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CANCER PROGNOSIS PREDICTION USING BALANCED STRATIFIED SAMPLING

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ABSTRACT

High accuracy in cancer prediction is important to improve the quality of the treatment and to improve the rate of survivability of patients. As the data volume is increasing rapidly in the healthcare research, the analytical challenge exists in double. The use of effective sampling technique in classification algorithms always yields good prediction accuracy. The SEER public use cancer database provides various prominent class labels for prognosis prediction. The main objective of this paper is to find the effect of sampling techniques in classifying the prognosis variable and propose an ideal sampling method based on the outcome of the experimentation. In the first phase of this work the traditional random sampling and stratified sampling techniques have been used. At the next level the balanced stratified sampling with variations as per the choice of the prognosis class labels have been tested. Much of the initial time has been focused on performing the pre-processing of the SEER data set. The classification model for experimentation has been built using the breast cancer, respiratory cancer and mixed cancer data sets with three traditional classifiers namely Decision Tree, Naïve Bayes and K-Nearest Neighbour. The three prognosis factors survival, stage and metastasis have been used as class labels for experimental comparisons. The results shows a steady increase in the prediction accuracy of balanced stratified model as the sample size increases, but the traditional approach fluctuates before the optimum results.

KEYWORDS

Cancer, Classification, Pre-processing, Sampling

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FUNCTIONAL REQUIREMENTS OF INTELLIGENT OBJECT FRAMEWORK
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ABSTRACT

Intelligent Object Framework (IOF) is a new communication standard over a wireless network supporting existing multiple sets of architectural solutions. The Framework consists of a framework design that enables devices of different platforms to communicate by a common data exchange model via a device management controller. This paper provides a descriptive analysis of functional requirements for the IOF. The purpose of the proposed system is to provide a platform independent device (Intelligent Object) management by utilization of set components. The functional requirements focus on deriving primary functionality of server and client applications by description of required inputs, behaviours and outputs.

KEYWORDS

Discovery, Functional Requirements, Intelligent Object Framework, IOF, Wireless Applications.

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A STUDY ON GRAPH STORAGE DATABASE OF NOSQL

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ABSTRACT

Big Data is used to store huge volume of both structured and unstructured data which is so large and is hard to process using current / traditional database tools and software technologies. The goal of Big Data Storage Management is to ensure a high level of data quality and availability for business intellect and big data analytics applications. Graph database which is not most popular NoSQL database compare to relational database yet but it is a most powerful NoSQL database which can handle large volume of data in very efficient way. It is very difficult to manage large volume of data using traditional technology. Data retrieval time may be more as per database size gets increase. As solution of that NoSQL databases are available. This paper describe what is big data storage management, dimensions of big data, types of data, what is structured and unstructured data, what is NoSQL database, types of NoSQL database, basic structure of graph database, advantages, disadvantages and application area and comparison of various graph database.

KEYWORDS

Big Data, Graph Database, NoSQL, Neo4j, graph

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EVALUATION OF GRAPH DATABASES PERFORMANCE THROUGH INDEXING TECHNIQUES

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ABSTRACT

The aim of this paper is to evaluate, through indexing techniques, the performance of Neo4j and Orient DB, both graph databases technologies and to come up with strength and weaknesses os each technology as a candidate for a storage mechanism of a graph structure. An index is a data structure that makes the searching faster for a specific node in concern of graph databases. The referred data structure is habitually a B-tree, however, can be a hash table or some other logic structure as well. The pivotal point of having an index is to speed up search queries, primarily by reducing the number of nodes in a graph or table to be examined. Graphs and graph databases are more commonly associated with social networking or “graph search” style recommendations. Thus, these technologies remarkably are a core technology platform for some Internet giants like Hi5, Facebook, Google, Badoo, Twitter and LinkedIn.

The key to understanding graph database systems, in the social networking context, is they give equal prominence to storing both the data (users, favorites) and the relationships between them (who liked what, who ‘follows’ whom, which post was liked the most, what is the shortest path to ‘reach’ who). By a suitable application case study, in case a Twitter social networking of almost 5,000 nodes imported in local servers (Neo4j and Orient-DB), one queried to retrieval the node with the searched data, first without index (full scan), and second with index, aiming at comparing the response time (statement query time) of the aforementioned graph databases and find out which of them has a better performance (the speed of data or information retrieval) and in which case. Thereof, the main results are presented in the section 6.

KEYWORDS

Evaluation, Comparison, Graph Database, Index system, Neo4j, Orient-DB.

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NETWORK LEARNING AND TRAINING OF A CASCADED LINK-BASED FEED FORWARD NEURAL NETWORK (CLBFFNN) IN AN INTELLIGENT TRIMODAL BIOMETRIC SYSTEM

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ABSTRACT

Presently, considering the technological advancement of our modern world, we are in dire need for a system that can learn new concepts and give decisions on its own. Hence the Artificial Neural Network is all that is required in the contemporary situation. In this paper, CLBFFNN is presented as a special and intelligent form of artificial neural networks that has the capability to adapt to training and learning of new ideas and be able to give decisions in a trimodal biometric system involving fingerprints, face and iris biometric data. It gives an overview of neural networks.

KEYWORDS

CLBFFNN, Learning, Training, Artificial Neural Network, Trimodal, Biometric System.

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ABSTRACT

This paper presents an outdoor mobile robot that can be controlled remotely using an android phone. With the help of the sensors, the robot was programmed to navigate within the bounded field, detect the motion in the surroundings and can also send an alarm. The robot was designed to be able to navigate to the flowerpots placed in the zone and dispense water to those pots. The robot has proved capable of watering a total of 600 ml to two different plants in a predefined area. The robot, if operating in a manual mode, can be used to remotely water plants in a radius of 9 meters. On top of this, it emits no carbon and produces no RoHS by-products and can thus be deemed 100% eco-friendly.

KEYWORDS

Arduino Uno, IR Sensor, PIR Sensor, Motor.

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ABSTRACT

Things like growing volumes and varieties of available data, cheaper and more powerful computational processing, data storage and large-value predictions that can guide better decisions and smart actions in real time without human intervention are playing critical role in this age. All of these require models that can automatically analyse large complex data and deliver quick accurate results – even on a very large scale. Machine learning plays a significant role in developing these models. The applications of machine learning range from speech and object recognition to analysis and prediction of finance markets. Artificial Neural Network is one of the important algorithms of machine learning that is inspired by the structure and functional aspects of the biological neural networks. In this paper, we discuss the purpose, representation and classification methods for developing hardware for machine learning with the main focus on neural networks. This paper also presents the requirements, design issues and optimization techniques for building hardware architecture of neural networks.

KEYWORDS

Artificial intelligence (AI), application specific integrated circuit (ASIC), artificial neural network (ANN), central processing unit (CPU), field programmable gate array (FPGA), graphics processing unit (GPU), machine learning (ML), neurochip

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PREDICTING STUDENT ACADEMIC PERFORMANCE IN BLENDED LEARNING USING ARTIFICIAL NEURAL NETWORKS

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ABSTRACT

Along with the spreading of online education, the importance of active support of students involved in online learning processes has grown. The application of artificial intelligence in education allows instructors to analyze data extracted from university servers, identify patterns of student behavior and develop interventions for struggling students. This study used student data stored in a Moodle server and predicted student success in course, based on four learning activities - communication via emails, collaborative content creation with wiki, content interaction measured by files viewed and self-evaluation through online quizzes. Next, a model based on the Multi-Layer Perceptron Neural Network was trained to predict student performance on a blended learning course environment. The model predicted the performance of students with correct classification rate, CCR, of 98.3%.

KEYWORDS

Artificial Neural Networks, Blended Learning, Student Achievement, Learning Analytics, Moodle Data,

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INTELLIGENT DECISION SUPPORT SYSTEMS FOR ADMISSION MANAGEMENT IN HIGHER EDUCATION INSTITUTES

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ABSTRACT

On the basis of their use, the DSS has received positive feedback from the University's decision makers. Making use of Intelligent Decision Support Systems (IDSS) technologies suited to provide decision support in the higher education environments, by generating and presenting relevant information and knowledge which are helpful in taking the decision regarding admission management in higher education colleges or universities. The university decision makers' needs and the DSS components are identified with the help of survey done. In this paper the components of a decision support system (DSS) for developing student admission policies in higher education institute or in the university and the architecture about DSS based on ERP are proposed followed by how intelligent DSS in conjunction with ERP helps to overcome the drawbacks, if ERP is used alone in higher education institutes.

KEYWORDS

Intelligent systems, Decision support, Decision Support Systems (DSS), ERP, Higher education institutions, knowledge base.

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USING AUTOMATED LEXICAL RESOURCES IN ARABIC SENTENCE SUBJECTIVITY

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ABSTRACT

A common point in almost any work on Sentiment analysis is the need to identify which elements of language (words) contribute to express the subjectivity in text. Collecting of these elements (sentiment words) regardless the context with their polarities (positive/negative) is called sentiment lexical resources or subjective lexicon. In this paper, we investigate the method for generating Sentiment Arabic lexical Semantic Database by using lexicon based approach. Also, we study the prior polarity effects of each word using our Sentiment Arabic Lexical Semantic Database on the sentence-level subjectivity and multiple machine learning algorithms. The experiments were conducted on MPQA corpus containing subjective and objective sentences of Arabic language, and we were able to achieve 76.1 % classification accuracy.

KEYWORDS

Sentiment analysis, Lexical recourses, Opinion mining, Subjectivity Lexicon, Arabic opinion mining.

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