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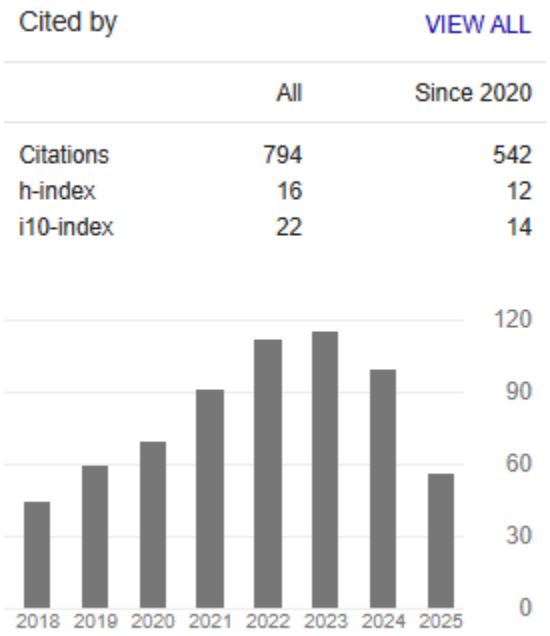
International Journal on Soft Computing, Artificial Intelligence and Applications (IJSCAI)

ISSN : 2319 - 1015 [Online]; 2319 - 4081 [Print]

http://airccse.org/journal/ijscai/index.html



Big Data Analytics: Challenges And Applications For Text, Audio, Video, And Social Media Data

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ABSTRACT

All types of machine automated systems are generating large amount of data in different forms like statistical, text, audio, video, sensor, and bio-metric data that emerges the term Big Data. In this paper we are discussing issues, challenges, and application of these types of Big Data with the consideration of big data dimensions. Here we are discussing social media data analytics, content based analytics, text data analytics, audio, and video data analytics their issues and expected application areas. It will motivate researchers to address these issues of storage, management, and retrieval of data known as Big Data. As well as the usages of Big Data analytics in India is also highlighted.

KEYWORDS

Big Data, Big Data Analytics, Social Media Analytics, Content Based Analytics, Text Analytics, Audio Analytics, Video Analytics.

Volume URL : https://airccse.org/journal/ijscai/current2016.html

Source URL : https://aircconline.com/ijscai/V5N1/5116ijscai05.pdf

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Bacteria Identification From Microscopic Morphology: A Survey

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ABSTRACT

Great knowledge and experience on microbiology are required for accurate bacteria identification. Automation of bacteria identification is required because there might be a shortage of skilled microbiologists and clinicians at a time of great need. There have been several attempts to perform automatic background identification. This paper reviews state-of-the-art automatic bacteria identification techniques. This paper also provides discussion on limitations of state- of-the-art automatic bacteria identification systems and recommends future direction of automatic bacteria identification.

Keywords

Bacteria Identification, Cocci, Bacilli, Vibrio, Naïve Bayes, Machine Learning.

Volume URL : https://airccse.org/journal/ijscai/current2014.html

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Deep Learning Sentiment Analysis of Amazon.Com Reviews and Ratings

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ABSTRACT

Great knowledge and experience on microbiology are required for accurate bacteria identification. Automation of bacteria identification is required because there might be a shortage of skilled microbiologists and clinicians at a time of great need. There have been several attempts to perform automatic background identification. This paper reviews state-of-the-art automatic bacteria identification techniques. This paper also provides discussion on limitations of state- of-the-art automatic bacteria identification systems and recommends future direction of automatic bacteria identification.

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Volume URL : https://airccse.org/journal/ijscai/current2014.html

Source URL : https://airccse.org/journal/ijscai/papers/3214ijscai01.pdf

Routing Wireless Sensor Networks Based on Soft Computing Paradigms: Survey

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ABSTRACT

Wireless Sensor Networks (WSNs) are defined as dynamic, self-deployed, highly constrained structured network. It`s high computational environment with limited and controlled transmission range, processing, as well as limited energy sources. The sever power constraints strongly affect the existence of active nodes and hence the network lifetime. In order to prolong the network life time we have to overcome the scarcity in energy resources and preserve the processing of the sensor nodes as long as possible. Power management approaches efficiently reduce the sensor nodes energy consumption individually in each sensor node and the adaptive efficient routing technique has greatly appeals a great attention in research. The potential paradigms of soft- computing (SC) highly addressed their adaptability and compatibility to overwhelm the complex challenges in WSNs. This paper is introducing and surveying some of the Soft Computing proposed routing models for WSNs that optimally prolongs its life time.

KEYWORDS

Wireless Sensor Network, Routing, Soft Computing

Volume URL : https://airccse.org/journal/ijscai/current2013.html

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Fuzzy Logic Based Direct Torque Control of Induction Motor With Space Vector Modulation

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ABSTRACT

The induction motors have wide range of applications for due to its well-known advantages like brushless structures, low costs and robust performances. Over the past years, many kind of control methods are proposed for the induction motors and direct torque control has gained huge importance inside of them due to fast dynamic torque responses and simple control structures. However, the direct torque control method has still some handicaps against the other control methods and most of the important of these handicaps is high torque ripple. This paper suggests a new approach, Fuzzy logic based space vector modulation, on the direct torque controlled induction motors and aim of the approach is to overcome high torque ripple disadvantages of conventional direct torque control. In order to test and compare the proposed direct torque control method with conventional direct torque control method simulations, in Matlab/Simulink, have been carried out in different working conditions. The simulation results showed that a significant improvement in the dynamic torque and speed responses when compared to the conventional direct torque control method.

KEYWORDS

Direct torque control, Fuzzy logic control, Space vector modulation, Induction motor control.

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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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Pattern Detection with Rare Item-Set Mining

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ABSTRACT

The discovery of new and interesting patterns in large datasets, known as data mining, draws more and more interest as the quantities of available data are exploding. Data mining techniques may be applied to different domains and fields such as computer science, health sector, insurances, homeland security, banking and finance, etc. In this paper we are interested by the discovery of a specific category of patterns, known as rare and non-present patterns. We present a novel approach towards the discovery of non-present patterns using rare item-set mining.

KEYWORDS

Data mining, rare patterns, security, intrusion detection, item-set

Volume URL : https://airccse.org/journal/ijscai/current.html

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An SOM-based Automatic Facial Expression Recognition System

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ABSTRACT

Recently, a number of applications of automatic facial expression recognition systems havesurfaced in many different research fields. The automatic facial expression recognition problem is a very challenging problem because it involves in three sub-problems: 1) face detection, 2) facial expression feature extraction, and 3) expression classification. This paper presents an automatic facial expression recognition system based on self-organizing feature maps, which provides an effective solution to the aforementioned three sub-problems. The performance of the proposed system was computed on twowell-known facial expression databases. The average correct recognition rates were over 90%.

KEYWORDS

Impulse Noise, Nonlinear filter, Adaptive Filters, Decision Based Filters.

Volume URL : https://airccse.org/journal/ijscai/current2013.html

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Multi-Population Methods with Adaptive Mutation for Multi-Modal Optimization Problems

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ABSTRACT

This paper presents an efficient scheme to locate multiple peaks on multi-modal optimization problems by using genetic algorithms (GAs). The premature convergence problem shows due to the loss of diversity, the multi-population technique can be applied to maintain the diversity in the population and the convergence capacity of GAs. The proposed scheme is the combination of multi-population with adaptive mutation operator, which determines two different mutation probabilities for different sites of the solutions. The probabilities are updated by the fitness and distribution of solutions in the search space during the evolution process. The experimental results demonstrate the performance of the proposed algorithm based on a set of benchmark problems in comparison with relevant algorithms.

KEYWORDS

Multi-population approaches, adaptive mutation operator, multi-modal function optimization, genetic algorithms

Volume URL : https://airccse.org/journal/ijscai/current2013.html

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A Novel Multiplicative Model of Multi Criteria Analysis for Robot Selection

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ABSTRACT

Selection of an industrial robot for a specific purpose is one of the most challenging problems in modern manufacturing atmosphere. The selection decisions become more multifaceted due to continuous incorporation of advanced features and facilities as the decision makers in the manufacturing environment are to asses a wide varieties of alternatives based on a set of conflicting criteria. To assist the selection procedure various Multiple Criteria Decision Making (MCDM) approaches are available. The present investigation endeavours to mitigate and unravel the robot selection dilemma employing the newly proposed Multiplicative Model of Multiple Criteria Analysis (MMMCA) approach. MMMCA is a novel model in which all performance ratings are converted into numerical values greater than and equal to unity and converting all non-benefit rating into benefit category. Each normalized weight is used as the index of corresponding normalized ratings those are multiplied to obtain the resultant score. The best alternative is associated with the highest resultant score. A real life example is cited in order to demonstrate and validate the applicability, potentiality, suitability, flexibility and validity of the proposed model. At last sensitivity analysis is carried out for making dynamic decision

KEYWORDS

Multiplicative Model of Multiple Criteria Analysis, Industrial Robot Selection, Sensitivity Analysis

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Interval Type-2 Fuzzy Logic for Fire Outbreak Detection

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ABSTRACT

This paper employed an Interval Type-2 Fuzzy Logic (IT2FL) in the detection of fire outbreak using environmental parameters. Fire outbreak data capturing device (FODCD) is developed and used in capturing environmental parameter values. The FODCD is comprised of DHT11 temperature sensor, MQ-2 smoke sensor, LM393 Flame sensor, and ESP8266 Wi-Fi module connected to Arduino nano v3.0.board. An android application is developed using Android Studio 3.0 to test the functionality of the system. Experimental result indicates that, with the temperature value of 40.657oC, Smoke value of 77.86%, and Flame value of 762.95ppm (part per million), with a threshold T = 0.8, the IT2FL predicted fire outbreak at 0.778 (78%). IT2FL is evaluated using the True Positive Rate (TPR), False Positive Rate (FPR), Accuracy, Error Rate (ER), Precision, and Recall performance metrics. The performance result shows that, the system performs optimally when threshold T is kept between an optimal range of 0.8 and 0.85.

KEYWORDS

Interval Type-2 Fuzzy Logic, Fire Outbreak Detection, Environmental Parameter, Type Reduction Algorithm

Volume URL : https://airccse.org/journal/ijscai/current.html

Source URL : https://aircconline.com/ijscai/V8N3/8319ijscai03.pdf

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