based on the concept of agent system and Skyline approach to effectively select services for composition, and reducing the number of candidate services to be generated and considered in treatment. To evaluate our approach experimentally, we use a several random datasets of services with random values of qualities.

Keywords- web service, agent system, QoS, web service composition, Skyline.

A Blind Identification algorithm using PCA and Fuzzy Numbers methods

Elmostafa Atify, Cherki Daoui and Ahmed Boumezzough,

Abstract- In the case of a low-order channel, the blind identification of the Gaussian channel based on fuzzy numbers approach, uses a statistical variable obtained by the combination of channel impulse responses. This allows to reduce the calculation divergences due either to the implemented algorithm or to round-off errors. In the case of a large-order channel, we propose a new approach combining the principal component analysis (PCA) method and the fuzzy number approach. The obtained simulation results applied to the channel BRAN A show the efficiency performance of our approach.

Keywords- Blind identification, Gaussian channel, Fuzzy numbers, PCA, Cumulants.

Session CBI17_2.6: Signal processing

Chair: Prof. Brahim Minaoui, Sultan Moulay Sliman University, Morocco

Nonlinear Approach to CDMA Communication Systems

Jilali Antari

Abstract- Code division multiple access (CDMA) is a core technology of today's wireless communication using data transmission between multiple terminals and a single base station. Although this technology is already in use, a strong demand still exists for improvements to respond to an ever-increasing use of mobile communication devices such as cellular phones and wireless LANs [1]. In this paper, we propose using different non-linear algorithms based on cumulants and neural networks to model and identify the different parameters of the CDMA communication systems. Simulation results and

comparison indicate that the nonlinear algorithms are significantly.

Keywords- Identification, Simulation, CDMA communication systems.

Indicators of a Platform Decision-making for the High Commission for Water and Forests and the Fight against Desertification (HCWFFA)

Kamal Oubedda, Aziz Ettahir and Mohamed Khalfaoui

Abstract- Today the needs of The High Commission for Water and Forests and the Fight against Desertification (HCWFFA) agents is to have tools that allow: Automatic consolidation of all the information without redundancy to reliable data usage. Automatic generation of data related to Moroccan waters and forests. The decision support and data tracking Thus, the trades HCWFFA priority processes are the processes of monitoring activities, the priority of these processes is defined not in terms of their importance, but based on their connection with the Office's business areas have already demonstrated many software investment in the past time and manpower. The breakdown of the information system based on the organizational division (organization) of information often leads to redundancies while computer applications should lock on the business processes that can span multiple functional areas. For this, in the future it will be important to have a decision-making information system meets all predetermined requirements related activities.
Keywords- decision-making information system, strategies, computer applications, prediction.

Improving Performance of Mobile Ad Hoc Network Using Clustering schemes

Mohamed Er-Rouidi, Houda Moudni, Hassan Faouzi, Hicham Mouncif and Abdelkrim Merbouha

Abstract- Mobile ad-hoc network become nowadays more and more used in different domains, due to its flexibility and low cost of deployment. However, this kind of network still suffering from several problems as the lack of resources. Many solutions are proposed to face these problems, among these solutions there is the clustering approach. this approach tries to partition the network into a virtual group. it is considered as a primordial solution that aim to enhance the performance of the total network, and makes it possible to guarantee basic levels of system performance. In this paper, we study some schemes of clustering such as Dominating-Set-based clustering, Energy-efficient clustering, Low-maintenance clustering, Load-balancing clustering, and Combined-metrics based clustering.
Keywords- Manet, Clustering, Network, Mobile, ad-hoc.

Codes, Matrices and Graphes.

Driss Harzalla

Abstract- In this paper, we show how to study binary linear codes from particular planar graphs, bipartite graphs or binary matrices [1][2]. We then focus on computing the automorphism group of particular binary linear codes by use of different methods. Applications are realized by using the following theoretical software: GAP4:8:5 (Group Algorithm Programming), Q-extension [3] and Grin4:0 (Graph Interface).
Keywords- Automorphism, Binary matrix, Planar graph, Bipartite graph, Optimal generator matrix.

Session CBI17_2.7: Telecommunications & Networking

Chair: Prof. Hicham Mouncif, Sultan Moulay Sliman University, Morocco

Competition Analysis Between Content Providers in the Internet Market

Hamid Garmani, M'Hamed Outanoute, Mohamed Baslam, Rachid El Ayachi and Belaid Bouikhalene

Abstract- In the Internet market, content providers (CPs) continue to play a primordial role in the process of accessing different types of data: Images, Texts, Videos ..etc. Competition in this area is fierce, customers are looking for providers that offer them good content (credibility of content and quality of service) with a reasonable price. In this work, we analyze this competition between CPs and the economic influence of their strategies on the market. We formulate our problem as a non-cooperative game among multiple CPs for the same market. Through a detailed analysis, we prove uniqueness of pure Nash Equilibrium (NE). Furthermore, a fully distributed algorithm to converge to the NE point is presented. In order to quantify how efficient is the NE point, a detailed analysis of the Price of Anarchy (PoA) is adopted to ensure the performance of the system at equilibrium. Finally, we provide an extensive numerical study to describe the interactions between CPs and to point out the importance of quality of service (QoS) and credibility of content in the market.

Keywords- Content Providers, Credibility of Content, QoS, Pricing, Game Theory, Nash Equilibrium, Price of Anarchy

Intrusion Detection System in Mobile Ad-hoc Networks using Machine Learning Techniques

Houda Moudni, Mohamed Er-Rouidi, Hassan Faouzi, Hicham Mouncif and Benachir El Hadadi

Abstract- Mobile Ad hoc NETworks (MANETs) are a collection of wireless mobile nodes forming a temporary network without any major infrastructure. However, they are vulnerable to malicious network attacks, especially in the routing layer because of the mutual trustworthiness among the nodes and also their open environment. Therefore, it is indispensable to design new approaches and mechanisms to increase the security of these networks and protect them from attacks. In this paper, we study two Intrusion Detection Systems (IDS) that utilizes Support Vector Machines (SVM) and Artificial Neural Network (ANN) to identify the nodes performing black hole attack in MANET. Our IDS uses extracted features from the trace file that was generated by using Network Simulation version 2 (NS2) as auditable data.
Keywords- Security, Mobile Ad Hoc Networks, Intrusion Detection, System, ANN, SVM

A review of mobile ad hoc networks : modelization, application and data routing evaluation

Alaa Aadri and Najlae Idrissi

Abstract- A Mobile Ad hoc Network generally called MANET consists of a set of mobile nodes equipped with wireless communication interfaces, forming a network without resorting to any fixed infrastructure or centralized administration, this research topic is attracting increasing interest among researchers given their characteristics and potential applications (VANET, WSN). This paper presents both scientific and technological research aimed at presenting an in-depth study of these networks and evaluating solutions to address their problems, notably that of routing, and to facilitate their deployment.
Keywords- IOT, MANET, VANET, WSN Modelization, Routing protocols, Performance analysis.

Semantic security policy for mobile agents system

Hassan Razouki and Abdellatif Hair

Abstract-
A primary problem for security aware platforms discovery is how to discover security capabilities of services offered by these platforms and how these security capabilities can be matched with security requirements of various mobile agents. Ontology is considered among the most important solution to heterogeneity, as it offers a shared knowledge which is able to prevent communication and interaction failure among mobile agents, this failure is due to their heterogeneous security properties. Our main aim, in this research work, is to build ontology for the security domain, and its application to mobile agents. This ontology has a double objective: First of all, the establishment of a formal knowledge of security in the context of mobile agent systems, then the use of ontology facilitates the automatic analysis of the semantic compatibility between security policies (agent / platform). We then chose to model security policies using a W3C standard that is the WS-Policy. We add semantic annotations using this ontology to describe security requirements and capabilities.
Keywords- Mobile agents, Security, Ontology, Semantic matching, Security policy.

Session CBI17_3.1: Optimization and Imaging Application

Geometric Pattern Design Using Computer Graphics

Ahmad Aljamali, Mohamed FAKIR

Abstract- Throughout the history of Islam architecture, eminent craftsmen have adorned buildings with geometric patterns. The geometric star/rosette designs are considered the most recognizable expression of Islamic art and architecture and occur

in rich profusion throughout Islamic cultures. The geometric star/rosette attributes that are used to construct the designs have a special place and important hidden meanings in each and every civilization, culture and religion. Today we have unparalleled ability to understand the traditional geometric star/rosette designs of the past, and to innovate new designs. Mathematical, algorithmic and technological tools if taken together provide us with new opportunities to analyse and explore geometric star/rosette designs. The mathematical tool enables us to illustrate the original designs. The algorithmic tools enable us to perform calculations with the help of computers. Finally, the technological tools enables us turn the designs into real artefact. This paper is a research study in the area of computer generated geometric star/rosette designs. The research is focused on two areas in particular; the classification of geometric star/rosette designs on the basis of system grid and normalisation methodology rather than the classification on the basis of 7-frieze and 17-wallpaper group theories. The second area of research is the study of several significant design methodologies that advocate geometric star/rosette designs and arrive at a different way of setting the algorithm on the basis of star/rosette designs motif to develop new geometric star/rosette designs with ease. Also in this paper we will shed light on the geometric patterns sacred meanings in each and every civilization, culture and religion with the emphasis on system grid attributes, and illustrates how modern mathematics, algorithms, and technology can be applied to the study of geometric star/rosette designs.

Keywords- design patterns, grid, star/roset, group theory, roset design

A Framework to Secure Medical Image Storage in Cloud Computing Environment

Abstract- Today, modern health care providers creates massive medical images every day because of recently developing in imaging tools. Also, it is generally caused by the increasing number of patients demanding medical services. These have resulted in a continuous demand of a large storage space. Unfortunately, healthcare domain still uses local data center for storing their medical data and managing business processes. This has significantly negative impacts on operating costs associated with license fees and maintenance operations. To overcome these challenges, healthcare organizations are interested in adopting cloud storage rather than on-premise hosted solutions. This is mainly justified by the scalability, cost savings and availability of cloud services. The primary objective of this model is to outsource data and delegate IT computation to an external party. The latter delivers needed storage systems through the Internet to fulfill client's demands. Even though this model provides significant cost advantages, using cloud storage raises security challenges. To this aims, several solutions were proposed to ensure data protection. But, existing implementation suffers from many limitations. That is why we propose a framework to secure the storage of medical image over cloud computing. In this regard, we use multi-region segmentation and watermarking techniques to maintain both confidentiality and integrity. In addition, we rely on ABAC model to ensure access control to cloud storage. In doing so, the proposal is an appropriate solution to meet privacy requirements.

Keywords- cloud computing, storage, medical image, security

Abstract- As cloud computing has grown in popularity, many application of this new concept have been suggested. In this paper, we focus in particular on medical image processing using cloud services. In this regard, we present a comprehensive survey on techniques involved in data security processes. Typically, clients' data are hosted on remote servers, and then processed by an external provider. This is considered to be the primary source of all security and privacy faced in the cloud computing. On the one hand, clients need to encrypt their sensitive data to achieve data protection. In doing this, healthcare organizations should not only safeguard medical data against unauthorized users but also against cloud provider himself. On the other hand, data processing in encrypted data is still a challenge. In other words, applying image processing algorithms on encrypted data requires complex mathematical operations and tasks. This would a negative effect on system performance and time running. To address these issues, several method and approaches are used to secure cloud-based medical image processing. This study is meant to a deeper insight security challenges and discuss proposed solutions to meet privacy requirements. First, we present security problems in cloud computing. Second, we give a concise description of the suggested implementations to promote the usage of cloud in the healthcare domain. In this review, we more particularly focused on the techniques used to reduce the security risks associated with this new paradigm, and then, we discuss its limitations. Accordingly, we propose a hybrid approach to process medical image in a secure manner. The main contribution is the proposition of a new method based on segmentation technique in conjunction with multi-agents system to maintain data confidentiality.
Keywords- medical image; cloud computing; security

An OWL-DL Ontology Alignment System

Anas-Salim Bouchbouk, Mohamed Biniz, Rachid El Ayachi and Mohamed Fakir

Abstract- In this work, we present an ontology alignment method based on similarity measures combination using operators such us, the Ordered Weighted Average (OWA) and on the Similarity Flooding algorithm, whose results are chosen according to two strategies, either the One-to-one cardinality that chooses the best correspondence for each entity, or by the multi-alignment strategy between the entities of two ontologies written in OWL-DL.

Keywords- semantic web, ontology, OWL-DL, Ontology Alignment, Ontology Matching, similarity measures, OWA operator, Similarity Flooding

Prevalence Of Tyroid Cancer: Intelligent Technique Modeling

Bouharati Saddek, Bouharati Khaoula, Bouaoud Souad, Khenchouche Abdelhalim, Kara Lamia, Abas Mahnane, Mokhtar Hamdi-Cherif.

Abstract- Several factors are involved in the appearance of cancer of the thyroid. What characterize these factors are complexity, uncertainty and vagueness. The analysis of these factors by conventional mathematical techniques proves very difficult if not impossible. In this study, we proposed a tool based on the techniques of artificial intelligence, notably the principles of fuzzy logic. Factors related to thyroid cancer such as (Exposure to ionizing radiation, Non-cancerous thyroid disorders, and family history of thyroid cancer, obesity, low iodine supply and factors related to reproduction and hormones in women) are considered as input variables to the system. The prevalence is considered as output variable. A basis of the rules is established from the values recorded in the register of cancer of Setif in Algeria. The established system makes it possible to read the prevalence of thyroid cancer instantly by the random introduction of values to

the input factors. The result takes into account all uncertainties related to the very nature of these factors

Keywords- Thyroid cancer, Risk factors, Fuzzy logic

Poster Paper Session PS1

Big Data & Business Intelligent For Telecommunication Network Management

Yazidi Alaoui Otmane, Salaheddine Hamdoune and Zili Hassan

Abstract- Mobile operators amass in their relational database management system (RDBMS), a considerable volume of data (big data) including geographic implied information that is essential to the forecast of the business development. This work, therefore, aimed to the development of a prototype SOLAP to carry out multidimensional statistics and to make forecasts of extension of the Park of radio antennas. To this end, we relied on six concepts:

1. The Big Data allowing storing all the data of the business in a chronological way
2. The multidimensional modelling for structuring the data around the notions of 'fact' and 'dimension'.
3. OLAP For navigating in Big Data to perform multidimensional statistics
4. GIS spatial data can be represented at all scales on satellite and topographical background.
5. SOLAP: Combination of GIS and the OLAP properties for:

a – The representation of statistical analysis on satellite and topographical background.

b – The representation of forecast scenarios for antenna farm extensions.

6. Open Source: enabled us to develop an operational SOLAP prototype from free software.

The design of our prototype is done in 4 steps:

1. The multidimensional model of the spatial database design
2. The Establishment, under PostgreSQL, from the data

warehouse space 'GouvData'
3. The Development of our SOLAP 'GouvRes' realising the coupling between:
a – Platform SIG (under QGIS)
b – And an OLAP 'cube' developed on a platform 'Python'.
4. Creation of a 'man-machine interface' to formulate statistical queries and urban planning scenarios.

Keywords- Gis , Bi, Olap, Solap, Data warehouse, Data Mart, Open Source, Network Management, Big data

IPS open source for Virtual infrastructure monitoring

Abdelkarim Ben Charke, Mohamed Fakir and Mohamed Chabi

Abstract- Virtualization is currently being used more and more in companies, since it has several advantages. However, at the same time it introduces new questions of security, which must be taken into consideration. In this document, we will study an open source IPS (suricata) as a monitoring tool for an open source virtual platform. In the first stage, we implement an open source virtual platform, under the Linux operating system, after we put IPS SURICATA as a bridge between the physical infrastructure and virtual infrastructure. Finally, one controls the accesses to the virtual platform with this IPS then one makes a classification the attack targets this infrastructure

Keywords- virtualization, security, IPS,Suricata, attack

Extracting of itemsets by« Split and Merge » and « Recursive Elimination » Algorithms

Baslam Mohamed, Mohamed Fakir and Khadija Elhasnaoui

Abstract- Recursive elimination and the Split and Merge are tow algorithms for finding frequent item sets, the Relim is strongly inspired by the FP-growth algorithm and very similar. It does its work without prefix trees or any other complicated data structures, processing the transactions directly. Its main strength is not its speed, but the simplicity of its structure. Basically, all

the work is done in one simple recursive function, which can be written with relatively few lines of code. In addition, the SaM algorithm is just a simplification for the RELIM algorithm which makes it faster.

Keywords- SaM, Split and Merge, Recursive Elimination, Relim, frequent item

Extracting itemsets frequents by APRIORI-APRIORITID-ECLAT algorithms

Mohamed Fakir and Rida Khaloufi

Abstract- There are several mining algorithms of association rules. One of the most popular algorithms is Apriori that is used to extract frequent itemsets from large database and getting the association rule for discovering the knowledge. Based on this algorithm, this paper indicates the limitation Apriori algorithm of wasting time for scanning the whole database searching on the frequent itemsets, and presents an improvement on Apriori by reducing that wasted time depending on scanning only some transactions, we talk on AprioriTid. The paper shows by experimental results with several groups of transactions, and with several values of minimum support that applied on the Apriori and AprioriTid and Eclat improved that our improved AprioriTid and Eclat reduces the time consumed comparison with the Apriori.

Keywords- Apriori, AprioriTid, Eclat, Itemsets, frequent itemset, support, candidat.

Bagging and Random forests, Adaboost

Mohamed Fakir and Intissar Salhi

Abstract- The described algorithms are based on adaptive strategies (boosting) or random(unpredictable) (bagging, random forest) allowing to improve the adjustment by a combination(overall) or an aggregation of a large number of models while avoiding on adjustment definitions, optimization and instructions for use of these algorithms.

Keywords- Random forest, adaboost, optimsation,

New approach for classification of eye based on fuzzy logic

Hicham Hatimi, Mohamed Fakir and Mohamed Chabi

Abstract— The systems of classification of the eyes in an image are today indispensable technical means in several domains. To better find the class of belonging of the eye in a minimal time, the classic methods of detection being inadequate, fuzzy logic is considered to be an effective technique for solving an eye classification problem. This article proposes a fuzzy approach for the classification of the eye. This method contains several steps to better classify the eyes. The tasks of classification of eyes are realized in two steps. In the first step, we have to extract the characteristic points of the image, which will allow us to locate the eye. These characteristic points allow to generate a representative model of the eye. Then, in the second step, the detected eyes have to pass by a fuzzy controller containing several parts: Fuzzification, inference rules, and defuzzification. Finally, our system allows giving the degree of belonging of the detected eyes to each class of the database.
Keywords— Eye detection, fuzzy logic, eye segmentation, iris detection, fuzzy controller.

Approach of Building a XML Documents Warehouse

Bouzekri Moustaid and Mohamed Fakir

Abstract- OLAP (On Line Analytical Processing) technology and existing data warehouses systems allow the analysis and storage of the transactional data from the data bases relational. However, only 20% data from an information system are transactional data and can be processed by a system of OLAP [Tseng & cabbage, 2006]. 80% of an information system data represent electronic documents of a company, such as reports, memos, articles (...) [Sullivan, 2001].
These documents represent a capitalisation of knowledge, as well as transactions in the databases, that must be managed. The XML (eXtensible Markup Language) format is today a standard of communication both within organizations and on the Web. It

facilitates transport representation and exchange of complex data (structured or semi-structured) and heterogeneous. OLAP and data warehouses systems technologies are today perfectly controlled when it comes to structured data but are not suitable for the analysis of XML documents of the fact of their hierarchical structure and their content which is often text. We propose an approach to build a XML document warehouse "document oriented" according to the multidimensional Galaxy model, from the XML Schema (XSchema). We also present an physical architecture for integration the of these documents in a native XML environment. Also, queries are translated into XQuery to be applied on the documents warehouse materialized.

Keywords— OLAP, XML document warehouse, XML document, XQUERY, Galaxy Model, XML Schema.

Enterprise Resource Planning: Introductory Overview

Mohamed Elmohadab, Fahd Ouatik, Belaid Bouikhalene and Said Safi

Abstract- Thinking in terms of business processes that integrate the functional areas leads to improvements in communication, workflow, and success of company, each organization needs to share information between functions and functional area. For this reason ERP software comes to provide this capability by using a common database. ERP system allows integrating all information in company: financial accounting, human resource, supply chain management and customer information. There are so many ERP software currently available, both licensed paid and open source but they don't share the same characteristics.

Keywords— ERP, software, open source, proprietary.

Data set for the detection of citrus desease

Moustamsik Elmouloudi, Minaoui Brahim and Fakir Mohamed

Abstract- The citrus industry is an important part of Morocco's agricultural economy. So, improving citrus production and quality is a field of research aimed at finding effective solution for combatting the citrus deseases. As part of this reseach, we

propose a data se for to investigate the use of computer vision and image proccessing techniques in automatic desease detection from symptom that appears on citrus leaves. This data set is composed of 400 images. 100 images for each desease (leaf-miner, melanose, deficiency) and 100 images for normal leaves.
Keywords— Data set, image processing, citrus deseases

Poster Paper Session PS2

Blowfish Encryption Algorithm For Information Security

Mohamed Fakir and Oumaima Elrhazal

Abstract- Generally speaking, encryption algorithms come in two flavors, symmetric and public key. In this work, we describe an encryption algorithm called Blowfish which is a symmetric encryption algorithm, meaning that it uses the same secret key to both encrypt and decrypt messages. Blowfish is also a block cipher, meaning that it divides a message up into fixed length blocks during encryption and decryption. The block length for Blowfish is 64 bits; messages that aren't a multiple of eight bytes in size must be padded. This algorithm is divided into two phases, a phase of expansion of the key that allows to convert a starting key which must be at most 448 bits in several sub keys. The second phase is the data encoding phase, which is to use the Feistel scheme. The algorithm is implemented using a C programming language.
Keywords— Feistel scheme, Blowfish algorithm, public key, secret key

Algorithms C4.5, CART and CHAID

Atman El Hamdaoui and Mohamed Fakir

Abstract- In this paper we are going to explain a various, techniques and methods that their purpose is to achieve a cleaned data from a large wide of data. So there are a lot of techniques offered this possibility, we are going to focus on those

three algorithms: C4.5 algorithm, CART algorithm and finally CHAID. The plan followed looks like as below: Define each algorithm, with explaining the manner how it works, also giving a precious comparison between those algorithms. And finally demonstrate a program in code java of C4.5 algorithm.
Keywords— C4.5, CART, CHAID, Data mining, Decision, tree.

Extraction algorithms of frequent patterns

Ichrak Khoulqi and Mohamed Fakir

Data warehouses know a very strong development. It becomes important to reduce the workload of an administrator that must do it manually. The purpose of the self-administrative systems is to administrate and adapt themselves automatically, without loss or even a performance gain. The idea of using data mining techniques is to extract these data involved knowledge in the process of automatic index selection in the data warehouse is a very promising approach.

The oriented data mining patterns is a new discipline at the intersection of the areas of databases, artificial intelligence and statistical. The techniques developed allow retrieval of information in very large databases, in the form of frequent patterns and association rules. This knowledge is used for supervised classification purposes, unsupervised or class
Keywords— characterization, Data mining,frequent pattern, support, FPGrowth, OP algorithlm, KDCI algorithm.

Discovering Frequent, Closed And Maximal Frequent Itemsets Apriori, Close, Max-Miner

El Kebbar Kassem and Mohamed Fakir

Abstract- we consider the problem of discovering frequent and frequent closed or maximal itemsets. We present three algorithms for solving this problem, in this paper we study the performance of existing approach, Max-Miner, for mining maximal frequent item sets, we cite several algorithms for searching for the frequent closed items such as Close and Apriori.

Presenting the fundamental concepts of formal concept, the principle of these algorithms and concrete examples.

Keywords— Apriori, close, max-miner, frequent itemset, frequent closed isemset, Maximal frequent item sets, data mining.

Towards an inteligent users recommendation system in E-learning

Youssef Elouahby and Rachid Elouahbi

Abstract- This paper proposes a technique of users recommendation for E-learning systems, which makes it possible to identify the best qualified profiles in a given field, the method is based on the artificial intelligence in order to make connection between the knowledge expressed explicitly on a learner profile and a special need of another learner, not necessarily expressed on that profile, but which can be deduced through mechanism of inference.

Keywords— E-learning, Users recommendation, Artificial, Intelligence, Inférence, Semantic Web

A new segmentation of 3D objects based on the Fitting Primitives algorithm with a comparison of segmented 3D objects in 2D view

Ilhame Agnaou and Belaid Bouikhalene

Abstract- In this work, we present a method of segmentation of 3D objects based on the concept of "Fitting Primitives". This approach is fully automatic ie instead of deriving the regions from their boundary, we go directly to the identification Of the regions as sets of adjacent faces, then we will apply such a segmentation of the colored regions of 3D objects in 2D view and we make a such comparison between the two methods treated, and the results obtained will show us the great difference between 3D segmentation and 2D. Indeed, we will see a detection of the different parts of a 3D model than a 2D image.

Keywords— 3D segmentation, 3D objects, Fitting Primitive, Colored Regions

Wirless Sensor Network: Architecture, Applications, Constraints and Topologies

Ezzina Mrani Alaoui, Abdelali Ibriz and Mohamed Benslimane

Abstract- Wireless sensors networks is a technology resulting from the evolution and the convergence of electronics system and microelectronic devices. The sensors constitute the back bound of wireless sensor network. Wireless sensor network are powered with a battery which is limited in energy resources. The minimization of energy consumption is a necessity for the emergence of this technology. In fact, the battery lifetime can be extended by using cooperation techniques and adopting the write topology. This paper presents the architecture, constraints, applications, and topologies of wireless sensor networks.
Keywords— Mesh topology, MIMO cooperatif transmission, network sensor

Poster Paper Session PS3

Towards Emergency Transportation Improvement Based Vanet by using Traffic Congestion Detection

Ahmed Adart, Hicham Mouncif and Mohamed Naimi

Abstract- Emergency transportation improvement in urban areas is a major issue in the transportation field, it has taken an immense attention from intelligent transportation system ITS researchers since last decade. Due to huge number of vehicles, the challenge of emergency vehicle is to make a smart decision to avoid congested paths by the determination of the path from its departure to known destination whatever their natures: hospital, police station, accident location... E-transportation improvement comes as a solution for highly populated cities with complex transport network. The proposed approach implements Vehicular Ad-Hoc network (VANET) as a solution, with the enhancement of its main component On-Board Unit (OBU) by distinction between two types: Normal vehicle as an (OBU) and Emergency vehicle as an E-OBU. The system obtained using this

approach detects high traffic density areas as far as helps E-OBU driver to avoid getting stuck in congestion based on both vehicle to vehicle (V2V) and vehicle to infrastructure (V2I) communications . This paper highlights road congestion detection problem and its solution for making better emergency vehicles transportation as far as finding shortest path to destination in real-time, with data collected and disseminated from vehicles or infrastructures with respect of such criteria.

Keywords— Road Congestion, Congestion Detection, Emergency Transport, E-OBU, RSU, Intelligent Transportation System

On the convergence of statistical learning Algorithms (Bernstein VS. Hoeffding)

Soufiane Lyaqini

Abstract- This paper is concerned with the study of the impact of choosing different loss functions in the theory of statistical learning. In particular, based on the assumption of convexity satisfied by the loss functions commonly used in the literature, we study the influence of choosing the concentration inequality on the convergence rate. Especially, we compare the Hoeffding and Bernstein inequalities.

Keywords— statistical learning, inverse problem, Loss function

Identification and equalization of Radio Communication Channels using Cumulants Compared with Kernel methods

Mohammed Boutalline, Mohamed Gouskir, Jilali Antari, Belaid Bouikhalene, Safi Said and Zeroual Abdelouhab

Abstract- This paper propose a kind of identification of non-minimum phase channel parameters of communication radio channels using proposed algorithm based on fourth order cumulants. We have selected two types of these channels as the Proakis's 'B' channel and the Macchi's channel. The simulation results and comparison, with adaptive method and algorithm based on positive-definite kernel for different data input, demonstrates that the proposed algorithm is able and can estimate the parameters of these channels.

Keywords— Identification, Equalization, Simulation, non-minimum phase, MA Model, Communication Radio Channels

Optimization of Si solar cell efficiency using finite difference method

El Hadi Chahid, Mourad Nachaoui, Mohammed Erritali and Abdessamad Malaoui

Abstract- This paper presents a development of numerical method to calculate and optimize the photocurrent densities in Silicon solar cell. This method is based on finite difference method to resolve the continuity equations of charge carriers of p-n junctions in each region. These equations include several physical parameters as the absorption coefficient, the reflection one of the material under the sunlight irradiation of AM0 solar spectrum. Linearization of differential equation was mad using a standard difference scheme with Neumann boundary conditions. These latter use the surface recombination velocity and gives a tridiagonal matrix. The obtained results are compared with experimental data, and show a good agreement in level of errors, precision and rapidity.
Keywords— photocurrent density, solar cell, efficiency, finite difference method, Tridiagonal matrix

Radio Over Fiber link for Wireless communications

Kaoutar Saidi Alaoui

Abstract- Radio over fiber technology will play a significant role in solving problems facing this technology. Envisioning a global village, people could transmit and receive "anytime, anywhere, and anything". In addition, the explosive growth in internet applications such as the World Wide Web, demonstrates the tremendous increase in bandwidth and low power that the coming world of multimedia interactive applications will require from future networks.
ROF technology uses multicarrier modulation like orthogonal frequency division multiplexing (OFDM), which provides an opportunity of having an increased in bandwidth together with an

affordable cost and this idea has recently become a suitable topic for many research works. On the other hand, SAC-OCDMA (Spectral Amplitude Coding Optical Code Division Multiple Access) technique is able to enhance the data rate of system and increase the number of user.
In this paper we investigate the performances of ROF link using a hybrid OFDM/SAC-OCDMA technique.
Keywords— Radio Over Fiber, SAC-OCDMA, OFDM,Access Network

Sequential Pattern Mining: Study and Comparison between GSP and SPADE

Driss Ait Omar and Mohamed Fakir

Abstract- This paper presents a comparison between basically two kinds of algorithm GSP (Generalized Sequential Pattern) and SPADE (Sequential Pattern Discovery using Equivalence classes). GSP is the Apriori based Horizontal formatting method and SPADE is the Apriori based vertical formatting method. In this paper, the comparison is based in terms of average execution time and memory usage.
Keywords— GSP, SPADE, Sequential Pattern, Data Mining, Sequential Mining

Algorithms: APRIORI, CLOSE, A-CLOSE, CLOSET, GENERIC, CHARM and TITANIC

Mohamed El Amrani, Hamid Garmani and Mohammed Fakir

Abstract- The increase in data stored in databases may hide a certain number of knowledge, dependencies or correlations, which are implicit and useful, and which are waiting to be explored. In this context, a number of algorithms, based on the APRIORI algorithm, based on the extraction of frequent itemsets have been presented. The particularity of these algorithms is that they generate an exorbitant number of rules making their exploitation almost impossible by experts. In this paper, we present the algorithms Close, A-Close, Closet, Generic, Charm

and Titanic. that find frequent closed itemset, these algorithms are seen as a promising alternative for reducing the size of discovered association rules. These algorithms are illustrated by illustrative examples and their implementations in C programming language.
Keywords— Datamining, Frequent itemset, frequent closed itemset.