

3^{RD} INTERNATIONAL CONFERENCE ON INNOVATIVE COMPUTING (IC)²

Venue University of Management and Technology Lahore, Pakistan



Preface

It gives us great pleasure to welcome you to Lahore for the 3^{rd} International Conference on Innovative Computing (IC)² 2019 being organized by the University of Management and Technology. Already in its third year, (IC)² is a young multi-topic conference that seeks to bring together academics and practitioners from industry to exchange novel ideas and share observations in the field of Information and Communication Technology. This year (IC)² received a total of 192 research articles. After a rigorous review process, 64 high quality papers were accepted that corresponds to an acceptance rate of 33%. We are pleased to share that scholars from 8 different countries have opted to present their research through this platform.

The invited foreign speakers include Dr. Andreas Koop from University of Derby, UK, Dr. Kareem Darwish from Hamad Bin Khalifa University, Qatar, Professor Amir Hussain from Edinburgh Napier University, UK, Dr. Ricardo Baeza-Yates from Northeastern University at Silicon Valley and former VP of Research, Yahoo Labs, and Dr. Ashiq Anjum from University of Derby, UK.

The national keynote speakers include Dr. Jawwad Ahmed Shamsi from National University of Computer & Emerging Sciences, Dr. Tariq Mahmood from Institute of Business Administration, Dr. Safee ullah Ch. From Lahore University of Management Sciences, Dr. Riaz ul Amin from Balochistan University of Information Technology, Engineering and Management Sciences, Dr. Khurram Shahzad from Punjab University College of Information Technology, Dr. Yasir Niaz Khan from University of Lahore, Dr. Kifayat Ullah Khan from National University of Computer & Emerging Sciences, Dr. Usama Ijaz Bajwa from COMSATS University Islamabad (CUI), Lahore Campus, and Dr Syed Waqar ul Qounain Jaffry from Punjab University College of Information Technology.

The conference is made possible due to the efforts of many people. We would like to express our gratitude to the members of the Technical Program Committee and the external reviewers for their efforts in reviewing submissions, as well as to the Organizing Committee for their behind the scene efforts. The conference chairs Dr. Mamoun Abu Helou, Dr Khurram Shahzad, Dr. Shahzia Saqib, Dr. Adnan Khan, Dr. Usama Bajwa, Dr. Jawwad Ahmed Shamsi, Dr. Kareem Darwish, Dr. Asim Qureshi, Dr. Ghulam Rasool, and Dr. Mubasher Baig also helped us in many ways, which we appreciate. We would also like to acknowledge the role of sponsors (UMT, PHEC and HEC) and collaborators for their generous support. Finally, the conference would not be possible without the excellent contributions by the authors. We thank the authors for being a part of (IC)² 2019.

We hope that this program will further stimulate research in the exciting field of Information and Communication Technology. It is our great privilege to serve recent developments in the field through this program.

Requirements Modeling in Internet of Things (IOT): A Critical Analysis

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Abstract: Internet of Things (IOT) is widely used technology all over the world and getting more and more common everywhere. It is basically is the interconnection of different devices or remotely control of devices over the internet. For developing an IOT system, a model-based approach for requirement elicitation and specification is necessary for the system. In this paper we discuss some of the most popular work that has been done on modeling requirements of IOT systems and find out their drawbacks and advantages and specified that which technique is better for modeling the requirements. Furthermore, we did a comparison of the previous researches and work we discussed and derived the best technique for modeling the requirements of an IOT system.

An Enhanced Framework for Rescue Service in Pakistan

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Abstract: In Pakistan, Rescue 1122 is the most commonly operational rescue service. This rescue service uses a call-based system where a help-seeker calls the rescue station in case of any help. The help-seeker communicates the information about his location and the nature of the incident. However, the response time to each help-seeker according to their location is comparatively slow. One of the major reasons is that the help-seeker could not tell their precise location over the phone. Another cause for the slow response time is fake calls and knowledge about the severity of the incidents. Therefore in this study, we have proposed a new framework to report the incidents. The framework consists of three parts that include a user, a station and the admin. The framework is implemented using the android based application for the help-seeker and the web applications for the station and the admin. We tested the application to know the effectiveness of reporting the incidents through a survey. The results show that the help-seekers can easily report the incidents using our application.

Analysis of Flood Risk Management in the Context of Mathematical Models

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Abstract: Risk of flood comprises of the chances of an event to occur and its possible impact on surrounding areas. Managing the flood risks include the chances of flooding that affects a particular community by reducing the impacts and exposure of floods. The main objective of this research is to analyze models based on flood risk management. There are various models that have been used in this regard. We studied three deterministic mathematical models named as hydrological model, hydraulic model and hybrid model. In this paper, comparative analysis of these models has been done. The models have also been compared on the basis of measurement factors. Comparisons show that every model is applicable in particular scenario on the basis of water level area. We conclude that the hydrological model is considered best in broad level area whereas hydraulic model is suitable in flood complexity situations. While, the hybrid model is used in both flood routing and flood determining modelling cases.

IoT Based Smart Meter

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Abstract: Use of electricity is on a rage nowadays, man has now been dependent on electrically operated machines to do all of his daily routine tasks. As the use of electricity has increased to a huge deal, the outdated power system of Pakistan needs to be improved. Currently analog and digital meters are being used in Pakistan which decreases their accuracy by time. Furthermore, these meters have no safety features and cannot be integrated to distributed generation. The proposed system is wirelessly interconnected to allow remote control and monitoring to manage energy at distribution end. It is also capable to provide improved efficiency, better security and user-friendly control as compared to old conventional systems.

Implementation of High Dimensional-QKD using BB84 Protocol For the Security of Aerospace Industry

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Abstract: Aerospace Industry is making breakthrough development with Quantum System. Along with, security of the system is the most promising issue. Where Quantum Physics play a vital role in the security and challenges of Aircraft, a lot of cryptographic algorithms used for securing the Aerial communication. In this research, we discuss the contribution of Airbus Company in aerospace industry and adaptation of Quantum System for solving future challenges. One of the most awakening issues is the security of Aerospace industry, where Quantum Cryptography algorithms are used. Here, we are trying to replace QKD with HD-QKD, because during data/key transmission photon efficiency rate effects. By using the BB84 Protocol with HDQKD, we tried to enhance photon rate efficiency, and proposed a HDQKD based Model for Aerial and Non Aerial Communication. So, Quantum Cryptography with HDQKD techniques enhances the security of Aerospace industry more firmly.

Intelligent Surveillance Camera by using PCA

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Abstract: Face detection, recognition and tracking of the moving face have been progressive areas of research. Intelligent surveillance camera points out a process that figure out a human face from different objects, recognize the person. This paper presents the methods for detecting and recognizing the person. Viola Jones algorithm, a method is used all around the world for face detection as well as object detection has been used for face detection. Principal component analysis, an analytical approach that is utilized to analyze correlations between a variety of variables and also explains these variables in terms of a lesser variables known as principal components that have very low information loss, has been utilized for face recognition. The efficiency of face recognition has been recorded up to 81 percent.

Amendments in E-Learning Services Provided at School Level in Pakistan

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Abstract: Expansion in E-learning pays a major contribution towards achieving the goals in various educational sectors. This paper elaborates the necessity of providing fruitful e-learning services at school level specifically in Pakistan. A prototype has been developed to introduce distinctive functionalities in the educational portal for the benefit of teachers and parents. In this way the student will not suffer and his weaknesses and strengths would be highlighted at the right time. This e-portal provides various services to the masses, as it is an immense source of keeping the teachers and parents updated with the data record of the students in the form of daily progress, class participation, punctuality, attendance and marks.

BigData Analysis of Stack Overflow for Energy Consumption of Android Framework

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Abstract: With the recent increase in the sales of Android based smart-phones, the demand for android development from the past years has improved tremendously. The recent debacle of Samsung Galaxy Note 7 along with some other incidents have highlighted the need for better energy management in smart-phones. One source of the reported battery issues was the energy-inefficient APIs used by the Android developers. To improve reliability and better power utilization this needs to be addressed by the developers. This paper reports our analysis of this problem. In our study, we have used NLTK techniques, for analyzing energy-related posts on Stack Overflow (SO). Energy inefficient APIs have been discussed frequently by the developers on SO. We have analyzed over four million posts from SO from which thousands of posts on the topic of energy inefficient APIs are scrutinized in detail. Our study identifies the issues that are frequently related to Location-Listener API, Location-Manager API, Broadcast receiver API in term of GPS location, and Alarm-Manager for location updating.

LAQF: Lightweight documented oriented, reusable Agile quality framework

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Abstract: Agile software development is taking over traditional methodologies. Agile methodologies provide more benefits than traditional methodologies that's the reason why more software organizations, teams are making their transitions towards agile era. There are many flavors of agile methodologies available today. Organizations can choose them according to their needs. These methodologies include Scrum, extreme Programming (XP), Dynamic Systems Development Method (DSDM) and others. Agile methods especially target functional aspects of the software to be built, quality is their second priority. Software Quality is one of the major concerns for software organizations now a days. Reusability, on the other hand, is also important in terms of reducing cost to market, less time consumption in development and increased software productivity. Agile methods put a very little emphasis on these two highlighted points. In the paper, authors have proposed an effective, more reactive framework to increase the capabilities of agile to address reusability, documentation and ultimately quality concerns. Authors evaluated the proposed framework with the existing agile methodologies and the results show that the proposed framework improves quality better than existing agile methodologies.

Joystick Mapping in Virtual Reality Shooting Game

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Abstract: A method to use for mapping VR-Box joystick with shooting game input controls that include key mapping of every joystick key from the joystick with the game itself. Key mapping was observed and then the source code keys we're mapped with the joystick keys. The joystick holds major 4 buttons with a 360-degree moveable joystick with 2 supporting keys making them total of 6 keys. In this paper we will discuss mapping of Google Virtual Reality plugin with First Person Shooting plugin. The integration of joystick with VR-Box helped the gameplay even more controllable. The joystick keys are responsible for invoking key features of game as it can be connected via Bluetooth with the mobile headset to ensure long range wireless connectivity. The device converts the keys triggered from joystick to enable the features inside the game.

China-Pakistan Economic Corridor (CPEC): Exploring the breakthrough of different Social Media Platforms in CPEC

Muhammad Talha and Tayyaba Anees

Abstract: For developing a country's economy, long term opportunities have a vital role to urge investments. CPEC is developing a keen interest for deep-seating investors to participate. This paper presents an overview of timeline of CPEC from 2008 to 2019. An act of judgmental value on previous and ongoing projects. The paper endeavours to prefer Chinese social media platforms for the means of CPEC. Results captured through Social Media interferences has been explained to understand the breakthrough of different social media platforms in CPEC. An extended video bearer model prepared by author is released to make YouTube videos accessible for VKontakte (Vk) users to aware Chinese market to participate in CPEC. This paper presents to motivate entrepreneurs towards Chinese sites. Modelling and analysis of existing progress is utilized for results. Couple of scenarios are referred for results through self-observing and some derived results of vidIQ tool. This research is beneficial to entrepreneurs having saturated interest in investment and consultancy to investors. Expected barriers are observed and explored.

Infrastructure of South Korean Electric Power System and Potential Barriers for the Implementation of Smart Grid:A Review

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Abstract: The day by day increase in Electrical Power demand is making the traditional power grid unable to fulfill this intensive need of energy and humans are in a constant search of alternatives to resolve this problem. In this article different power system architectures of South Korea have been discussed by reviewing the smart grids, integration of Micro-girds, the implementation of energy management system in the current power architecture seems the best possible solution. By monitoring all the business goals and to overcome all the basic hurdles, smart grid concept will implement successfully by the end of 2030.

Comparative study of permissioned blockchain solutions for enterprises

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Abstract: Digital world is shifting towards distributed systems due to scalability and reliability issues of centralized systems. Blockchain is one of rapidly growing technology of distributed nature. Most of people have information about public blockchain due to bitcoin and other crypto-currencies, but there is another face of blockchain which is private or permissioned blockchain. Permissioned blockchain is a distribute ledger for consortium enterprises network. The escalation in popularity of permissioned blockchain, but there are three leading houses which deals enterprise blockchain, Fabric, Corda and Quorum. All developing communities have their contribution in market and claim their solution is best but blockchain just step-in permissioned era there are multiple plus and negative point in these frameworks. In this paper, I have discussed permissioned blockchain frameworks and analyze them comparatively on the bases of consensus range, modularity, language support, privacy, transaction rate, currency, and accumulate the adoption rate from these filters.

Effectiveness of Literacy & Numeracy Drive (LND): A Students' Perspective

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Abstract: This paper discussed the effectiveness of English language software Literacy & Numeracy Drive (LND) used in the public sector primary schools of Punjab province, Pakistan. A mobile based application named as "Literacy & Numeracy Drive (LND)" is currently in use to teach students of Grade 03 on a tablet for learning English, Urdu and Mathematics. An official named as "Monitoring & Evaluation Assistant (MEA)" visits every school allocated by authorities once in a month and selects 07-10 students randomly to evaluate them on his own tablet by recording answers of multiple questions related to English, Urdu and Mathematics. After the evaluation, MEA uploads the results of respective school on official portal. A quantitative research was adopted to conduct this study in which 300 participants from different schools of district Sheikhupura were selected to measure the effectiveness of LND. The results reveal that LND application was not found effective due to the issues in terms of non-availability of technology at home, language, content, assessment, usability and design. Further, students recommended game based learning consisting of interactive interface, phonics, animations, relevant content and assessment.

A Survey on Cognitive Radio Spectrum Sensing: Classifications and Performance Comparison

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¹National University of Sciences and Technology, Islamabad, Pakistan ²Center for Advanced Studies in Engineering, Islamabad, Pakistan **Abstract:** The problem of spectrum scarcity has surfaced in recent years due to the under-utilization of spectrum in temporal and spatial domains. To address this issue, various spectrum sensing techniques have been proposed in literature to make use of idle bands in the spectrum. Owing to the adaptability of cognitive radio with regards to changes in spectrum band availability, better spectrum utilization may be achieved. In this paper, we carry out a survey of various spectrum sensing techniques proposed in literature. We identify the advantages and shortcomings associated with each of sensing techniques pertaining to narrow band as well as wide band spectrum sensing. We highlight the open issues and challenges associated with spectrum sensing to facilitate more productive research and present their comparison in terms of various performance parameters.

Impact of Social Media on Students' Academic Performance & Generation Gap: A Study of Public Sector University in Punjab

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Abstract: Social Media websites are continuing to grow in popularity. It is our premises Social Media is playing a vital role in students' lives particularly in their academic performance and in the field of their socialization. In fact, today's Social Media is running in the life of students. It continually detracts students from their studies as they feel comfort in wasting most of their time in Social Media. The leading task of this research is to find out the impact of Social Media on students' academic performance and leading trend of generation gap. In our research field purposive sampling technique was used to get to know the interest of students. This study was gender specified and 306 female students were participated that were used as sample tool in research methodology. The main findings of research is that Social Media has positively and continuous impact on students' academic performance and leading towards the generation gap. As students suffered from low grades and prefer to waste their study hours in browsing Social Media websites. Contrary Social Media is leading a source of income by the concept of online earning. Unfortunately, Social Media is not only an electronic connection it also has become an addiction which is leading to a parent's student's gap. Students feel easy to share their feelings on Social Media rather than share it with their elders.

A Comparative Study between Cloud Energy Consumption Measuring Simulators

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¹Department of Software Engineering, University of Management and Technology, Pakistan ²Department of Computer Science, Virtual University of Pakistan **Abstract:** Cloud computing is the study of using remote servers which are hosted on the internet to deliver on-demand computing resources on payfor-use basis rather than a local server. Due to high energy consumption in cloud computing environments, it has become the main area of research. The amount of energy consumption becomes difficult to determine in real cloud computing infrastructure. In recent years some simulation tools have been developed to analyze the energy consumption in cloud computing environments for the researchers. This paper evaluates three different popular cloud energy consumption measuring simulators: CloudSim, CloudAnalyst and GreenCloud. All of these simulators can determine energy consumption according to their ability and capacity. The comparative study indicates that in a cloud computing environment, GreenCloud simulator is better than CloudSim and CloudAnalyst due to reliable measurement of energy consumption.

Constructive Alignment: Investigating Student's Use of Mobile Technologies in University Classrooms

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Abstract: The purpose of the present study was to inspect the impact of information and communication technologies (ICTs), while attempting to learn from real-time university classroom lectures. The numerous adoptions of mobile phones are one aspect of ICT pleasant appearance. Mobile usage is banned in most classrooms globally. However, students still use them during their lectures and tutorials. It is anticipated that this usage is askew from the motivation of the lectures and classrooms. Synchronizing students' mobile usage in classrooms with the incentives of their academic activities remains a significant avenue of research. A sample of undergraduate and graduate Computer Science (CS) students and another sample of undergraduate and graduate English literature students were surveyed to establish their frequency of mobile ICT use in the classrooms and the students' motivations and basis for undertaking those activities unrelated to classrooms culture, in UMT Lahore , Pakistan . In spite of mobile usage being banned in class rooms, it was determined that a large number of students use mobile phones during lectures and tutorials. This study helped to revamp classroom activities, to actively involve digital technologies to lend a hand in valuable coalition with the learning outcomes and widen the student learning awareness.

Impact Of Social Media On Student's Health: A Study Of Public Sector Universities In Punjab

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Abstract: In the present world of technology, social media is used to communicate, share information or linked within the Global field of the world. In this research, to find out the physical, psychological & sexual health impact by using social media is focused. Social Networking websites have an adverse influence on students' lives and students browse social websites and got to know some complex stuff before their age. Purposive sampling technique was used in this research and questionnaire was administered from 300 students to collect the data using survey. According to research findings, there is no association between social media and students Health. The main reason was that students were addicted to browsing of social media, even they do not aware of suffering from the bundle of physical and psychological health issues. They also browse to get health-related information which may be prohibited stuff like sexual health. Some hackers also use students as a tool to diverse their belief as pupils spend most of their time using social media. Lastly, it is stated that Social Media is like a "DEEP OCEAN", which have an intense impact on students from each aspect of their lives.

Detection and Classification of Vehicles Type based on Deep Semantic Features of Faster R-CNN

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Abstract: In the current era, automation of vehicle detection and classification is considered as one of the challenging tasks which leads to the safety of roads and Transportation system. With the development of Computer vision and Image processing techniques, many researchers overcome the obstacles and achieved the aim. However, they lack accuracy and to handle this issue deep learning technology received a lot of attention from researchers. Deep learning-based Convolution Neural Network Specifically Faster Region (CNN) has been very successful in object detection and Image classification. In the proposed system we have used the latest techniques of deep learning to achieve state of the art results. Proposed system uses Faster R-CNN for both detection and classification purposes, it not only saves the time but also has superiority over other machine learning techniques in sense of accuracy and robustness. Firstly, Region Proposal Network detects the vehicle then CNN classifies the vehicle by its type. We have achieved 97.3 % accuracy on dataset generated by ourselves. Achieving such an accuracy on locally generated dataset shows the novelty.

Modeling GUI Widgets from Use Case Elaboration

Imran Saleem, Shahzadi Ambreen, Mahwish Shahid, Afifa Wajid and Abdul Haseeb Shujja

Abstract: Machine Learning (ML) algorithms have drastically taken technology to the next advanced levels. Therefore, we have proposed a methodology using supervised machine learning algorithm for rapid Graphical User Interface (GUI) development by employing Unified Modeling Language (UML) Use Case (UC) model of Library Management System's case study. Our aim of the study is to reduce the gap between initial phases of (SDLC) for rapid development in terms of time and cost, by minimizing the development efforts, for higher stakeholder's satisfaction. In this paper, we have used extended form of use case descriptions to map and predict the most suitable User Interface (UI) element against each use case. We have categorical data with known classes and used binary class classification technique to train our dataset. Python is used to create applied predictive models, to predict most appropriate classes against each use-case. We have applied both binary and multi class classification on our dataset. Following classifiers i.e. Naïve Bayes (NB), Decision Tree, Cross Validation (CV), Random Forest (RF) and Logistic Regression (LR) Algorithms used for binary classes to statistically analyze predicted results. We have acquired 94% accuracy, when applied NB and RF Algorithms on data, which concludes that creating UI's from UML UC model can improve efficiency in terms of time and cost.

Systematic Literature Review on Social Network Analysis

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Abstract: Context: Social network analysis refers to the measuring, and mapping of flows, and interrelationships between computers, people, URLs, organizations, groups, and other linked knowledge or information entities. SNA is a strategic technique to investigate the social structures. It can be implemented in many fields like computing, mathematics, statistics and engineering. Furthermore, SNA has its influence in the information sciences and information retrieval techniques. Now Information scientists study and analyze the publications, citation, co-citation networks, social collaboration networks and many other forms of interrelated social networks. Previously, there exists several research done regarding SNA, thus need to investigate, and present key additions of SNA to research fraternity. Objectives: In this paper, we reviewed of all Social Network sites with their growth, techniques, types, variations, measurements and unit of analysis in one platform. Methods: Moreover, we discussed different methodologies and terminologies related to SNA and summaries the researches contributions. The study conducted systematic literature review for SNA. Results: The study concluded that extensive use of social networking sites in public and organizations has increased significantly; therefore, more research is needed to explore this vast subject. Secondly, it can be concluded that there is a need of improvement in social network like missing data, visualization, uncertainty, finding the shortest path, because of security risks there should be a team who monitors and manages the social networks so that for the investigators, all the necessary information should not be distributed on web servers.

Analysis of Classification Techniques for Intrusion Detection

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Abstract: In the field of machine learning, many supervised and unsupervised methods have been developed to develop an effective and efficient Intrusion Detection System (IDS). However, a comprehensive comparative analysis of different intrusion/anomaly detection methods on standard datasets is required. In this work, a standard dataset NSLKDD is used for comparative analysis of six popular classifiers. The normal and anomalous records have been identified using following classification techniques: Decision Tree, Naïve Bayes, Ada Boost, MLP, Random Forest and Liner SVM. Implementation is done using Python based scikit-learn library. Results yielded are evaluated and compared on the basis of standard performance evaluation measures like accuracy, precision, recall, F1 score, confusion matrix and AUROC curve. The highest percentage accuracies have been achieved by MLP model, i.e., 100% and Decision Tree Model i.e., 98%. Moreover, the comparative analysis of the data mining techniques applied in last five years on two standard and publicly available datasets ISCX-IDS2012 and UNSWNB15 has also presented in this paper.

A journey of WEB and Blockchain towards the Industry 4.0: An Overview

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Abstract: Today the WEB is growing and expanding with the unexpected high speed and recently it gained extensive attention. The world is focusing and working on the web so that it could make more ease in our life. The web start from static pages and goes towards the smart industries and factories. All the industrial machines are augmented and directly connected to the web which leads to connect with different systems. This type of systems visualizes the whole production process and these systems are autonomous to take decisions on its own. Forth industrial revolution is the second name of industry 4.0 which includes the Internet of Things (IoT), Cognitive Computing (CC), Big Data, AI and it is fostering Industrial Internet of Things (IoT). Advanced web is covering the maximum aspects to encourage the businessman community to make trading using technology. The blockchain version 4.0 is helping the industry to ensure the transparency of supply, immutability of records and it ensures the trust of end to end trading organizations. Supply chain is now using the blockchain technology.

Security Of Cryptocurrency Using Hardware Wallet And Qr Code

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Abstract: Today, the privacy and the security of any organization are the key requirement, the digital online transaction of money or coins also needed a certain level of security not only during the broadcasting of the transaction but before the sending of the transaction. In this research paper we proposed and implemented a cryptocurrency (Bitcoin) wallet for the android operating system, by using the QR code-based android application and a secure private key storage (Cold Wallet). Two android applications have been implemented one of them is called cold wallet and the other one is hot wallet. Cold wallet (offline) is to store and generate the private key addresses for secure transaction confirmation and the hot wallet is used to send bitcoin to the network. Hot wallet application gives facility to the user view history of performed transactions, to send and compose a new bitcoin transaction, receive bitcoin, sign it and send it to the network. By using the process of cross QR code scanning of the hot and cold wallet to the identification, validation and authentication of the user made it secure.

Static Handwritten Signature Verification Using Convolution Neural Network

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Abstract: Biometrics are very essential tools for the purpose of identification of the person may contain the basic identification like iris and gesture recognition whereas signature verification is also widely used for the purpose of identification. In this paper, we propose a method of offline signature verification in which convolution is applied to address the maximum accuracy and we present how the problem was being handled in the past few decades. The experimented result reveals the efficiency of algorithm. In this paper we have worked on multiple layers so that good accuracy may obtain in terms of originality of the input images.

Reverse Aging based on Face Rejuvenation using Inpainting of Facial Wrinkles

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Abstract: Facial reverse-aging problem is of significant importance in research community, which primarily focuses at formatting person's face to look younger in images. Our reverse aging problem essentially considers face part. The proposed methodology consists of two parts. First, roughness in appearance of image is quantified using detected wrinkles in the input image. Wrinkle detection is followed by face rejuvenation using wrinkle in painting. Face rejuvenation makes subject to look younger. Our prime objective was to make subject at-least 10 year younger than original. We have evaluated our system to find inter annotator agreement between judges using kappa statistical measure for describing the validity of complete system.

Block-Chain - Security Advancement in Medical Sector for sharing Medical Records

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Abstract: Block-Chain security is the hot arising topic now-adays. Block-Chain helps to get more secure, accurate and transparent data security in all sectors. In Health Sector, maintaining medical records is crucial, sharing medical records between record rooms to researcher needs security system for sharing. Here, Block-Chain provides best security in maintaining records and medical reports transmission. In this paper, we discuss the impact of Block-Chain in health sector for increasing security during data transmission from medical Record room to medical Institutions for their research study. We proposed a Block-Chain architecture for managing data of patients. In addition, we discussed the characteristics of the block-chain in medical perspective and then propose Medical Record based architecture for secure transmission of data between connected nodes.

DNA COMPUTING a survey

Amna Arshad, Yaser Daniyaal

Abstract: Researchers work on computationally intensive problems like Hamiltonian path and Traveling Salesman problem thrived the need of DNA Computing. DNA computing is a secure and efficient way to solve computationally intensive problems. Now a days it is a significant area of research and technology. DNA encodes within itself huge information in a secure and efficient way hence providing a unique, robust and error free technology to the world to save any type of data. This paper discusses was specific computationally intensive problems that can be solved using DNA computing and also indicates the main and basic algorithms which are used to define the DNA computing area.

An IoT Enabled Framework for Smart Buildings Empowered with Cloud & Fog Infrastructures

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Abstract: Modern Urban development of Internet of Things (IoT) are appropriate candidates for the initiative of Smart City; which aims at integrating physical environments into computing & communication technologies leveraging maximum benefit in terms of resource utilization for optimal services. One substantial constituent of Smart City is Smart Building. A smart building is adequately intelligent to sense contextual environment and take smart decisions, competently employing available resource thus being more accurate, and energy efficient and secure. Smart Building utilizes systems which are highly complex, dynamic natured and heterogeneous. Considering the functional requirements of Smart Building this research work emphasize that cloud has the potential of supporting complex computations, long term analytics and storage facilities for bulk amount of data being produced. It further specifies that cloud performance could be enhanced if innovative paradigm of Fog Computing is introduced along with cloud solution. The proposed Internet of Things (IoT) framework of Smart Building is deliberated with all associated benefits and apprehension of cloud Fog paradigm. Application model of the framework along with it processing modules is also demonstrated in research effort. Performance metrics are evaluated with cloud deployments and with cloud fog deployments for further clarity.

Traffic Noise Pollution Impacts on Human Work Capability Using Fuzzy Expert System

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Abstract: Noise pollution is a significant problem in our environment that influences human health and it can also reduce human's capability for different activities in daily life. We examined the distraction occur due to giant road traffic and flow of traffic situations whether it is slow or fast which entirely depends on personal work performance. We have recorded noise with Sound Meter in unit of sound (dB). The fuzzy logics and fuzzy sets regarding to structure of mathematics expressions is described as Fuzzy Expert System within semantic procedure that produce outcomes from random information. Data for noise index count data and its magnitude was collected simultaneously at targeted places of the city. By using MATLAB, a correlation has been produced between individual parameters of traffic noise and its damaging impacts on capability of individuals. In addition, to estimate the high percentage of irritation among the individuals, regression equations have been generated that are more suitable for noise parameters and parameters related to the flow of traffic. This paper deals with the issues of exhaustion in individual's efficiency at different areas due to the occurrence of noise pollution from giant traffic on roads.

MELTA: A Method Level Energy Estimation Technique for Android Development

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Abstract: Development of energy-aware applications requires the understanding of energy consumption at the fine-grained level of methods and functions. Several hardware and software based techniques have been proposed for estimating the energy profile of mobile applications in order to assist developers in developing energy-efficient applications. However most of these energy estimation techniques work at the application level. Developers need to be aware of the energy consumed by each module of their application in order to generate energy efficient code. In this work we propose a probabilistic technique for fine-grained energy estimation to compute the energy consumption of each method in Android applications. We extract the relevant energy consumption and execution traces using Android studio tools including dmtracedump and BatteryHistorian. We generate power profiles and execution traces of fifteen open-source applications develop an accurate energy model, MELTA, for method-level energy estimation. MELTA uses a probabilistic approach to map application power profile onto the corresponding execution traces to accurately compute method-level energy.

Cognitive Learning in Outcome-Based Education: A Case Study of Bachelor of Science in Electrical Engineering

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Abstract: The purpose of the present study is to assess the level of cognitive learning, with the help of question paper analysis, among the students of Bachelor of Science in Electrical Engineering studying under Outcome Based Education. The data for this study were collected from the Department of Electrical Engineering, University of Gujrat. The data were descriptively analyzed and presented through tables and graphs for quick and easy interpretation of the results. The results showed that, out of six courses, only one course reached the highest level of cognitive learning.

A Review of Gamification for Learning Programming Fundamental

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Abstract: the games, nowadays, are extensively used in different fields for learning purposes. They are getting popularity progressively because of their efficacy when used in non-game context, such as in educational and business domain. Game based learning helps the instructors to teach difficult concepts of programming fundamentals to novice students, in order to keep their interest and motivation. Therefore, researchers these days seems quite interested in the field of game based learning i.e. gamification. Hence, this paper presents a review of the existing literature of serious programming games to analyze the researcher's effort in the field and intends to find the possible gaps that exist in the current gamification approaches. Initially, we considered the concepts and knowledge that most of the games have addressed so far pertaining to programming fundamentals. Then we presented important components required for the development of an interactive game by mapping it on (Mechanics, Dynamics, Aesthetics) MDA Framework. Moreover, we presented all the methods that are used for evaluating the effectiveness of games. Based on our review, we concluded our study by identifying the loopholes in the existing literature on game based learning. Furthermore, we identified several open problems in this area and their possible suggestions that will be a contributing factor for future researchers.

Comparison of Classification Models for Early Prediction of Breast Cancer

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Abstract: Breast cancer is the second most leading cause of women's death in America. To create an accurate prediction model and analyze the remarkable risk factors, a data mining classification task that involves different methods has applied. Data mining has been used to extract hidden knowledge in different domains such as business, medicine, science, engineering, etc. This research aims to predict breast cancer using anthropometric data and parameters that are collected in routine blood analysis. First, we found the most important attributes in the dataset that can be selected as a Biomarker; by applying the recursive feature elimination method. We found that Age, BMI, Glucose, HOMA, and Resisting can be selected as the best Biomarker for breast cancer. We applied different classification techniques; K-NN, ANN, Decision trees, Naive Bayesian and found that artificial neural networks best classify the attribute with an accuracy of 80.00%. This study will also help doctors and medical practitioners for early diagnosis of breast cancer.

Deep Neural Network a Step by Step Approach to Classify Credit Card Default Customer

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Abstract: This study and research aimed is to classify and predict the credit card default customer's payment by means of contemporary approach of artificial neural network (ANN) known as deep neural network. This paper explains the dataset which signifies Taiwan credit card defaults in 2005 and their previous payment histories taken from popular machine learning dataset resource known as UCI. The paper enlightens each and every concept and step require to build, train, validate and test a deep neural network model for classification task that has never been discussed before. Moreover, we tried to elaborate the relevant and important concepts associated with deep neural network model that must be kept in mind during model building. This paper mainly tries to classify the default payment customer with more than 82% accuracy. For this purpose, various deep neural network techniques with different libraries are used to attain maximum accuracy and we have tried to build a best possible model which can be used for future prediction. This study proves deep neural network is the only one that can accurately estimate the real probability of default. So, by using this network model, which is more complex, sophisticated and most widely used than a simple neural network and logistic regression model, the classification simulation shall have a better performance and accuracy.

Cognitive Learning through Collaborative Tasks: Impact on the Oral Proficiency of Pakistani University ESL Learners

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Abstract: This study argues in favour of the collaborative approach to oral proficiency based on sociocultural theory. It was conducted to check the impact of collaborative tasks on ESL learners' oral proficiency. It claims that learning with group members/peers provides a better way to learn the second language. This study was experimental in nature. A sample of 32 students of BS-2nd semester from University of Gujrat was selected through purposive sampling and divided into two groups: the control group and the experimental group. Data were collected through an oral interview by following the structure of PET. This PET has been comprised of four components: grammar and vocabulary, discourse management, pronunciation and interactive communication. The experimental group was provided with the treatment in the form of various designed activities by ensuring maximum peer interaction in the collaborative setting. This treatment was implemented in a span of six months. Meantime, the control group learned in the conventional way. At the end, the performance was checked with the help of post-test. Finally, data were analysed with the help of quantitative approach. It was concluded that learning via collaborative tasks has a positive impact on oral proficiency including all the four basic components.

Net Load Forecasting of Solar/Wind Integrated Power Systems

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Abstract: Rampant rise in micro grids (μ Grid) - using solar and wind energy resources in homes, industries, commercial and industrial facilities during diverse weather patterns owing to climate change - the net load forecasting becomes uncertain due to injection of varying power magnitudes from renewable energy resources. Conventional utilities use nuclear, natural gas, coal thermal plants and hydropower stations to meet seasonal electricity demands 24/7/12/365. In this work, load forecast of Pakistan from year 2020 to year 2050 is performed while considering the increasing share of solar and wind energies. In the first step load forecasting of Pakistan from 2020 to 2050 is calculated, while considering only historical meter loads and then by including other factors such as changes in GDP, electricity tariffs and solar/wind facilities consumers by using regression model. In second step, solar/wind outputs from period 2020 to 2050 are calculated under increasing loads and distributed generation (DG) situations. In third step net load forecasting is performed by subtracting the solar/wind output from the actual loads having local DG. Finally the data is used in Matlab to give a precise picture of future electricity demands in Pakistan.

Quantification of Pakistani Brand's responsiveness on Social Media: Twitter

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Abstract: With the recent development in the field of Information and communication technology, online marketing is also escalating in the domain of Social Media Applications. Researchers are paying their interests to exploit how multiple brands are accelerating their business, its marketing, loyal consumer-ship and a lot more. In this study, we conducted an analysis on multiple Pakistani Brands through their Twitter account and figured out their responsiveness towards their consumers. Brand's responsiveness is calculated through its popularity, brand's replies and follower's replies. Tweet's Timestamp is also used to draw the responding pattern for each brand. This study will help in finding the responsiveness pattern of brands through Social Media and to develop a Brand's responsiveness recommender system in future.

A Clustering based Hybrid Mobility in WPAN

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Abstract: IEEE 802.15.4 is a standard for low rate wireless personal area network (i.e. LR-WPANs) and ZigBee based wireless sensor networks (WSNs). This research presents an analysis of clustering based hybrid mobility in IEEE 802.15.4 PAN. This paper unfolds: (1) performance analysis of IEEE 802.15.4 from little to expansive scale PAN; (2) utilization of clustering mobility on remote node prompts to loss of packets. The hybrid mobility designs (directed and undirected mobility) on a remote node has been researched and claimed to contrast in a variable size network. The simulation results expound the relationship of the arbitrary mobility on remote sensor node with influences over the performance metrics of the network, for example, the end-to-end delay, packet loss, and throughput.

License Plate Localization using Phase Stretch Transform

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Abstract: Intelligent Transport System (ITS) is an important part of today's modern society. With increasing number of vehicles and road networks impose the requirement of highly refined and precise Intelligent Transport System. Automatic License Plate Recognition (ALPR) is also included in the main components of ITS, which uses image processing techniques to detect and recognize vehicles on the basis of license plates. License plate localization is the most complex and important stage in license plate recognition due to variation of license plate(LP) designs, font styles and illumination conditions. Since, all the subsequent stages of LP recognition greatly depend on the accurate detection of license plates. A novel approach is presented in this paper for the localization of license plates with various sizes in different illumination conditions and complex backgrounds. Phase Stretch Transform (PST) is utilized for edge enhancement and detection. Then license plates candidate regions are generated by applying morphological operations. Finally, the license plate is filtered out and validated on the basis geometrical properties of candidate regions. The performance of proposed methodology is tested on NTUA Media Lab LPR dataset and achieves Precision of 89.98%, Recall of 93.71% and detection rate of 98.86%. The experimental results of proposed approach demonstrate the effectiveness of PST based license plate detection in captured images.

Classification of Human Face: Asian and Non-Asian People

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Abstract: Humans have always been recognized as different from neighboring groups, but such distinction has not always been understood to be natural, permanent and universal. These features are recognized as different features of how the abstraction of race classification is used today. In this way, the concept of race classification came about during the documented process of inspection and subjection which brought it as communication with groups from different continents, and of the idea of classification and typology found in the natural sciences. This method helps us to extract various features from the network and can utilize it to distinguish individuals in the world with a precise personality. The proposed method incorporates the essential feature associated with surface, skin color pattern and another secondary characteristic of training images to efficiently rank the strokes. A CNN based model is proposed to create a system that classifies facial images based on a variety of different facial attributes and classified into two distinct categories. The accuracy of 84.91% was achieved by utilizing the CNN model.

Autism Identification And Learning Through Motor Gesture Patterns

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Abstract: Autism Spectrum Disorder (ASD) is a mental development disorder which affects the processing of information in brain causing delays in the language and reasoning development. A person's behavior can make it distinguishable if he/she has the disorder or not through three main traits i.e. social interaction, restricted/repetitive behavior or communication skills. ASD is usually diagnosed clinically on the basis of some core symptoms and tests which are expensive and can be stressful for a child. Research has shown that Autistic people can be differentiated through the difference of force in their Motor Gestures which is related to restricted/repetitive behavior of Autistic individuals. Motor disturbance is observed in autistic patients which is a key factor for us to make its identification possible through a technical early stage approach which can be very effective. A preschool level Android touch application has been developed in which the motor patterns are observed through touch sensors and inertial sensors. Ten features were obtained as kids touched the screen for the gameplay. This touch and inertial data was then analyzed by processing them through Machine Learning (ML) algorithms to classify between Autistic and non-Autistic group on the basis of the ten features and the motor disruption was identified. This data supports the motion disruption of movements which is identified to be as a core feature of ASD (restricted/repetitive behavior) and this demonstrates that Autism is possible to be computationally assessed through an interactive and fun gameplay on a smart device. In this way we will be able to diagnose Autism through an easy to access, learning smart phone application instead of a typical, expensive clinical diagnosis.

Age and Gender prediction using Deep Convolutional Neural Networks

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Abstract: Age and gender identification have become a major part of the network, security and care. It has a common use in age specific content access for children. Social media uses it in delivering layered ads and marketing to extend it's a reach. Face recognition has developed to a great extent that we have to map it further in getting more useful results having different approaches. In this paper, we propose deep CNN to improve age and gender predication from significant results can be obtained and a significant improvement can be seen in various tasks such as face recognition. A simple convolutional network architecture is proposed to make a noticeable improvement in this field using existing methods. Using deep CNN, model is trained to an extent that accuracy of Age and Gender become 79% using HAAR Feature-based Cascade Classifiers is an effective method proposed by Paul Viola and Michael Jones. It is a machine learning based approach where a cascade function is trained from a lot of positive and negative images. It is then used to detect objects in other images.

Strategy for Promoting Programming in KPK

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Abstract: Programming demonstrated to be a venturing stone toward the changing position of nation in comity of a countries. The improvement of programming includes labor with specialized help, where the chief spotlight in on PC programming. In this manner, creating an enormous number of adroit PC developers in Pakistan would positively help the reason for building up programming houses, which thusly, will draw in the western world to re-appropriate their product undertakings Pakistan. It can surely become like a distinct advantage for the Pakistan's economy by gaining a tremendous income. In exploration we displayed a philosophy to expand the enthusiasm of the Pakistani individuals in PC programming giving a bilingual PC improvement condition in Pashto and the English dialects. This demonstration may absolutely open the new components of instructing PC programming. In conclusion, this paper had displayed visual plan of such bilingual condition alongside engineering adjustment in preprocessor a C++ language to help Pashto and English dialects for composing PC programs.

A graphical methodology to promote programming language concepts in novice

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Abstract: Programming language is core of computer studies. Basic programming concepts are very essential for every computer student to develop better understanding of programming language. At university, college and school level, review on programming courses are required. There is lack of structured/graphical tutoring of programming language for beginners. Students have trouble to use language syntax and understand language. There is confusion for novice students to develop concept of compiler working as well. To address these issues, we are proposing a graphical methodology, which will help to improve conceptual ability of students regarding problem solving. This solution may provide better understanding about programming building blocks and working of compiler by using flow charts and drag and drop techniques with little introduction of lexical analyzer for tracking of compiler working. This tool will help to resolve student's confusion about compiler construction and programming language concepts. A graphical methodology is proposed and developed to help students improve their conceptual ability of problem solving, programming building blocks and working of compiler.

A Policy Recommendations Framework To Resolve Global Software Development Issues

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Abstract: Global software development (GSD) is basically a development which is done through low cost in given time frame by sitting in remote areas within cities, countries and around the globe. The global software development is facing major challenges such as, time zone differences, language barrier, cultural differences, geographical distance, communication gap, coordination problems, lack of project guidance, lack of experienced software testers, customer dissatisfaction, and poor project management and so on. These challenges has major impact on software quality in GSD and decreases the acceptability among its users. In recent years, some strategies had been applied to reduce quality related issues that exist in GSD, however there is still a need to develop effective and efficient methods, techniques and best practices that can lead to enhance the quality of software development. The main objective of this article is to highlight the existing issues of GSD and to provide the policy recommendations to mitigate them. Therefore, a quantitative analysis have been performed that provides detailed statistical analysis on data by analyzing and applying nonparametric test (rejected the null hypothesis with less than 0.5 significance) and one sample T-test (with 2-tailed significance difference 0.00) through SPSS. Hence, this work contributes by making strong policy recommendations which is explained how GSD project should be handled by selecting best process, and how to achieve maximum quality of software product for customers to satisfy them, improve the acceptance among its users, bring their trust back to gain more business, and overall development in (software) industry.

Energy Harvesting through Floor Tiles

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Abstract: The increased modernization has made the world more dependent on technology, thus increasing the demand for more power and energy. Therefore, a need to generate energy by minimal consumption has become a dire need for researchers. Thus, this research paper puts forth an optimal solution of such problems by harvesting energy through mechanical vibrations by means of low power consumption setup. This paper presents a project that generates electricity through piezoelectric setup in the floor tiles. As piezoelectricity is the generation of electricity by means of mechanical vibrations, we use an electromechanical converter that is a piezoelectric transducer, which converts applied mechanical pressure into electricity. These piezoelectric transducers were placed in tiles or areas where the highest pressure is observed so that maximum stress through walking is applied, and possibly be converted into optimum amount of electricity. To harvest maximum amount of electricity generated, a small bridge rectifier circuit is designed which is used as an AC-DC converter. This bridge rectifier circuit converts alternating current AC into direct current DC and the converted DC energy is used to charge the battery which can be utilized for further usage in low-power electronic equipment.

Implementation of Windows Interface for Disabled Persons

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Abstract: The technology is continuously advancing day by day and has transformed the personal computer (PC) from a very simple computing gadget to a highly advanced multiprocessing and a multi-functional

device. It is now capable of connecting and processing different devices at different places simultaneously. This improvement brings the system advancement for disabled persons so that they can be self-governed. This paper focuses on various interfacing techniques utilizing windows Operating System to assist the disabled persons and proposes a technique named as "Windows Interface for Mobility impaired and Blind people" (WIMB). Proposed model assists the disabled individuals (having blindness, mobility-impartment and deafness) to control real-life utilities through Microsoft Windows OS (Operating System). Furthermore, few available, applications are also reviewed and compared with the proposed technique.

Person Fall Recognition by using Deep Learning: Convolutional Neural Networks and Image category classification using bag of feature

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Abstract: The rate aging people living alone at home are increasing day by day. Fall is one of the major risks for elderly people. Most of the elder people may get into severe harm to their backbone and that may lead to loss of life. Most of the time in post fall condition the person is lying on ground for many hours once the fall event occurred. This is very significant aspect for person fall detection system to know the seriousness of event. The different techniques are proposed to detect person fall like sensor based, accelerometer and other is camera based. In this paper, two techniques are used to detect person fall such as the deep learning technique convolutional neural networks along with that the image category classification using bad of features is used. The algorithm is providing the promising results as compared to the previously used techniques. The suggested algorithm is described in detail. The algorithm accuracy leads to 100% level on most of the testing measures.

A Dataset for the Sentiment Analysis of Indo-Pak Music Industry

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Abstract: The continuous increase in data creates a need, that data be analyzed and useful hidden patterns be found and explored. If the data is readily available, it can easily be analyzed. But most of the time it needs to be dug. Substantial increase in the use of social media and online services can be witnessed nowadays. People not only buy and sell things online but also give their remarks on those items/services.

Many websites provide such services along with a dedicated section for reviews and comments. These items/services can be ranked and analyzed based upon these reviews, which shows the sentiments of the reviewer. These reviews are in millions and promptly in billions. The huge increase in reviews there is a need to analyses them through a proper mechanism. This research is targeting the mining of the sentiments from these reviews. Three songs from YouTube are selected and their reviews are scrapped, pre-processed and analyzed using Decision Tree (ID3) and Naïve Bayes. Both presented 75% accuracy on test data. This article presents a dataset to perform Sentiment Analysis on Roman Urdu/Hindi reviews. Dataset is a combination of Indo-Pak song reviews.

Effects of Semantic Gaps on Arabic WordNet-Based Similarity Measures

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Abstract: The English WordNet (EnWN) is extensively used by computational linguists as a lexicalsemantic resource for Natural Language Processing and Knowledge Engineering. EnWN was extended with multilingual information in several non-English wordnet projects; including the Arabic WordNet (ArWN). ArWN is still limited in terms of semantic structure and coverage of the Arabic language. This paper focuses on the improvement of ArWN semantic structure, the Hypernymy relation. An interactive cross-lingual mapping approach is used to enrich ArWN with new synsets lexicalized in Arabic and mapped to the target synsets in EnWN. The paper also studies to which extent the richness of the semantic structure of the wordnets affects the semantic evidences, which can be utilized in wordnet-based applications. A set of experiments in the context of semantic similarity is conducted on Arabic word pair's dataset to examine the effectiveness and usability of the enriched ArWN resource. The experimental performance measures showed that filling in the semantic gaps significantly improves the quality of the similarity scores between concepts.

Biometric Authentication in Health Care Sector: A Survey

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Abstract: The development of technology has affected the performance of the healthcare system globally. There is no denying the way that security is fundamental in-patient consideration. Health care records are essential to every patient and medical expert as well. There should be a system that only authorized person can get access to the patient record because if any unauthorized person gains access to the patient record, it can lead to the wrong medication or even the death of the patient. Identification of a person is a very challenging problem. The traditional method includes ID cards and password etc. It can be lost, misuse or can share among colleague. To overcome these limitations of traditional ways biometric authentication method introduced. Biometric as the identifier can play a significant role in maintaining security and privacy of healthcare system. Biometric identification is the measurable unique traits of the individual. It divides into two categories: first is physiological that includes the face, fingerprints, iris, retina and hand geometry. Second is behavioral that includes voice recognition, signature verification and keystroke dynamics. In this survey paper, we review different physical and behavioral biometric techniques that described in a different research paper in past decades; then we analyze findings and future direction of different papers separately based on physical and behavioral biometric methods. We provide a comparative analysis of all biometric techniques it will help out readers to get a better idea about different biometric technologies that which one will suit according to their needs and budget. We conclude that for identification, authentication, in healthcare sector there is a need of proper implementation of any of these biometric authentication techniques or the combination of different techniques properly, to provide advanced security and prevention from any security threats to patient records.

FPGA Based Implementations of RNN and CNN: A Brief Analysis

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Abstract: Deep neural network (DNNs) is an extensive field which used for application those have complex nature such as processing of voice and image. It has two main varieties namely Convolutional neural network (CNNs) and recurrent neural network (RNNs) are got recent success in industrial applications. CNN used for applications like image classification, RNNs used for time variant problems. Even though

both belong to the DNNs family they implementations show substantial differences. I get more potential results on Field Programmable Gate Array (FPGA) besides CPU and GPU's implementations. Evolution shows remarkable advantages of FPGA implementations over GPUs and CPUs. In this Research article FPGA implementation of CNNs and RNNs are compared and analyze its optimizations. Benefits and drawbacks of FPGA implementations of deep neural networks are also highlighted.

An exposition on the applications of Locality Aware Scheduling algorithms

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Abstract: The present study analyses the various applications of the Locality aware scheduling algorithms, focusing the effectiveness and efficiency of these algorithms. Locality-Aware Scheduling algorithms (LAS) is observed having various applications in the field of computer science. It has been observed that the locality is a universal behavior in all the computational fields and it is observed that these tend to refer repeatedly among various subsets of the resources within various time intervals. It is observed that the execution of each computation basically generates a reference to the objects within the memory such as the memory pages, memory sectors, database records and the web pages. Through the analysis of various locality aware scheduling algorithms, it is observed that the locality aware scheduling works more effectively as compared to the other scheduling algorithms. Among these various systems, it has been observed that the locality aware scheduling is to make the data parallel applications run more efficiently with less data loss or data inconsistency. Analyzing the effectiveness of LAS it is clearly identifiable that the LAS is achieving this purpose with high effectiveness as compared to the other scheduling algorithms. Each be point of interest for the researchers due to its effective results.

WSN Operating Systems for Internet of Things (Iot): A Survey

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Abstract: The Internet of Things is a concept which allows communication of all surrounding things around human's living space no matter it is living thing, a computer, a wooden piece or anything else. IoT started

in early 2 decades as a concept. IoT covers almost all aspects of human life as it covers industry, business, medical, agriculture, infrastructure, communication, household and many other aspects of human life. Basic concept behind IoT is to automate and communicate objects and things without human provided input. Objects communicate with each other via wireless communication devices like RFID. Information could be collected from information by using sensors and actuators. As communication between devices increases, need of an Operating System which communicates with heterogeneous devices also increases. In this paper, recent Wireless Sensor Networks (WSN) Operating Systems for IoT are discussed and also a generic framework is designed which represents the features of an IoT oriented operating systems.

A Comparison of Hardware Based Approaches for Sign Language Gesture Recognition Systems

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Abstract: Sign language is a gesture-based language used worldwide by the deaf people to communicate with one another. This language comprises of different hand movements and facial expressions. Over the years, different tools and applications have been built and developed by the researchers to facilitate the deaf community in their communication with normal people. One branch of research deals with the recognition of gestures by machines, i.e. the machine is able to understand the gesture performed by a person. Many different approaches involving a variety of hardware including gloves, Microsoft Kinect, and sensors have been used for this purpose. The literature survey reveals that the most significant and advanced work in this regard has been accomplished in American Sign Language (ASL). Whereas, recently noticeable research is being conducted for the development of different Asian sign languages as well. This work presents a study of hardware-based approaches for gesture recognition in ASL and Asian sign languages.

A Survey About Efficient Job Scheduling Strategies In Cloud And Large Scale Environments

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¹School of Science and Technology University of Management and Technology, Lahore, Pakistan ²Department of Computer Science University of Management and Technology Lahore, Pakistan ³Department of Computer Science HED, Govt Degree College Mailsi, Pakistan **Abstract:** Internet of Things is the new emerging field Job scheduling strategies pay important role for optimal utilization of resources, in cloud or large scale environments demand for efficient resource allocation becomes manifolds due to increased volume of requests for available resources. In this paper we present comparative study of provided solutions for job scheduling techniques by research communities. This paper is comprised of analysis of job scheduling strategies to minimize job queuing and response time in order to allocate resources efficiently in cloud environments. Growing infrastructure of clouds and economical aspects of resource hiring demand efficient and best fit strategies for resource allocation. Comparative analysis of job scheduling and resource allocation will lead to adopt best policy framework for infrastructure designers. Selection of efficient set of job scheduling policies pay important role in distribution of workload to available resources, hence allocation of resources is finalized on the basis of combination of variety of policies which best fit in accordance with nature of requested jobs. We present comparative study of variety of job scheduling policies in this paper to support the designers for adoption of suitable set of policies in given scenarios.

Pakistani Media Fake News Classification using Machine Learning Classifiers

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Abstract: Identification of Fake News is import now a days because it is affecting our social life and opinions. Public misinformation detection is complicated task especially Pakistani media Fake News classification. We have seen Fake News in every aspect of life like politics, sports, business, entertainment and many more. For identification of fake news, we have done popular news websites scrap and develop our corpus of 344 News articles and labeled it manually Fake or True. We have investigated two feature extraction techniques like Term Frequency (TF) and Term Frequency-Inverse Document Frequency (TF-IDF). Seven different supervised Machine Learning (ML) classification algorithms are used and their results comparison have done. Best performance classifier K Nearest Neighbors (KNN) gives 70 % accuracy and logistic regression gives 69 % accuracy. Results can improved further by increasing number of articles in corpus.

New Labeling Algorithm on Various Classes of Graphs with Applications

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Abstract: In order to develop an algorithm, computer theories are essential and often used in a mathematical sequence. Most of them without sufficient mathematics are difficult to understand. A

mathematical algorithm is, therefore, a better guide to confirm whether or not a software is correct. This implies that a mathematical knowledge-based algorithm is of great concern. Let $S = \{r1, r2, \dots r\phi(n)\}$ be a set of all co-prime residues of a positive integer n. An integer n > 0 is termed as totient if the sum of co-prime residues of n is 2 kn, $k \ge 1$. A graph G with V and E be the set of vertices and edges of G respectively, then G is said to be a totient graph if there exists a one-one function $h : V \rightarrow N$, whose induced function $h * : E \rightarrow N$, defined by f * (ab) = f(a)f(b) assigns a totient number for each edge of G. In this piece of work, we propose new labeling algorithms for several classes of graphs.

Representation of Words Over Vectors in Recurrent Convolutional Attention Architecture for Sentiment Analysis

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Abstract: Subjectivity in the text concerns to sentiment analysis, which entails Natural language processing (NLP) techniques to detain the casual way of communication. Many NLP undertakings used to capture the sentimental contextual information through distributed representations. Neural networks (NNs) like recurrent and convolutional neural networks have productively attained the remarkable outcomes in text classification. However, few of architectures learning through vector representation of words in the recurrent network for capturing long-term dependencies while in the convolutional for feature extraction along with pooling layer; a max-pooling task for dimensional reduction has been proposed, still, unable to seizure enough syntactic and semantic regularities for sentiment analysis. This paper empowers sentiment analysis by exploring unsupervised learning of vectors representation such as Word2Vec and GloVe, then acquired word vectors is input to the proposed architecture which is composed of RNN and CNN engaging with attention mechanism referred to Recurrent Convolutional Attention Architecture "RCAA." Experimentations show that through unsupervised learning of representation of words into qualified vectors in interpreting the similarities related to syntactic and semantic context and the sentiments at adequate computational cost along with the combination neural architecture by succeeding accuracy on word2vec by 83.62%, GloVe by 85.72% as compared with Random initialization by 79.97% on rotten tomatoes test dataset respectively.

Modified RLS Algorithm for Interference Cancelation in a MIMO System

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Abstract: In this work, we propose modified Recursive Least Square (RLS) algorithm which helps to mitigate interference and to enhance the signal strength for wireless communication. In our proposed algorithm, we modify RLS in a way that it's forgetting factor depends on the prior error and apply it to the beamforming with multiple antennas. This results in minimized error between desired signal and received signal. This reduction of error provides significant improvement in beamforming and interference cancellation. Further, it speeds up the convergence time of the RLS algorithm and improves the efficiency of beamforming. The comparison has been made between the simple and modified RLS and the accuracy of beamforming, null placing and error reduction have been checked. The performance results simulated in Matlab shows that the modified RLS has increased the performance by approximately 400 percent.

Fuzzy-Based Model to Evaluate City Centric Parameters for Smart City

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Abstract: The positive initiatives developed for the persistence of smart city realization and designing, to make the city more "smarter" and sustainable diverse types of approaches exit. The smart city represented by a unique system where diverse utility companies, stakeholders, local authorities and citizens are involves for creating numerous activates, interactions and interdependencies. To understand the key indicators for the establishment and "acceptance of smart city" challenge for the researchers. Different types of parameters like governance, technologies', citizens, economy, livability etc. are studies, which are important for smart city evaluation. The aim of this research to provide appropriate methodology for the development and acceptance of smart city. A mathematical fuzzy-based model proposed for the evaluation and prediction of parameters, which are significant for acceptance of smart city. Keywords— smart city, fuzzy logic, smart system, smart citizenship, internet of things

A Survey on Internet of Things: Importance, Security and its Counter measures

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Abstract: Internet of Things plays a vital role as it has high significance in the human life form the past few years. Research in this field is increasing day by day, which get the attraction of scientific society. As the field touches the peak, many problems arises, most of them are related to the security. This paper discusses the security of layer architecture and the type of attacks occurs on each layer and the countermeasures for these attacks. Different challenges that become hurdle in the way of IoT were also discussed.

Tech"Awareness comparison of CS professionals, non CS professionals, CS students and non CS students about security issues"

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Abstract: Security threat is increasing day by day, which cause problem for infected users in terms of their privacy, data theft and loss of effective information. So we are conducting research on the basis of this security problem. The purpose of our research is to investigate the stance of Computer science professionals, non-computer science professionals, computer science students and non-computer science students about their knowledge of security threats. The outcome demonstrated that there exist a measurable huge contrast against consciousness of security to CS proficient, CS understudy, Non CS understudy and Non CS experts. Based on result the author advocate that information security subject should be added in to curriculum as a core course in undergraduate courses for Computer science and software engineering degree. And for other disciplines like commerce and social sciences some basic security topics and knowledge of computer course should be added in to their core courses. What's more, organization need to direct workshop for their representatives to mindful them about security issue furthermore, for designer point of view workshop is led to reveal to them how to make secure software by upgrading their security information.

Importance of Power Digraph in Computer Science

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Abstract: The understanding of a computer based software or self-designed tool is extremely difficult to analyze without some appropriate mathematics. In any algorithm, it is always possible to visualize its core steps with the help of a flow chart or a graph. Thus, drawing graphs and digraphs of any structure based

algorithm or computer oriented outputs is much more helpful in achieving a better understanding. In discrete mathematics, digraphs based on modular arithmetic are becoming a core interest of many computer scientists and number theorist. As these digraphs are easy to label using the residues of any given integer. Thus, algorithms based on integral mathematics are easy to evaluate with the help of a power digraph. A power digraph can be constructed from the congruence equation a $m \equiv b \pmod{n}$, where a, b, $\in \mathbb{Z}n$. In this note, we highlight some fields of interest where power digraphs can be utilized in a more friendly way to entertain a layman without knowing much about its mathematics.

A Contextual Approach Protecting Online Privacy, A Crucial Need

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Abstract: In the era of the global world, everyone thrives to share their personal life and credentials online through different sites. The Internet has become an essential use of our daily life in order to email, sharing of documents, research, bank transactions and even basic life activities on different social media mediums. Since the rapid evolution in the of technology is taking over the globe in last few decades in making human's life easier through easy and rapid actions, there is dire need to be sure of how much our credentials are safe with the parties that we are sharing the data. Internet frauds, cyber-attacks and third parties monitoring the data is the cause of serious concern of the first-hand user of the risk that the internet caring while sharing personal details. This paper suggests the basic internet users minimize the threats and risks that internet caries while sharing the data. Different tools and techniques are discussed in this study that can be used to protect the privacy of user from unauthorized, attackers and third-parties. It is the need of the hour to motivate and educate internet users to safe browsing and to enhance the internet user experience. This paper elaborates the maximum number of precautions the internet user can take to secure and enjoy safe browsing.

An Efficient Machine Learning Prediction based Model for Intrusion Detection

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Abstract: In the current era of Science and Technology, every kind of field enables human life to use the internet in excess amount for connecting with the world. Depending completely on services of the internet creates vulnerability for their private data, which allows attackers to strike for various limits. Well-ordered

net applies assembled as diverge from past web time. There are attacks on the internet of Things (IOTs) as well, which causes big security challenges. A question arises here; what methodology to use for the appropriate working of network incoming and outgoing traffic data. For this, the Intrusion Detection System (IDS) is the item pack application used to provide security. IDS is used for screen and explore the principal reason for the framework in a couple of systems. In literature, researchers use the feeble date to play out the strike against association affiliation. It provides the substance care, complete guide and concentrates concerning IDS. The fundamental goal of concerning IDS is to watch out evil traps, goods work out, threats and so on. There exist several algorithms which are used for the classification of Intrusion Detection Attacks. In this study, the classification model Logistic Regression is applied on the dataset containing attacks. The performance of the Logistic Regression algorithm is evaluated by two means and compared. Classification of attacks is made using the Logistic Regression algorithm. For evaluation, the corresponding Specificity, Accuracy, Sensitivity and MCC are calculated to evaluate the prediction framework to attain the respective True Positive, false-positive rate for both of the aforementioned algorithms. By following scheme of 10-fold and Jack-Knife, it was discovered that the Sensitivity for classifiers was 99%, Specificity 96%, Accuracy 99% and MCC 98%. IDS is each consolidated with one another to make the Brought Together Danger, the board mix presence of mind into the fundamental unit.

Requirement prioritization through Agile Development Methodology

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Abstract: Due to development of technologies and advancement of business needs, there's a lot of increase in user requirements. So, it's terribly exhausting to accomplish user needs immediately. The best way to fulfill user needs is to work on agile development progressively and iteratively. The most remarkable feature of agile development is to choosing a bunch of requirements to deal in iterations. This can be obtain from continues requirement prioritization. To decide which of the requirement to be selected by the stakeholders is considered difficult in the iteration phase of agile development. The focus of this study is to determine prioritization components and factors that ought to be examine in agile development process. The components and factors from requirement prioritization process enables the experts to produce astonishing results. Hence, this research papers focus on requirement prioritization process in agile development process and propose formula to make the requirements ranking with the contribution of the prioritization components.

Conceptualising Green Awareness as Moderator in Technology Acceptance Model for Green IS/IT

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Abstract: Green Information System/Technology adoption is one of the key solutions sought by organisations, policy makers and governments to promote sustainability and deal with environmental issues. Surprisingly, in the research discipline of management information systems measuring the intention of decision maker to adopt Green IS/IT is ignored while only a few studies address the issue of Green IS/IT adoption. But these studies are mostly done in organisational manner and consistently lack to conceptualise the role of Green Awareness of the end user that may play the role of the facilitator to such adoption models and can significantly moderate the relationship of users cognitive and behavioural intention factors in decision making process of adopting Green IS/IT. To fill this gap in the Green IS/IT literature, this paper conceptualise the role of Green Awareness as a facilitator by incorporating a subjective green awareness rating scale as a moderator in Technology Acceptance Model. This paper contributes to the existing knowledge in the science of information systems, mapping users intention to adopt Green IS/IT and sustainability by conceptualising green awareness rating scale for users and a theoretical framework of incorporating the scale in Technology Acceptances model to map its role as a moderator.

A Novel Time and Space Complexity Efficient Variant of Counting-Sort Algorithm

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Abstract: Sorting is a well-known problem, which is most commonly discussed in Algorithms. Although, there exist many algorithms to solve the sorting problem but Counting-sort algorithm has its own importance due to its linear time-complexity, which is O(n + k) with 2n + k space-complexity. Moreover, depending upon the feasibility of input data, It is the most efficient sorting algorithm available in terms of time if n > k holds but a significant value of k-n restricts its usage in practice due to its high memory and computational demands in case of violation. So, in this paper, we have proposed a novel variant of trivial Counting-sort algorithm, which is comparatively not only time but space efficient as well. The time and space complexity of our proposed ARU-Counting-sort algorithm is $O(n + \sqrt{k})$ and $2n + 2\sqrt{k}$ respectively.

Feed-Forward NN for Classification of Malnutrition

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Abstract: Tackling healthcare problems with machine learning techniques often faces the severity of realworld data in the proper form, during the research experiment we invested most of our time in collecting, cleaning and formatting the data of 505 children affected by malnutrition at some extent. We trained a Feed-Forward Neural Network (also known as Multilayer Perceptron) which is a supervised type of Artificial Neural Network on this dataset. The model was later validated with two most commonly used techniques by AI researchers i.e. i) K-fold cross-validation, ii) Confusion Matrix. The evaluation based on both methods revealed that the solver 'lbfgs' produces more promising results than 'adam' on dataset usually smaller than 1000 units. By using this solver, AI researchers can easily train Multilayer Perceptron models on lesser data and eventually obtain some better results.

An Android based ERP System for Karachi Bus Route Management

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Abstract: In developing countries, fast urbanization boom has added a big pressure on the land use, infrastructure and transportation of the cities and the improvement has now not been very sustainable either ensuing in issues in the areas of social, monetary and environment. Many Western international locations have already contributed in managing the public transportation machine and their routes for the humans of their US and that is the principal reason why they are counted as a developed USA due to the fact managing public transportation and management of the routes additionally effects the financial boom of country. In Pakistan, particularly in the city Karachi, there is no such kind of improvised administration for public transport or for the routes they are following. This report carries the records about the android application and discussed its working in element that how it contributes to manipulate the bus routes (as buses in Karachi viewed as predominant public transport facility and preferable than other transport facility). The

goal of this challenge is very clear i.e. to make it easier for the people to reap expertise about the bus routes and their timing of arrival and departure. This application manages all the information about the buses and their routes. Also, one can effortlessly tune himself/herself to make positive that he/she is going in the right direction. Different algorithms to locate shortest route for the passengers has also been applied. The scope of this utility is very large as it is concentrated on all passengers of Karachi who are inclined to use buses as public transport. The common influence of this software on the country's financial system will be amazing as greater human beings will select to use public transportation. Conclusions are also included in this report.



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