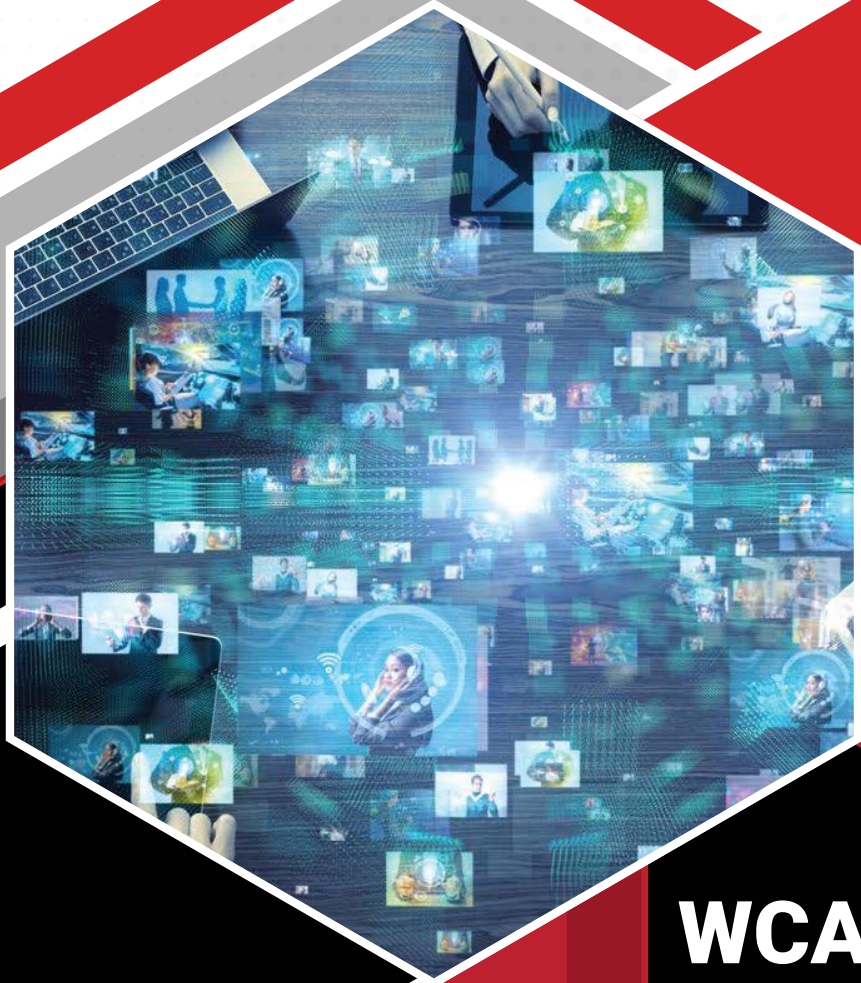
30th WORLD CONFERENCE ON

APPLIED SCIENCE, ENGINEERING AND TECHNOLOGY - 2020

30th October 2020 | Virtual Conference



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INSTITUTE FOR ENGINEERING RESEARCH AND PUBLICATION (IFERP)

WCASET 2020

30th World Conference on Applied Science, Engineering and Technology

WCASET-2020

30th October, 2020

Institute For Engineering Research and Publication

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Editorial

We cordially invite you to attend the ***30th World Conference on Applied Science, Engineering and Technology (WCASET - 2020)*** which will be held on ***30th October, 2020*** - Virtual conference. The main objective of ***WCASET-2020*** is to provide a platform for Researchers, Students, Academicians as well as Industrial Professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in there view process, and to the authors for contributing their research result to the conference.

Since July 2020, the Organizing Committees have received more than 150 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering and Technology. Finally, after review, about 29 papers were included to the proceedings of ***WCASET-2020***.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of ***WCASET-2020***. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Acknowledgement

IFERP is hosting the **30th *World Conference on Applied Science, Engineering and Technology*** this year in month of October. The main objective of WCASET- 2020 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

Er. R. B. Satpathy
CEO (Chief Executive Officer)
Institute for Engineering Research and Publication (IFERP)

Keynote Speaker

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Dr. Morris Ezra

Associate Professor,
Deputy Director,
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Message

Greetings!!!

Monday, October 26, 2020

It gives me great pleasure to be part of the 30th World Conference on Science, Engineering, and Technology. My appreciation goes to the Institute for Engineering Research and Publications (IFERP) for organizing this conference.

Internet of Things (IoT) is nothing but a network of physical objects. These physical objects may range from sensors, switches to smart devices like phones, watches, home appliances, etc. Performing data analytics on the vast amount of the collected data is one way of monetizing it. With the collection of data and data analytics come various issues ranging from data security, privacy, the threat of redundancy, etc.

Hence, it is only appropriate to give a glimpse of what the future holds to the young minds and make them inclusive of the upcoming developments.

I am confident that this conference will be a platform for Engineers, Academics, Students, and Industrialists to share their ideas and vision for the Internet of Things. I take this opportunity to convey my best wishes for the success of this conference.

Dr. Morris Ezra

30th WORLD CONFERENCE ON APPLIED SCIENCE, ENGINEERING AND TECHNOLOGY

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30th World Conference on Applied Science, Engineering and Technology

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ABSTRACTS

Organized by

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30th World Conference on Applied Science, Engineering and Technology
30th October, 2020

Study on the Planar Shock/Curved Wall Boundary Layer Interactions

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Abstract

Shock wave/boundary layer interactions are flow phenomena which are frequently encountered in supersonic/hypersonic aircraft. Due to the large-scale three-dimensional flow separation, it often has detrimental effects on the aircraft structure and engine aerodynamic performance. Specially, in supersonic missiles, the planar shock wave generated by the compression ramp interacts with the boundary layer on the fuselage of the missile, forming complex planar shock wave/curved wall boundary layer interactions phenomenon. In this paper, this type of flow structure is numerically studied, the basic flow characteristics and three-dimensional flow field structure of the interactions between the planar shock wave and the curved wall boundary layer are obtained. It is found that the flow field structure of planar shock wave/curved wall boundary layer interactions resembles to that in the planar shock/boundary layer interaction. Due to the sweeping effect of the planar shock waves on the curved wall surface, the separation characteristic line and three-dimensional flow field structure become to swept and highly three-dimensional.

Evolving Education System with Cognitive Computing

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Abstract

Cognitive Computing is a multifaceted field of research which aims at utilizing decision-making mechanisms and computational models based on psychology and the human thought process. This system mimics the functioning of the human brain and helps to improve human decision making by involving technologies like data mining, machine learning, artificial intelligence and natural language processing(NLP). One of the applications of Cognitive Computation is in the field of education. Being in the middle of the pandemic, where everything has been shifted to a digital platform, educating students through the online platform has become a challenging task. To simplify this learning process, thereby making it more effective and interactive, involving cognitive Computing would be beneficial. This study emphasizes on these methods which we can incorporate in educational institutes to re-innovate the modern-day education system.

Index terms

Cognitive Computing, Learning, Education System, Covid

Optical Wireless Communication and Optical Processors

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Abstract

This paper eventually explains about the Innovative advent of optical wireless communication and optical processors .Optical processor enables the processing of data in light speed which is very faster rate than the silicon chip processing. This optical processors are very helpful in optical computing but the optical computing uses only silicon chip .For communication, what is optical processors and optical wireless methods are used for data transfer and communication respectively.

Study on Deep Learning and Its Applications

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Abstract

Deep learning is the most powerful, supervised, time-consuming and cost-effec- tive approach to machine learning. In recent years, Deep learning has grown hand-in-hand with the modern revolution, which has led to an influx in data in all ways and from every part of the world. This new field of machine learning has grown rapidly and has been applied to most tradi- tional application domains, as well as to some new areas that present more opportunities. Differ- ent methods have been proposed based on different categories of learning, such as supervised, semi-supervised and non-supervised learning. The paper explores and presents major applica- tions of deep learning in variety of areas and discusses about techniques and architectures used for relevant applications in the real world along with future aspects.

Index terms

Artificial Intelligence, Machine Learning, Deep Learning, Artificial Neural Network, Convolutional Neural Network

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Numerical Approximation of Modified Burgers' Equation with Modified Cubic NUAH B-Spline Differential Quadrature Method

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Abstract

In the present paper, authors have implemented the "Modified cubic Non-Uniform Algebraic Hyperbolic B-spline based DQM" to solve the modified Burgers' equation in numerical aspect. Modified cubic NUAH B-spline basis function is used for the discretization of the spatial derivative. Modified Burgers' equation is converted in to the system of ordinary differential equations, which later on solved by SSP-RK43 scheme. The numerical results of the proposed method are compared with some of the previous methods as well as with the exact solution. Stability of the proposed method is checked by using the matrix stability analysis method.

Index terms

Modified Burgers' equation, Differential quadrature method, Non-Uniform Algebraic Hyperbolic (NUAH) B-spline, Matrix stability analysis method

Plastic Pollution and Plastic Waste Management

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Abstract

Plastic pollution is the accumulation of plastic objects and particles (e.g. plastic bottles, bags and microbeads) in the Earth's environment that adversely affects wildlife, wildlife habitat, and humans. Plastics that act as pollutants are categorized into micro-, meso-, or macro debris, based on size. Plastic pollution is emerging as a top threat to ocean ecosystems.

The study done reveals about how much plastic does the world produce, how do we dispose of plastic produced, which sector produces and uses the most quantity of plastic and what are the best possible alternatives.

One of the study is done to replace aggregates partially by plastic with full data, proves to be alternative method for plastic waste management.

Index terms

Air, Effect, Management, Plastic, Pollution, Water, World

Effect of Talent Management Practices on Employee Engagement: the Mediating Effect of Job Satisfaction in FMCG Sector

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Abstract

In a fast growing economy retaining talent has become a critical issue. Talent Management Practices go a long way in enhancing retention. Giving recognition to employees, and creating conducive working environment, providing rewards and promotions, succession planning, training and development are Talent Management Practices that may promote retention and high employee engagement.

Organizations are run by people, and the talent of these people will determine the success of organizations. So, talent management is management‘s main priority. Today‘s businesses face increased global competition, shifting markets, and unforeseen events. No wonder they are finding it more difficult than ever to attract, develop, and retain the skilled workers they need (McCauley & Wakefield, 2006)

The present study is exploratory in nature in which survey will be conducted in Uttar Pradesh and path analysis is done with the objective to understand the relationship between talent management practices on employee engagement among employees of FMCG sector. The result indicates that there is direct causal relationship between the talent Management and Job satisfaction whereas indirect casual relationship between talent management and employee engagement mediated through job satisfaction.

Index terms

Talent Management, Job Satisfaction, Employee Engagement, Acknowledgement, Recognition, Career Prospects. Financial Aspects

Conceptual Study of a Fluid-Based Transportation Mode using the Principle of a Reversed Wave Energy Converter

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Abstract

One of the problems in the transportation sector is the need for fuel, which must be solved by alternative fuels and electric vehicle technologies. The primary challenge facing maglev trains has always been cost. Magnetic field generated, repels the gravitational force created by earth and allows the floating vehicle to remain suspended in air. In order to discover such new technologies in the field of transportation, the vehicle must be energized before being driven by an internal combustion engine or electric motor. The need for efficient technologies in the field of transportation leads to the creation of levitation concepts based on fluids of two different densities. Water must be the base liquid because of its high density, and air is the secondary liquid that causes the floating vessel to levitate on the surface of the water. The proposed research work is to investigate the effects of the unbalanced buoyancy force of two different fluids and, to explore a new transport mode known as partially levitated transport.

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Estimation and Classification of Physiological Tremor with Electromyography

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Abstract

Tremor is repetitive movement of some part of the body. It disturbs the daily routine work of human like eating, grasping objects etc. Physiological tremor is a big concern during surgery as the tremor in surgeon's hand may lead to serious accident. Robotic surgery makes it possible to filter out the tremor before it is passed on to the surgical arms of the robot actually performing the surgery. In order to remove tremor, it is to be sensed and measured well before time. The research work reported in this paper pertains to sensing the tremor reflected in the surface electromyography (sEMG), processing the signal and applying a classifier to detect the tremor and remove it. Total 14 subjects belonging to different age groups were included in the study. Seven features viz. Mean, Standard Deviation, Skewness, Kurtosis, Mean Absolute Value, Zero-crossing and Slope Sign Change were extracted and fed to the classifier. Four classifier models viz. K-Nearest Neighbour, Logistic Regression, Support Vector Machine and Random Forest were used. The results showed the decrease in median frequency and increase in power during tremor. Classification accuracy was found as 100% with Random Forest model.

Index terms

Hand tremor, Surface Electromyogram (sEMG), Features, Classification, Accuracy

Corporate Restructuring: Implications and Analytical Framework

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Abstract

In the words of Justice Dhananjaya Y. Chandrachud, corporate restructuring is one of the means that can be employed to meet the challenges which confront business.

The corporate restructuring is the process of making changes in the composition of a firm's one or more business portfolios in order to have a more profitable enterprise. Restructuring is a type of corporate action taken when significantly modifying the debt, operations or structure of a company as a means of potentially eliminating financial harm and improving the business.

Today, a restructuring wave is sweeping the corporate sector over the world, taking within its fold both big and small entities, seeing the latest restructuring taking place at Flipkart, acquiring eBay, Microsoft acquisition of Nokia, etc. Mergers, amalgamations, acquisitions, consolidations and takeovers have become an integral part of new economic paradigm.

This paper mainly aims to fulfill following objectives: 1) To study the methodology adopted in performing successful restructuring-an analytical model. 2) To understand the general framework and different forms of corporate restructuring. 3) To study and analyze restructuring taking place at organizations. 4) To analyze how restructuring is not always a right strategy; discussing the case of Flipkart entering into two incredibly bad M&A with eBay and Snapdeal.

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Skin Cancer Detection and Classification using Machine Learning Techniques

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Abstract

Skin cancer is the most common type of cancer, which affects the life of millions of people every year. About three million people are diagnosed with the disease every year in the United States alone. The rate of survival decreases steeply as the disease progresses. However, detection of skin cancer in the early stages is a difficult and expensive process. In this study, we propose a methodology that detects and identifies skin lesions as benign or malignant based upon images taken from general cameras. The images are segmented, features extracted by applying the rule and a Neural Network is trained to classify the lesions to a high degree of accuracy. artificial neural networks (ANNs) were used as diagnosis method for Skin cancer detection from magnetic resonance image. The detection of the cancer is performed in two stages: Preprocessing and enhancement in the first stage and segmentation and classification in the second stage which using different stages of statistical method; feature extraction which one of texture analysis and the last used this feature as input parameters to the feed-forward back propagation Artificial neural networks which designed by the neural networks toolbox in implemented all the result.

Index terms

Skin Cancer, Image Processing, Feature Extraction, Neural Networks, Classification

Body Temperature Measurement for Remote Health Monitoring System

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Abstract

In today's world, women safety has become a major issue as they can't step out of their house at any given time due to physical/sexual abuse and a fear of violence. Atrocities towards (and against) women are forms of oppression hindering the development of women and thereby resulting in gender injustice, this being ideologically supported by a value system, which is androcentric and gender insensitive. Deepening inequalities and struggles by the oppressed section to assert their rights (granted under democracy) have unleashed retaliations by the more privileged and, women situated as they are in the social matrix as non-free, dependent subjectivities, become specially affected ones. Even in the 21st century where the technology is rapidly growing and new gadgets were developed but still women's and girls are facing problems. Even today in India, women can't move at night in secluded places and even at day time crowded places hundreds and thousands of incidents of physical/sexual abuse happening to every day women in this country. Among other crimes, rape is the fastest growing crime in the country today.

Index terms

Women Safety, GSM Modem, Internet of Things, Machine Learning, Intelligence Security

Classification of Coronary Artery Disease Using Deep Neural Network with Dimension Reduction Technique

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Abstract

In this work, it is our purpose for our proposed DNN models to classify the presence of Coronary Artery Disease (CAD) with improved accuracy with selected components than in previous studies. CAD is one of the significant concerns among the population worldwide. The Artificial Neural Network (ANN) and Deep Neural Network (DNN) methods co-operate and play a crucial role in identifying diseases in CAD. The classification methods dependent on Deep Neural Network (DNN) specifically Deep Belief Network (DBF), H2OBinomial-Model-Deep Neural Network (H-DNN) and Dimensional Reduction Technique (DRT) in particular Principal Component Analysis (PCA) is most appropriate for issue solving. A model is strong with the joining of DRT like PCA. This examination proposes an incorporated model of PCA and DBF, H-DNN for classification of CAD. The Model DBF, H-DNN, PCA-H-DNN and PCA-DBF with subset components of CAD datasets gives improved outcomes when contrasted with the DBF and H-DNN. The PCA-H-DNN and PCA-DBF model gives a more right and accurate classification result.

Index terms

Classification, Deep Neural Network, Deep Belief Network (DBF), H2OBinomial-Model-Deep Neural Network (H-DNN), Dimensional Reduction Technique (DRT), Principal Component Analysis (PCA)

Investigation of Consumer Perception towards Digital Means of Food Ordering Services

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Abstract

Eating at a restaurant is no longer an occasional event for the millennials. The popularity of food delivery apps is a testament to this. The Ecommerce technology has streamlined the online food ordering services for the individuals who want to get the food delivered at their doorstep. With their hectic schedules and lifestyles, an increasing number of Indians turn to the convenience and reliability of Cloud Kitchen for their everyday meals. This includes time-pressed, tech-savvy millennials who are looking for food options delivered to them in a matter of minutes, as well as people who just want to enjoy a relaxed food experience in the comfort of their homes.

As per the study titled 'Digital Platforms Reign in the Food Ordering Market' conducted by business consultancy firm Market Research Future, "The online food ordering market in India is likely to grow at over 16 per cent annually to touch $ 17.02 billion by 2023".

This research paper will discuss two objectives. The first objective looks to discuss the consumer perception towards the online food ordering and delivery services and the other one is to examine the role of significant factors on Online Food Ordering Services. The survey was conducted on 216 students of four institutes technical and management institutes in Greater Noida. The research is focused on the study and analysis of the data collected from all those users who are already using the online food delivery services in Greater Noida. Four Parameters are taken into consideration for analyzing positioning study (Perceptual Mapping).

Index terms

Cloud Kitchen, Online food delivery service, consumer perception, mobile application, key success factors

Classification Performance of Ensemble Model of Gene Expression Big Data

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Abstract

Big data is the data mining computational process of analysis of large quantities of data. Big data is becoming one of the most modern topics in current research in computer science, data mining. There are many challenging issues associated with big data and one very important issue is the highdimensional data analysis. High-dimensional data are relevant to a wide range of fields such as gene expression profiling. Gene expression data set producing huge amounts of data. Gene expression levels are important for disease, such as, Lung Cancer diagnosis. Gene selection for cancer classification is one of the most important topics in the biomedical field. However, microarray data pose a severe challenge for computational techniques. We need dimension reduction techniques that identify a small set of genes to achieve better learning performance. Classification methods used in high dimensional big data studies for gene expression are diverse in the way they deal with the underlying complexity of the data, as well as in the technique used to build the classification model. The classification of different gene expression dataset like lung cancer types is of great importance in cancer diagnosis and drug discovery. Cancer classification using gene expression data is known to contain the keys for addressing the fundamental problems relating to cancer diagnosis and drug discovery. Ensemble methods are learning algorithms that construct a set of base classifiers and then classify. This paper proposed a decision tree based ensemble classifier to classify the control and cancer groups based on gene expression levels from microarray data. A combinational Recursive Feature Elimination in conjunction with the decision tree algorithm was developed to select significant features and design the proper classifier. The method is applied to microarray data of cancer patients, and the results show improvements on the success rate.

Index terms

Big data, Gene expression, DNA Microarray, Lung cancer, Ensemble methods, Decision tree, Classifier

Examining Service Innovation Performance through Organisational and Technological Innovationin Hospitality Industry

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Abstract

The purpose of this paper is to measure the service innovation performance in terms of market performance through implementation of organisational innovation and technological innovation. Non-probability convenience sampling technique has been used to collect the data from the managers of luxurious hotels located in varied tourist destinations of Jammu and Kashmir. Structured equation modeling has been used to test the hypothesis. The study revealed a significant impact of technological innovation and organisational innovation on service innovation. Role of technological innovation was found to be highly followed by organisational innovation. Further the study reveals significant impact of service innovation on market performance. This paper also includes the discussion on the theoretical and managerial implications of the research findings.

Index terms

Service Innovation, Organisational Innovation, Technological Innovation, Market Performance

Work Life Balance and Work Place Factors among Employees in Banking Sector

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Abstract

The multiple roles of employees in this fast pace environment arouse the needs of work life balance. The independent variables of this study comprise of commuting time and age whereas the dependent variable is work life balance. Work Life Balance (WLB) involves acquiring balance among professional work and further maneuvers, therefore it condenses conflict among professional and personal life. This study is conducted to examine the relationship between workplace factors and WLB among employees in selected banking sector. The objective of this paper is to investigate the relation of WLB with commuting time and age of the private sector bank employees in Odisha. The results indicated that commuting time and age pragmatically and notably influence WLB of the private sector bank employees.

Index terms

Work Life Balance, Commuting Time, Age

Optimal Portfolio Construction Using Sharpe Single Index Model: An empirical study of Nifty 100 stocks

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Abstract

The present study is an attempt to construct an optimal portfolio using Sharpe Single Index Model. For this purpose, the NSE Nifty100 stocks are considered. Although for the purpose of study only 91 stocks are considered out of 101. The study covers the period ranging from 1st January 2014 to 31st December 2018. The highest Ci value was 0.080324* of MRF Ltd., which was taken as a cut-off point. From the analysis it is clear that for constructing an optimal portfolio 15 stocks should be included in the portfolio which includes 4 Automobile, 5 Consumer Goods, 3 Financial Services, 1 Pharma, 1 Cement and cement products and 1 Chemical industry. The study also found that the maximum investment should be made in Procter & Gamble Hygiene & Health Care Ltd., Bajaj Finserv Ltd. and Hindustan Unilever Ltd. with a proportion of 20.88%, 16.47% and 11.38% respectively. So, almost 49% of investment proportion should be made in these 3 stocks because out of these 3 stocks 2 stocks belong to the consumer goods which are also consider to be defensive stocks and rest in other 12 stocks to construct an optimal portfolio..

Index terms

Optimum Portfolio, Sharpe, Systematic Risk

An Analysis of the Factors Affecting the Indian Rupee Volatility

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Abstract

Exchange rates connect the domestic and the international markets for goods and services. It signals competitiveness of a country's exchange power with the rest of the worlds in a global market. It has the potential to have an impact on the economic welfare of the nation. The study of exchange rate and its relationship with different variables gained considerable importance in the last few decades. It becomes a critical issue for professionals as well as researchers, especially in developing countries since 1972, because many developing countries bought a shift in their exchange rate policy from a fixed to floating exchange rate regime. This study would help in a thorough understanding of the sources of fluctuations of the exchange rate which is essential to design a more effective macroeconomic policy. This paper gives an overview of the Indian Rupee in terms of fluctuations in the Indian Rupee against the USD, EURO, Japanese Yen and Pound, Foreign exchange reserve, and foreign exchange market turnover in India. An attempt is also made to study the impact of macroeconomic variables on the Indian rupee. From the analysis it is found that rising crude oil prices, increasing current account deficit, decreasing interest rates, increasing withdrawals by FIIs, decrease in FDIs and decreasing GDP growth rate have contributed to the depreciation of the Indian rupee against other currencies.

Index terms

Exchange Rates Fluctuations, Macroeconomic Variables

Perceptual Mapping of Consumers Preferences towards Unorganized Food Outlets

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Abstract

Demand of prepared food significantly increased in recent time due to time concern and test of the food. The satisfaction is in the food industry not depending only on the test of the food but consciousness of healthiness, cleanliness and way of offering services are becoming more important issues at food outlets. Food related services like food quality & variety, ambiance at food outlet, proper sitting arrangements, parking facilities all such factors have highly influenced on consumers visiting decision to food outlet. The present study analyzes the consumers' food satisfaction level and revealed the consumers perception towards important product attributes and service offerings of selected Food Outlets and Tiffin centers in Indore city of Madhya Pradesh, India. Findings of the study revealed that consumers at unorganized food outlets have major concerns for quality of foods, pricing, parking facility and cleanliness at food outlets. It was revealed that consumers at unorganized food outlets have limited concerns about the billing facility and kids' entertainment facility available at food outlets. Findings of the study would help the unorganized food outlets in formulating competitive product and service strategies aimed at providing higher level of consumer satisfaction, thus increasing their market and profit share.

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Usage of Blockchain Technology for Securing the Communication of IoT Devices in Smart Cities

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Abstract

In the technologies used for making the cities smart, we have observed the advancements in the technology and improved computing in the small-scale computing devices. These devices are named as Internet of Thing (IoT) devices as these small devices can be connected to the Internet which combinedly becomes a complex working systems. There is a threat of security problems, as there is an increase in use of these new technologies and being more and more important, these being the complex systems leading to security vulnerability which are unpredictable, and the results may lead to personal information and monetary losses. An alternative solution to these security problems of different application environment, recently a technology has been emerged named as blockchain. This technology is preferred before the centralized architecture system which is used in most of the systems, as it provides security due to the usage of cryptographic H-Algorithms.

Today, IoT has been used in creating structures such as Smart Daily Amenities, are seen to be suffered from shortages in security with an active area of research. The deficiency in security have been seen in IoT due to the limitations of the hardware used for these IoT devices. Authorization system is to be set up by using the Blockchain System's distributed structure of node, is proposed. In the preferred protocol, User Datagram Protocol (UDP) is a simple communication model which does the communication without establishing any connection between the nodes to the minimalistic protocol mechanism. As this is the secure system platform as the communication between any hops is encrypted.

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STORE-FALLS Methodology: Integrating STORE Methodology into Waterfall Model

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Abstract

The Security Threat Oriented Requirements Engineering (STORE) methodology is a ten-step security requirements engineering methodology for eliciting effective and efficient security requirements in software development projects. Several types of stakeholders may be associated with any software development process. A stakeholder can express security concerns at different levels of detail. In STORE methodology we identify and prioritize all such stakeholders based on their significance. It is important to consider every significant stakeholder from the beginning of software development. The STORE methodology considers security threats for identifying security requirements with the help of potential stakeholders. These stakeholders help the requirement engineer in asset identification of the software product. The STORE methodology starts with identifying system goals. Each step of STORE methodology is equally important. The requirement engineer can't skip or jump to any other step as it is a systematic approach for eliciting and documenting security requirement. The STORE methodology is completely based on threats because after identifying potential threats the requirement engineer is capable of eliciting security requirements with the help of threat dictionary. This paper describes how the STORE methodology can be integrated with waterfall software development life-cycle for security-critical software projects. The aim of this paper is to assist the security professionals and security requirements engineers with the functional and technical understanding of STORE methodology in the software development process.

Index terms

Security requirements, Software Development Process, SDLC, Security threat, Software risk

Designing the Complete Working for the Resolution of 10 Bit SAR ADC with its Improved Parameters used in Various Application for Digital Circuits in SCL Technology

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Abstract

This report suggests the resolution of the 10 bit Successive Approximation Register (SAR) Analog-to-Digital Converter (ADC) focused on binary search algorithm for approximate on data, optimized used for 1MSPS sampling speed. SAR ADC's major construction blocks include: high-speed latched comparators optimized for 1.07 Gigahertz GBW & 17.64 dB gain, R-2-R based Digital to Analog Converter (DAC) & a Digital Control Logic which transfers & saves comparator information. A system is designed to use the software suite of Cadence Virtuoso in SCL 0.18 micro meter (μm) CMOS method.

The voltage of distribution used in this function is 3.3 V. The maximum voltage spectrum is 0.65-2.65 V and the equivalent frequency of 1 LSB is 1.9 mV. It also has a 55.45 dB signal-to-noise ratio (SNR) and an 8.7-bit effective-number-of-bits ratio (ENOB).

Index terms

SAR-ADC, Sample and Hold Circuit, SAR Logic Comparator, DAC, CMOS Technology

Analyzing ICT Use and Access amongst Rural Women in Surguja District

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Abstract

The purpose of this study is to explore the current use and access of Information and Communication Technologies (ICT) situation amongst rural women in Surguja District, and suggest justifying solutions. Using survey research, rural women aged 16- 60 were sampled. In total, 200 respondents formed the sampling size, randomly selected from census household data in Surguja. Besides the marked correlation between the respondents' level of education, type of ICTs accessed and information needs and purposes, it was observed that ICTs alone are insufficient for significant benefits to emerge.

Index terms

ICT, Surguja Census, Surguja- Rural Areas

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30th October, 2020

Performance Analysis of Proactive and Reactive Routing Protocols for Vehicular Ad-Hoc Networks under Indian Traffic Scenarios

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Abstract

Mobile ad-hoc network (MANET) is a decentralized ad-hoc network that comprises many nodes that are mobile in nature and are connected wirelessly. Each node works as a router to send and receive data from the other node. Vehicular Ad-hoc Network (VANET) is an application of MANET that could be useful for the implementation of Intelligent Transportation Systems (ITS). VANET is a decentralized and infrastructure-less ad-hoc network in which nodes are vehicles having wireless communication facilities to communicate with other vehicles. VANET uses multi-hop communication for longer coverage and application-centric information. An ITS must possess and improve the comfort and safety of drivers as well as of pedestrians that can be achieved by VANET. It is become necessary to implement VANET in India for reducing this huge number of casualties and providing a comfortable journey. VANET can disseminate messages of traffic signal violation warning, curve speed warning, lane change warning, pre and post-crash messages, cooperative forward-collision messages. Inconsistent topology, high mobility of vehicles, multi-hop communication and signal's attenuation due to buildings impose the major challenges in VANET communications. VANET's Applicability on Indian Roads must be tested before implementation in reality. As Vehicles are nodes in VANET that are highly mobile and self-configurable as well as they have to perform routers functionality to deliver data from sources to their destinations, Therefore routing algorithms play a very crucial role in VANET for message dissemination on time. VANETs routing is one of those challenges which required specialized protocols. VANETs routings protocols can be classified into topology-based, position-based, broadcast, multicast and cluster-based routing protocols. In this paper, authors have taken maps of Jaipur City, Rajasthan from Open Street maps websites for creating real traffic scenarios and used Simulation of Urban Mobility (SUMO) for traffic and flow modeling. Authors have created many scenarios for node density and variable CBR packet size to reflect real Indian traffic scenario and performance analysis of AODV reactive routing protocol, DSDV proactive routing protocols over NS2.35 Simulator. This paper presents the simulation results of performance metrics like throughput, packet delivery ratio, jitter and end-to-end delay of AODV and DSDV routing protocols.

Index terms

VANET, Routing Protocols, AODV, DSDV, SUMO, OSM, NS2.35

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Study on Effect of Micro $CaCo_3$ on Mechanical Properties of Concrete

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Abstract

It has been revealed by researchers that incorporation of calcium carbonate has a positive synergic effect on early-age strength, the hydration process, durability and microstructure of cementitious composites. Due to physical effects like filler; dilution & nucleation effect and chemical effects, the properties of the cementitious composites are reported to be affected, in various studies made by reserchers. Micro $CaCo_3$ is comparable with cement in terms of its grain size. In the present study, the effect of Micro $CaCo_3$ on different mechanical properties of hardened cement concrete have been assessed. The cement in concrete have been partially substituted with 2.5%, 5%, 10% & 15% of Micro calcium carbonate, to analyze the impact of the salient mechanical properties viz Cube compressive strength, Split tensile strength and Flexural strength for 7 & 28 days.Significant improvement in strength parameters have been noticed at lower substitution range whch was observed to by subsequently diminishing at higher replacement percentage of cement with Micro $CaCO_3$.

Index terms

Micro $CaCo_3$, Cube Compressive Strength, Split Tensile Strength, Flexural Strength

Steganography for Hiding Data by using Reversible Texture Synthesis (Audio & Video)

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Abstract

Hiding a data in cover stego file by using different techniques and method of steganography. As steganography defines concealing of a data as a secret information in cover stego file, the file may be in text or audio but message at text format and transferred from sender to receiver side. Receiver can able to retrieve/extract the message through reversible texture synthesis. In digital world, data transmission from one to another place by internet with its security is not an easy task. Few decades the data transmission is not secure because it's a public communication and attackers are ready to attack by proxies, intruder etc. which makes many issues. By video and audio steganography approaches, data can easily transmit its destination in a secure manner. It allows to extract messages from source texture through a stego synthetic in video and audio steganography, message is concealed in another medium such as audio file. So we are dealing with different steganography techniques, methods, algorithms, its pros and cons.

Index terms

Steganography technique, Digital Steganography, Texture Synthesis, LSB, DCT

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Informative Feature Selection Model for Effective Classification of Intrusion Datasets Consisting of Real Time Attacks

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Abstract

Today data mining and data analytics is the center of attraction for the researchers of machine learning. Serious issues of threats and intrusions are found in individual and organizational Computers and web. Vulnerable and suspicious events and activities are increased in the computer and web usage. With rapid growth in computer technology and networking services, large amount of data is generated in the network system and web. Traditional data processing applications are not sufficient and inadequate to deal with these huge data. It consists of not only traditional threats but also many real time threats known as attacks. NSL KDD dataset consisting of 42 features and 37 attack types, CICIDS 2017 dataset consists of around 80 features along with real time attacks of Brute force attack, Botnet attack, Heartbleed, Infiltration, Web attacks. To deal with this huge amount of data consisting of real time attacks effectively and efficiently, there is need of advancement in the data mining techniques. There are challenges of performance improvement, accuracy, security and ensuring privacy with the existing traditional data mining techniques. Machine-learning techniques and applications of prime concern are Feature reduction, Decision tree techniques, Neural Networks, Genetic algorithm, Ensemble techniques, Statistical techniques. In this paper, a model of informative feature selection is presented for effective classification of intrusion datasets consisting of real time attacks in order to explore data processing, data analysis and security challenges issues. Result analysis on NSL KDD Dataset is also presented with certain decision tree and ensemble data mining techniques, which shows the performance of models with CFS Feature selection techniques. A taxonomy of work in the field is also presented to depict sever machine learning techniques applied on datasets of KDD cup99, NSL KDD, CICIDS 2017.

Index terms

Dataset, Data mining, Machine learning technique, Classification, Feature reduction, Genetic algorithm, Neural network, Ensemble Technique

Families of Convolutional Deep Learning for Image Steganalysis

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Abstract

Deep Learning is receiving lots of attention in the recent years due to its outstanding performance in areas such as Computer vision, Image classification, Image Recognition, Object Detection and Natural Language processing. Convolutional Neural Networks (CNNs) are the popularly used Deep Learning (DL) architectures due to their excellent ability of automatic feature learning and feature extraction both as against the conventional methods of handcrafted features based Steganalysis. CNN has unified both feature extraction and classification and hence now Steganalysis has shifted from the two staged process of feature extraction and classification to designing variants of CNNs with reduced detection error rates and higher classification accuracies. In this paper, spatial domain content adaptive Image Steganalysis using CNNs are being compared. With many of the customized CNN based steganalyzers being developed with better performance, there is still a scope of improvement in the fine tuning of CNN models. Some of the challenges issues and their proposed solutions are the main takeaways of this paper.

Index terms

Deep learning, Convolutional Neural Networks, Steganalysis

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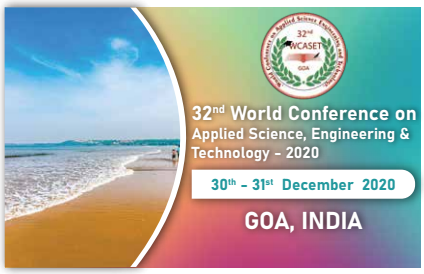

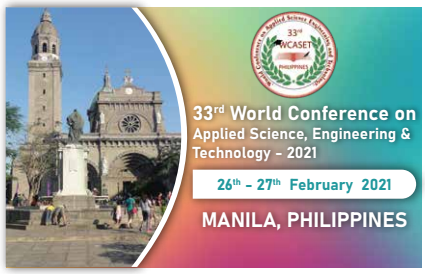

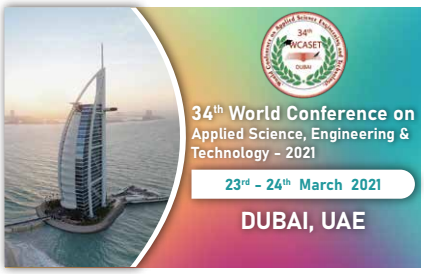

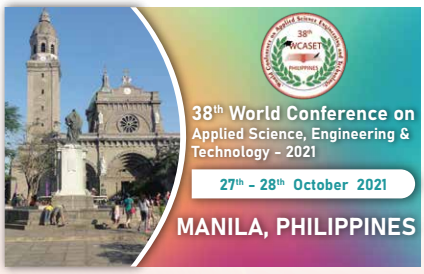

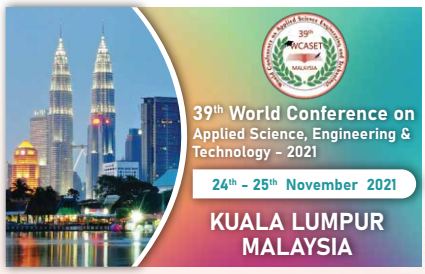

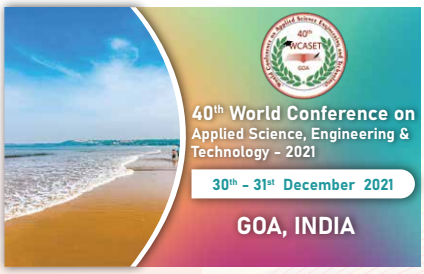

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