



Kristu Jayanti College

AUTONOMOUS Bengaluru

Reaccredited A++ Grade by NAAC | Affiliated to Bengaluru North University

**National Conference
on
SCIENCE & TECHNOLOGY -
COMPUTATIONAL INTELLIGENCE
January 30 & 31, 2023**



**Organized by
Department of Computer Science**

In collaboration with



**AK Choudhury School of
Information Technology
University of Calcutta**

CONFERENCE PROCEEDINGS



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National Conference
on
Science & Technology - Computational Intelligence
(NCCI)

January 30 & 31, 2023

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National Conference on Science & Technology - Computational Intelligence 2023

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Foreword



Fr. Dr. Augustine George, CMI
Principal, Kristu Jayanti College , Autonomous
Bengaluru

Computing and computer technology are used in almost every aspect of our lives, from the vehicles we drive to the movies we watch and to the communications we make. Our daily lives are inextricably linked to computing and as we move towards a world that is more digitally connected, our dependence on technology will only grow. Today every part of society relies on innovations inspired by the computer scientists and rapid progress of fulfilling national development goals is made possible by the efforts of these computer scientists. New growth opportunities related to deep technologies such as cloud, artificial intelligence, IoT, machine learning, cyber security and robotics will ultimately transform the next decade into a techade.

The college's technical activities have been led by the computer science department for years. Every time a new technological trend emerged, the faculties and the students embraced it very quickly. It is praiseworthy that the department played a part in building a strong IT infrastructure that supports regular academic learning and content delivery. With its curriculum, different industry-academia partnerships, skill-development initiatives, and social responsibility programmes, the department has always aimed to provide students with a well-rounded education. The numerous academic platforms at Kristu Jayanti College assist in igniting the curious minds of the researchers to learn and invent , by providing many opportunities for experimentation and innovation throughout their academic careers.

In this context, I'm glad that the Department of Computer Science is hosting the National Conference on Science and Technology - Computational Intelligence. I sincerely, hope and wish that the substance and fervour of this conference will be extremely helpful to scholars across the globe, who wants to stay current on the most recent developments in the field of computers.

Fr. Dr. Augustine George, CMI
Principal, Kristu Jayanti College , Autonomous

About the Conference

Computational Intelligence is an evolutionary computation paradigm which imitates the reasoning process of human intelligence pillared by Neural Networks and Fuzzy logic that enables computers to solve real life complex problems from the experimental data or observations. Computational Intelligence with advanced computing technologies has been grasped as a fast growing approach in various sectors like healthcare, business, education, travel, gaming and entertainment to provide self-reliant advanced information processing and applications. In developing and automating the pliable information processing and services with human- like abilities CI plays a significant role. For better analyzing the social and global challenges and improving the computational performance across the domain, Intelligent and sustainable engineering solutions need continuous innovations, research and development.

In adherence to this National Conference on Computational Intelligence (NCCI- 2023) mainly focusses on the discussion of the state-of-the-art developments, key approaches, research line, challenges and unsolved open problems encountered in the field of Computational Intelligence. The NCCI-2023 will bring together leading academicians, Researchers, Engineers and Scientists in the domain of interest across the country by providing a platform to present new advances and research outcomes in the field of Computational Intelligence. It will also assist to bridge the gap between research contributions provided by the academicians to meet the expectations of the research communities and IT practitioners. Besides the research gains, the conference considers social and commercial issues in lives and in the social, economic and environmental assets of our nation using these novel technologies.

Dr. Kalaiselvi K

Dr. Sasikumar V R

[Conference Convenors]

Editorial-NCCI 2023

Although the term "intelligence" has historically been used to refer to people and their cognitive abilities, technological advancements have made it possible to create intelligent systems that can mimic many human characteristics. The theory, design, implementation, and development of physiologically and linguistically motivated computational paradigms are only a few of the fields of computational intelligence that are seeing rapid progress and advancement. Advances in neural networks, fuzzy systems, and evolutionary computation have shaped computational intelligence, however, it is currently a field in flux, incorporating concepts from artificial life, ambient intelligence, cultural learning, artificial endocrine networks, social cognition, artificial hormone networks, etc. Research in Deep Learning and Convolutional Neural Networks has exploded in recent years to build successful AI systems that are based on CI. Many studies are required to improve the area and assess the social and ethical issues raised by the existence of artificial life and machine learning in this new era of simulated and artificial intelligence.

We value and thank all the researchers for their high-quality contributions of original thoughts, fresh ideas, and technological advancements in the various branches of computational intelligence. The publication will include an abstract of computational intelligence's theory, applications, and design methodologies, including those related to artificial intelligence, deep learning, machine learning, soft computing, self-organizing systems, fuzzy systems, genetic algorithms, neural networks, and hybrid intelligent systems.

[Editorial Team]

Dr Margaret Mary T

Ms Mary Jacob

Ms Divya K S

Ms Sheethal Aji Mani

About the College

Kristu Jayanti College, founded in 1999, is managed by "BODHI NIKETAN TRUST", formed by the members of St. Joseph Province of the Carmelites of Mary Immaculate (CMI). The College is affiliated to Bengaluru North University and is reaccredited with grade 'A++' in 2021 by NAAC in the Third Cycle of Accreditation. The college is recognized by UGC under the category 2(f) & 12(B). The College has been accorded Autonomous Status since 2013 by the University Grants Commission, the Government of Karnataka & Bangalore University. In the NIRF 2022 rankings, the college was placed among the top 150 colleges in the country and ranks as one of the five colleges from Karnataka. The programmes of School of Management are internationally accredited by the Accreditation Council for Business Schools and Programs [ACBSP, USA]. The college was accorded 'DBT Star College status under the strengthening component' by the Department of Biotechnology, the Ministry of Science & Technology and the Government of India. The institution received first prize at the National Level for 'Clean and Smart Campus Award' from Shri. Dharmendra Pradhan, Minister of Education, Govt. of India.

In the India Today - MDRA survey 2022, Kristu Jayanti College, Bengaluru is consecutively ranked as the Best Emerging College of the Century at National Level for Commerce, Science and Arts. The survey also ranked the college as 5th Best in BCA, 14th Best in MSW, 21st Best in BBA & Commerce, 23rd Best in Arts, 29th Best in Science and 33rd Best in Mass Communication among the Colleges in India. The College also ranked 2nd best in MSW, 3rd best in Commerce, Arts & BCA, 4th best in Science, 5th best in Mass Communication and 7th best in BBA among the colleges in Bengaluru. The institution strives to fulfill its mission to provide educational opportunities for all aspiring young people to excel in life by developing academic excellence, fostering values, creating civic responsibility, inculcating environmental concern and building global competencies in a dynamic environment.

About the Department

The Department of Computer Science (UG) with its proud history spanning over two decades, stands topmost in the Nation for the BCA programme it offers. Both BCA, BCA Analytics, BSc CSMM, CSEL PHCS, PHEL, STMM and STEC programs are devised to provide an ideal amalgamation of theory with hands on experience for the students. Our students receive a broad education that includes a relevant contemporary industry related curriculum, excellent problem solving and communication skills, and the ability to work in cross-disciplinary teams enhancing their spirit of innovation and academic excellence.

The millennial generation of software developers is the future visionaries of companies and nations. To keep pace with rapid changes in the IT sector the department has an auspicious club Computer Academy with more than 1250 members' attempts to confluence between the technology and academics through series of programmes like Guest lectures, Workshops, Seminars, Industrial Visit, Intra and Inter Collegiate fest, Science Exhibition and various communities. The Department has initiated Academic Alliance with UiPath, Sales Force, Oracle Academy, Microsoft Dynamics Academic, ICT Academy, ACM-W, NPTEL, AWS Educate, Dell EMC, Palo Alto, Honeywell, SAP, Infosys and VMware IT Academy to craft initiatives to address the contemporary skill gap in the novel computing technologies. It helps to ensure the industry, a strong pipeline of graduates to meet its future needs. The department also has a Knowledge Kindle Groups and Common Interest Groups to allow the students to connect communicate and collaborate. The department encourages the students for extended learning process such as self-paced learning through various MOOC and NPTEL courses of their interest.

During this new normal, challenges were accumulated in great numbers but the agility in taking decision to transit from physical to virtual classroom content delivery was very efficiently handled by designing our own in-house customized system called Kristu Jayanti Learning Management System (KJLMS), a web application that enables the teachers to create dynamic courses that extend learning to the students, anytime, anywhere. KJLMS facilitates the blended mode of teaching-learning process of both online and offline classes by organizing and executing the teaching and learning in a creative manner.

The shared values of our department are exemplified in various extension activities like Social Outreach Programme (SOP) and Computer Literacy Programme (CLP) providing the students an opportunity to recognize their social responsibility and contribute to the development of the society. I am proud to say that our BCA & B.Sc programmes are the best in the Nation due to its diligent adherence to quality in not just academics but also in creating the right impact on corporate sectors and national quality forums.

Prof. Sevuga Pandian A

Head, Department of Computer Science



Message from the Dean

The ability of computational intelligence to carry out tasks based on data or observation makes it a rapidly developing field. In order to provide self-reliant advanced information processing and applications, computational intelligence with advanced computing technologies has been recognised as a rapidly expanding new approach in a variety of industries including healthcare, business, education, travel, gaming, and entertainment. CI is crucial in the development and automation of flexible information processing and services with human-like capabilities. Intelligent and sustainable engineering solutions require ongoing innovations, research, and development for better evaluating the social and global concerns and enhancing the computational performance across the domain.

I'm glad that the Department of Computer Science in collaboration with AK Choudhury School of Information Technology, University of Calcutta is hosting the 5th National Conference on Science and Technology - Computational Intelligence in this context.

I am sure that this conference will provide a forum to students, academicians, researchers and will facilitate newer avenues in computational innovation.

I wish the conference a great success.

Dr. Calistus Jude AL

Dean, Faculty of Sciences

Kristu Jayanti College (Autonomous)



Message

I want to extend a warm greeting to everyone attending the National Conference on Computational Intelligence, which will be held in Bangalore on January 30 and 31st, 2023. This conference promises to exchange technical information and insights on computational intelligence implementation and applications, video and image analysis, applications of AI for a sustainable society, and even knowledge systems and AI-focused learning.

This conference's key advantages will be the sharing of fresh ideas and the application of established ones. These interactions are highly advantageous to the academic setting in terms of both research and industrial application development. I wish this conference a great success.

Dr. Amlan Chakrabarti

Director, School of IT

University of Calcutta

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NCCI202301: AN EFFECTIVE INFORMATION EXTRACTION MECHANISM WITH ONLINE PAGE RANKING AND A CLASSIFICATION STRATEGY BASED ON WEB TEXT SIMILARITY LEARNING

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ABSTRACT

The proliferation of the World Wide Web has allowed users to access more and more information over the recent years. Search engines have become a necessary tool for users to discover information in a large space under these circumstances. The challenge of managing this rich knowledge is becoming more complicated every day. Search engines play an important role in collection of information but many of the returned results are not necessitated by the user because it is ranked by the user string match. This brought about semantic contrasts engaged with the importance of catch phrases in the retrieved results and the terms utilized in the user query. The issue of classifying information sources into groups of similar subjects has not been resolved. In this paper we propose a Ranking Based Similarity Learning Approach and SVM based classification frame work of web text to estimate the semantic comparison between words in order to improve the extraction of information. The experimental results suggest improvisation in order to obtain better results by retrieving more relevant results.

Keywords : *Search Engine, Semantics, Ranking Based Similarity Learning ,SVM, Web Text Extraction*

NCCI202302: AI AND ML INCORPORATED STRUCTURED WATER FORMULATION AND MAINTENANCE

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ABSTRACT

Water in its vivid forms are being a fascinating source of research interest for ages together. Water memory and water content are other sources of research interests in this area. The structured water model visualized a century ago can be considered as one of the phenomenon which had undergone lots of disbeliefs. While living with this jeopardy the human race started realizing the potential benefits of the same and novel methodologies for structuring the water, a handful of them deep rooted in tradition and nature came into existence. With the advancement of Artificial Intelligence and Machine Learning under all walks of human life, the say for future should be incorporation of AI and ML ways in the easy as well as efficient formulation and maintenance of structured water. AI and ML algorithms can also be used for keeping an eye watch upon the pros and cons of this so called fourth phase of water on living beings as well as in the field of agriculture. These algorithms can also be used as check mark on the impact of structured water assisted Energy Healing treatments for chronic medical conditions. The thrust on navel tools used for formulation and maintenance of the quality structured water, of course incorporating AI and ML algorithms will definitely boost the large scale consumption and usage of structured water and in turn enhance the overall health of everyone in the years to come.

Keywords: *Structured Water, Artificial Intelligence, Machine Learning, Energy Healing*

NCCI202303: PREDICTION OF CRYPTOCURRENCY TRADING VOLUME IN INDIA USING CNN MODEL

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ABSTRACT

Cryptocurrency has gained popularity and emerged as a new asset class. The virtual currency uses a cryptographic hash algorithm that aims to remove the central authority needed for every financial transaction. Most of the developed countries accept cryptocurrency as one of the mode of transaction. Despite the regulatory hurdles, emerging markets dominate the worldwide crypto adoption and India remains at the fourth spot according to the global crypto adoption index. There are many factors influencing the crypto adoption index. Among them volatility of crypto currencies, stock indexes and macroeconomic factors are considered as important factors. The trading volume of crypto exchanges in India can be used as measure for finding the crypto adoption in India. This study aims to predict the trading volume of cryptocurrency using various factors. Stock prices are deeply connected with cryptocurrencies as majority of investors and traders treat it as asset class rather than a currency. So, stock market indices are used as input data for the prediction model. Also, volatility of top five cryptocurrencies based on price is chosen to be included as input data. There are many advanced statistical models available for generating prediction models. The trading volume, price and stock index data included in the model are cross-sectional data. Deep learning models like Convolution Neural Networks (CNN) and Recurrent Neural networks (RNN) are chosen for this study since they work well with time series data. It is found that the CNN model is the better predictor of trading volume when compared with other models. The results suggest that deep learning model can be used for prediction of crypto trading volume in India.

Keywords: *Cryptocurrency, emerging markets, deep learning, CNN, RNN*

NCCI202304: RESONANCE-BASED WIRELESS POWER TRANSFER AND LOW POWER RECOVERY CIRCUIT FOR MINIATURIZATION OF IMPLANTABLE MICROELECTRONIC DEVICES

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ABSTRACT

In recent years, the Implantable Microelectronic Devices (IMDs) such as middle ear implants, retinal implants, cardiac pacemakers, deep brain stimulators, and vagus nerve stimulators are becoming more popular in biomedical applications. Because these devices are capable of precisely stimulate and monitor the human body internal organ activities to the outer world. To ensure better operation, providing sufficient power to IMDs is more important. Generally, the batteries are used to deliver the power to IMDs; however, these batteries occupy more than half of the space (scale of centimeters) in IMDs. Moreover, the batteries have poor energy densities and limited lifetimes, so patients need surgeries once the battery power is depleted. To overcome this problem, the research efforts have focused on wireless power transmission (WPT) technology. Two-coil based inductive coupling WPT (ICWPT) system is a commonly used technique for biomedical implants. However, in this system, the power transfer efficiency (PTE) strongly depends on the coupling between the coils and their quality factor (Q-factor). The coupling between the coils decreases sharply as the distance between the coils increases and causes the overall PTE to decrease monotonically. Thus, this system is only suitable for the short-distance power transmission. To compensate the ICWPT small coupling and small Q-factor effects, researchers focused on magnetically coupled resonance-based WPT (MCRWPT) system, which means that the PTE of an MCRWPT system decreases less with distance compared to the conventional ICWPT system. In this paper, we are concentrating on MCRWPT system for implantable microelectronic devices.

Keywords: *Implantable Microelectronic Devices, Resonance-based Wireless Power Transmission, Power Transfer Efficiency, and Low-power Analog/Digital/Mixed-mode IC*

NCCI202305: A REAL TIME HAND-GESTURE RECOGNITION SYSTEM USING IMAGE PROCESSING TO TRANSLATE INDIAN SIGN LANGUAGE TO TEXT AND SPEECH

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ABSTRACT

Most interpersonal communication takes place through the use of languages. Specially gifted people are compelled to employ unconventional forms of communication, such as sign language. Communication amongst people with special needs is made possible by this, but communication with the general public is restricted. This gap in communication may lead to misinterpretation of information or tone. In order to address the aforementioned issues, we implement a method of translating Indian sign language to text and speech in this work. Our method records the input as serially rendered Indian Sign Language alphabets using a webcam or video file. Then, using the machine learning model, we process the data to find distinct alphabets. The words are created by joining the alphabets together. Then, this can be translated into other languages, such as regional Indian languages. The entire workflow is enabled using technologies like opencv2 for image recognition and keras for the AI/ML model. The end result is an easy to use application that enables people to communicate across languages regardless of their needs.

Keywords: *Image Processing, OpenCV, Tensorflow2, Keras, Machine Learning, Computer Intelligence*

NCCI202306: SOFTWARE INFORMATION SECURITY ASSURANCE – AN INDUSTRIAL PERSPECTIVE

Prasad Bagaregari

SME – Principal Consultant (Oracle Cloud), Fusion Practices, Birmingham

ABSTRACT

The paper entitled above gives an insight into the security on which one should embark and assure the product while accomplishing its development and design, also the developer must adhere to the standard set of practices subscribed under. The said paper also describes about the standardized security process for software development termed as SISA which also throws some light on its implementation. These norms, as articulated below subscribe to the phase wise product security to be precisely applied across each step of the development. The paper also explains about the need and objectives about the software security and its assurance at the atomic level, though not explained in terms of granular technical designs or architecture as it varies from product-to-product in terms of its technical infrastructure. Given a thought, this research paper is a brief study about the web application security practices which are implemented for any online or offline product developed in native cloud or on-premises requirements.

Keywords : Software Security, assurance, security practices, technical infrastructure

NCCI202307: EMOTION PREDICTION IN PETS BY ANALYZING BODY POSTURE AND ACOUSTIC PATTERN

Dr. Gopika .S1, Mary Jacob 2, Kurian George Cheripurathu 3, Dr. K Kalaiselvi 4

1,2,3Assistant Professor, Department of Computer Science, Kristu Jayanti College, Bengaluru

4 Associate Professor, Department of Computer Science, Kristu Jayanti College, Bengaluru

ABSTRACT

Pet ownership contribute positively to human well beings. Compared to the well being of other owners, dog owners have reported higher well being . It is typical for pet owners to be constantly worried about the health and comfort of their animals. The main goal of this research paper is to use image processing and machine learning techniques to track changes in behavior and alert pet owners via his mobile application. This study primarily looks at the activity patterns of dogs when they are left alone at home or when they are barking. Sensors and surveillance cameras serve as primary data collection tools. The security camera's audio feature is used to identify the dog's barking behaviour. Images captured by the camera provide input to the facial expression identification system. Support vector machines, ResNet50, Inception V3, and transfer learning were all used to identify and classify dog behavior. This research study has successfully achieved the following level of accuracy. Emotion Recognition during resting pattern by facial expression (94%), and emotion recognition according to barking pattern (70%) The research was able to recognize the anomalous behaviour of the dogs using the accuracy levels mentioned above.

Keywords: Behavior analysis, machine learning, sensor, Support vector machines , pet animals.

NCCI202308: ARTIFICIAL INTELLIGENCE IN INVESTMENT MANAGEMENT

Dr.Karthika. R¹, Dr.Chandrakhanthan. J², Mr. Dhanapal C³, Mr.Prasath Kumar A⁴

¹Associate Professor, M.A.M B School, Trichy

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ABSTRACT

In today's world technology has become a part of our life now days. In that, Artificial intelligence plays a wide role in the society. Over the past years, investment management has undergone an aggregation revolt, where advances in information technology have speed up the depth, width and speed of information reaching investors. In the next five years, investment management will go in the course of an analytical revolution, AI and investing will come mutually and revolutionize the mode that investment information is analyzed, packaged and presented to investors. This will change the face of investment management, with professional investors able to make informed investment decisions faster and will for the first time give private investors access to the same advanced stock selection and portfolio construction tools as the professionals. In investment AI helps analyses by scoring the basic factors that affect the price such as valuation, growth, quality, sentiment and risks. The Artificial Intelligence can now carry a whole new viewpoint to investment decision making. The power of AI is its ability to tirelessly look for, combine, and distil signals from masses of noisy data already available in the marketplace. By bringing out 'interesting' imminent, whether to substantiate or enhance a suspected salient point or by identifying one that might have been overlooked otherwise, AI is the humble 'idiot-savant' that can usefully take on the tedious data-intensive work that humans are not best suited for. By deploying AI to analyze investment information, the investor can perform advanced stock screening, instantly identifying and triaging the handful of stock opportunities within global markets that both fit one's investment preference and carry a higher than average chance of outperforming in the future. This can happen instantly, drawing from sources ranging from financial information providers (e.g. Reuters), to official filings (e.g. the SEC's Edgar database), to big data aggregators (e.g. Google), to personal data (e.g. record of past trade decisions). The AI analytical revolution has the potential to open up direct investing to a whole new audience, both young and old, who are able to take control with confidence and put together their own investment portfolios with a much superior understanding of risk and return, simply through their Smartphone. Going forward the AI for Investments will move more closely to an Augmented Intelligence, harnessing the power of AI combined with human decision making. As Paul Tudor Jones famously said, "No human is better than a machine, but no machine is better than a human with a machine".

KeyWords: Artificial Intelligence, Investment Management, Portfolio Management, Decision Making

NCCI202309: SWARM INTELLIGENCE AND ITS APPLICATIONS: A SYSTEMATIC REVIEW

Dr. Kalai Vani YS

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ABSTRACT

Swarm Intelligence(SI) algorithms are a subfield of the Artificial Intelligence(AI) which is resolving the problems in optimization efficiently and widely used in many applications. In the recent years, many swarm Intelligence algorithms have been developed and the researchers are eager to develop applications based on this. Swarm Optimization Algorithms includes Ant Colony Algorithm(ACO), Artificial Bee Colony Algorithm(ABC), Particle Swarm Optimization(PSO), Dragon Fly Algorithm(DFA) etc., This type of system has been in various domains that makes swarm intelligence as a multidisciplinary character. Due to its popularity, various researchers have started working on it even in computing tasks also. This review tries to focus on the important functions and strengths of different Swarm Optimization algorithms and some metaheuristics based Swarm Intelligence. This review provides the information about the successful application of Swarm Optimization in engineering field and other fields also. This review concludes the opinions and perceptive on the trends and prospects in the relatively new research domain are represent to support future developments.

Keywords: Swarm Intelligence, Particle Swarm Intelligence, Optimization, Metaheuristics, Ant Colony Algorithm, Artificial Bee Colony Algorithm

NCCI202310: AN IMAGE ANALYSIS-BASED DEEP LEARNING FRAMEWORK FOR DERMATOLOGY DISORDER CLASSIFICATION AND DETECTION

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ABSTRACT

Dermatology and subsurface disorders are often the sixth most common source of treatable disease problems in the general population, affecting 20–60% of people and affecting people of all ages. The goal of this paper is to offer an autonomous method for classifying skin lesions that has a higher classification rate using the transfer learning theory and a deep neural network that has already been trained. The deep learning model of the Visual Geometry Group Net-16 (VGGNet-16) Architecture and the convolutional neural network architecture, which alters its performance with few changes when the investigated, were used in this study to evaluate a leading technology for categorizing skin diseases. The proposed model utilized in this study accomplished with more than 93.01% accuracy and was based on the HAM10000 dataset, which contains 10,015 photos from the ISIC repository. The system used deep learning to create a pre-trained VGGNet-16 convolutional neural network to classify diseases using different input skin image conditions. In order to boost the classification of skin diseases in process, an automatic approach has been applied for this performance of classification task applying a deep learning model.

Keywords : Skin lesion, Classification, transfer learning, convolutional neural network, VGGNet

NCCI202311: A STUDY TO ASSESS THE LEVEL OF SELF ESTEEM AND STRESS LEVELS AMONG STUDENTS OF HIGHER SECONDARY INSTITUTIONS IN BANGALORE URBAN

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ABSTRACT

College is the turning point in a person's life and plays a vital role in shaping the future of young adults. The exposure and impact the undergraduate colleges have on these young adult's shape and prepare them for their future endeavors. Managing stress is one of the concerning issues that currently exists among undergraduate students. A plethora of colleges throughout India have adopted various stress coping mechanisms and activities that help in enhancing one's personality and for boosting their self-esteem levels. Academic stress might be one of the most dominant causes of stress among college students. Usually there is an increasing trend of stress over the course of a semester in college and it is noticed that students are stressed the most during the last few weeks of a semester when they are in a hurry to meet deadlines and prepare themselves for the end semester examinations. This study aims at analyzing the stress and self-esteem levels among students post the deadly pandemic. A descriptive study was conducted to assess the level of self-esteem and stress levels among students of higher secondary institutions in Bangalore urban. The data was collected through demographic variables, strength and difficulty questionnaire, Rosenberg self-esteem scale, and perceived stress test and analyzed through descriptive and inferential statistics.

Keywords : *Self- esteem, Stress levels, Students, Higher Secondary Institutions, young adults*

NCCI202312: CYBERNETIC COMPANION USING MACHINE LEARNING IMPLEMENTED THROUGH PYTHON

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ABSTRACT

In this tech era, our everyday lives are becoming more stressful. Human beings being a social animal, it is very important for us to have a support system at our disposal. In our virtual companion, we make sure we achieve the same thing, without even having someone with us in person. The method of recognizing human speech by computer and creating an event in a well-written sequence structure is known as speech recognition. Due to the usage of Natural Language Processing (NLP) techniques, operations based on voice recognition are currently entering a hugely popular phase. This paper proposes a virtual companion, which communicates with us, be with us to give us counsel, and make necessary actions (inform the concerned) during an emergency. We have focussed on the students of age group 18-24, that is the college students who undergo a lot of stress and loneliness. The proposed system communicates with the user, stores the data that we speak to for future reference, and analyses the frequency range of the user, along with the word meaning to produce a suitable reply. We utilise the SVM (Support Vector Machine) classification Technique for the machine learning, and Mel-Frequency Cepstral Coefficients (MFCC) for calculating the mfccs of a signal and implemented using Python libraries. Our service will be linked to the World Wide Web for to provide more accurate and timely replies. Rather than being a mere assistant, the main objective of our virtual companion will be to be there for the individuals in time of need.

Keywords: Natural Language Processing, Support Vector Machine, MFCC, virtual companion, Python

NCCI202313: ANALYSIS OF THE SIGNIFICANCE OF MACHINE LEARNING TECHNIQUES IN NETWORK SECURITY

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ABSTRACT

As the information in the world becomes more interlinked, network security vulnerabilities arise from data sharing. As a result, numerous studies have begun to investigate network security issues as well as the protection of individuals' personal information as they work and communicate with each other. We explore several network security risks as well as a number of Machine Learning and Deep Learning strategies that can be used to develop secure environments. Because there are countless ways to improve network security, we discuss the significance of coming up with fresh ideas for providing high protection for data as well as resources. This research work focuses on the advancements, issues, Machine Learning and Deep Learning methods used for network security management. With an emphasis on their performance requirements in the context of security, supervised, semi-supervised, and unsupervised learning algorithms that can help to automate network security management are discussed. We provide a brief overview of attacks and an application-focused analysis of their datasets.

Keywords : Deep Learning, Network Security, Supervised learning, Semi-supervised learning, Unsupervised learning

NCCI202314: A COMPARATIVE STUDY ON SPEECH TO IMAGE TRANSLATION WITH DIFFERENT GENERATIVE ADVERSARIAL NETWORKS

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ABSTRACT

Audio to image translation getting wide acceptance in the modern era owing to its application in human computer interactions, synthesizing faces or objects from audio, art design etc. Since audio and image in different modalities, it is challenging to acquire pixel values directly from audio signals. Therefore, audio to image translation deals with mainly two components, the first of which includes of creation of speech embedding and the continuation converts this speech embedding to image. The principal contribution of this work lies in comparative study of different strategies adopted to translate audio to image with Generative Adversarial Network (GAN) . This study shall help researchers to understand the image extraction from audio with different GAN architectures.

Keywords: Audio to image translation, audio embedding, Generative Adversarial Network, cross modal generation

NCCI202315: CLASSIFICATION OF STAGES OF PLASMODIUM FALCIPARUM USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Malaria is a pyretic illness caused by a single-celled parasite of the genus plasmodium. These Parasites are transmitted to humans through the bites of infected female mosquitos. Severity of malaria differs based on the species of Plasmodium. Incipiently malaria may cause slight fever, headache but can also lead to death. Early detection of the type of Plasmodium can help in providing efficient treatment and reducing death rate. Pathology is a branch of medicine that deals with laboratory examination of samples of body tissue. Traditionally Pathologists diagnose malaria by manually examining blood seamer for Parasite infected red-blood cell using microscope and provide medication to the patients. For the classification of the stages of P. Falciparum, images of Plasmodium Falciparum are acquired. These cell images are the primary data source for classification. The images in its actual form may not provide the required features for the purpose of classification. Therefore, to apply machine learning algorithms, various relevant attributes are extracted from the cell images to understand the features of Plasmodium Falciparum. This research work focuses on identifying different stages of Plasmodium Falciparum using various machine learning model to produce higher accuracy. Machine learning algorithms namely K-Nearest Neighbor (KNN), Decision Tree (DT), Random Forest (RF) are implemented to predict the model with higher accuracy. A comparative analysis is performed to discover the model with best accuracy.

Keywords : P. Falciparum, Parasites, K-Nearest Neighbor, Decision Tree, Random Forest

NCCI202316: ELECTRIC FIELD MAPPING OF ANY GIVEN CHARGE DISTRIBUTION USING PYTHON

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ABSTRACT

In this article, we present a Web Application that maps out the electric vector field of any given 1-D distribution using python. The motivation behind this particular project was the drawbacks in conventional methods of electric field mapping which use manual methods that result in unwanted errors. In this project we chose Python as our preferred programming language for its simplicity and wide ranging versatility. The packages that were used in developing this application were numpy, pycharge, and plotly. PyCharge is an open-source Python simulator for computational electrodynamics that can auto simulate dipoles modelled as Lorentz oscillators and calculate the electromagnetic fields and potentials produced by moving point charges. Using this package we create a stationary charge with x, y and z coordinates and a value of charge as its inputs. The Point charges that are subclasses of the Charge base class and have predetermined trajectories are calculated by the Simulation class as electromagnetic fields and potentials. The computed electric field magnitude is stored in an array. A mesh grid is deployed to which the magnitudes stored in the array is fed into. This mesh grid is then used to plot an interactive 3-d plot using plotly, a plotting library. The vectors in the plot are represented using cones and their directions denote the vector's direction as well. And for representing the magnitude of vectors, a color scale is used, hence the color of the cones change with respect to their magnitude. Hovering the cursor above the vectors will display the x, y and z coordinates of the individual vectors. Finally, the end result is a vivid interactive 3-D plot of the electric vector field of the given 1-D distribution. The plot can be viewed from any angle, and is downloadable as a png.

Keywords: Electric field, Python, Numpy, Scipy, Sympy, Lambdify, Quad, Mesh grid and Plotly

NCCI202317: A REVIEW ON VARIOUS MACHINE LEARNING ALGORITHMS FOR LUNG SOUND SEPARATION

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ABSTRACT

The medical field is rapidly increasing with technology and the smart devices from IOT (internet of Things) has been influencing the devices used by medical practitioners. The devices such as blood pressure monitor, glucometer, ketones testing kits, fertility kits etc., have all been made smart by combining the software with Machine learning (ML) and Artificial Intelligence (AI). The next step for smart devices in medical field is the stethoscope. The smart stethoscope has many functions which are recording the sounds of the cardiovascular region, processing the sound for noise, analyzing the sound for abnormalities or checkups based on the way the stethoscope is designed, optimal position for stethoscope to record maximum sounds of heart or lungs. The major hindrance in this development is that the sound captured through the stethoscope is a mixture of sounds such as abdominal sounds, digestion sounds, and burp sounds, bowel sounds, valve sounds etc., which mask the actual sound that needs to be recognized. This paper will review the various techniques to separate the lung and heart sounds which can be then used for analysis.

Keywords : Heart, Lung, Mel frequency, non-negative matrix factorization (NMF), Sound source separation, Short-term spectra, Adaptive algorithm, blind source separation

**NCCI202318: EVALUATE AND EMBRACE THE OPPORTUNITIES TO
HAVE THE BEST EDUCATION PLATFORM IN FUTURE FOR
DEVELOPING AND LEAST DEVELOPED NATIONS BY UTILIZING
E-LEARNING AND M-LEARNING**

Dr. Sheik Kamaludeen .Z

ABSTRACT

Today, the whole world is turning to be highly mobile, especially with the advancement in the technologies, subsequently the digital literacy has turned out to be essential, as it requires adapting to the swiftly transforming changes in the technology. The world has witnessed the development of mobile technologies and its increased demand has led to its adoption in various sectors, which on the global scale is increasing rapidly. And, M-learning (Mobile-learning) is an extended version of E-learning (Electronic-learning), which is an emerging concept that the educationists are exploring with the assistance of mobile technologies in order to help the environments of teaching and learning. Subsequently, the opportunities of e-learning and m-learning for the students in the developing countries are researched in this study. Providing this explanation in the paper helps the readers to understand the underlying difference between the e-learning and m-learning, including the challenges of E-learning that introduced the M-learning as a solution. Respectively, various aspects of challenges faced by E-learning are discussed. In education, there are several mobile technology-based applications, which can help the learners communicate with the peers and lecturers. However, its success completely relies on the technological development that take place and the offered opportunities. The findings show that it is essential for the educationists to design and develop comprehensive m-learning opportunities and environments to improve the students' learning in the developing countries. Thus, it is crucial to understand the contemporary learning theory, and identify the mobile technology-based applications that help to optimize the teaching and learning. Finally, the required skills of the teachers/trainers to manage e-learning or machine learning, and what skills the students need to adapt from e-learning or machine learning will be determined.

Keywords : e-learning, m-learning, Developing countries, Framework

NCCI202319: A COMPREHENSIVE STUDY ON CYBER SECURITY AND ITS TRENDS

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ABSTRACT

Cybersecurity is the practice of protecting our systems, networks, and programmes from cyber attackers and it aims to access, alter, or destroy sensitive information that affects normal processes. Cybersecurity specialists are constantly searching for new, cutting-edge strategies, where the various methods that cybercriminals can use to attack. According to the Cyber Security & Infrastructure Security Agency (CISA), “Cyber security is the art of protecting networks, devices and data from unauthorized access or criminal use and the practice of ensuring confidentiality, integrity and availability of information”. Cybersecurity protects against theft and loss of all forms of data, including sensitive data, protected health information (PHI), personally identifiable information (PII), intellectual property, personal information, data, and systems used by governments and businesses hence it is essential. One of the most important aspects of cybersecurity is End-user Protection. All software and hardware used by end users must be scanned at regular intervals as there can be malicious threats. The attackers do not fall behind as a result of the advancement of new cyber security systems. They use improved hacking methods and target the weaknesses of numerous companies worldwide. Aside from other things, many people are still very concerned about cyber security. At present cyber security faces, many challenges and this study focuses on user security for the most recent technologies that encountered difficulties.

Keywords : Cyber Security, Cyber Attacks, Defects, Technologies, Hacking

NCCI202320: HUMAN EMOTION DETECTION THROUGH FACE, SPEECH AND TEXT USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Emotion is an inherent and natural feeling that is very well differentiated from rational and intelligent. Emotions strongly depends on the circumstances and situations. It can be recognized from the facial features and expressions, words and speech articulated by an individual or through text that a person share via social media, personal messages etc. Emotion detection techniques extracts the captured information and examines the data to recognise the emotions. This research paper proposes a combined system that recognises emotions (i) from facial expression observed from a live video or recorded images, (ii) from speech modulation extraction (iii) from text mining using Natural Language processing classification algorithms. MFCC technique has been applied to extract the signals from the audio signals and Support vector is used as classifier for both image and speech detections. Emotion detection from the combination of image-video, speech and text can be applied in crucial and sensible domains like analysing the psychology of convicts, patients who needs intensive care and persons in stress. This proposed system is implemented using python OpenCV libraries and Text2Emotion package.

Keywords: MFCC, Support Vector Machine, OpenCv, Text2Emotion, Natural Language Processing

NCCI202321:PERSON IDENTIFICATION: A REVIEW ON SOFT BIOMETRICS

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ABSTRACT

Due to security concerns the focal point has shifted to multi-biometrics. The necessity to link a person's identity to their physical characteristics or behavioural patterns falls under the purview of the discipline of biometrics study. The adjuvant information extracted from primary biometric ideology such as facial measurements, gender, skin colour, ethnicity, and height are comprehended in soft biometrics and can be unified to improve the speed and global system performance of a primary biometric system thereby generating human semantic interpretation of a person and limiting the search in the whole dataset when using gender and ethnicity. This paper aims to fortify the scope of soft biometrics research across four categories (i) the research data sets and their annotation strategies (ii) the metrics assessment and (iii) a comparative analysis on feature and modality level fusion. This work depicts the holistic review on soft biometrics that presents the major works on facial soft biometrics and emphasizes the various extraction and classification techniques with their purpose.

Keywords : Soft biometrics, Facial, Ethnicity, Feature extraction, Classification

NCCI202322: IOT BASED INTELLIGENT PARKING SYSTEM USING MACHINE LEARNING IMPLEMENTED PYTHON

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ABSTRACT

In the era of this 21st century the idea of smart cities has reverberated and peaked interests of many economists. The advancements in the field of technology mainly in IOT (Internet of Things) has made the idea of a smart city more feasible. Still the field is under constant development and new evolutions are being made consistently. Almost all metropolitan cities face a common issue of congestion, traffic and limited space for parking of vehicles. According to recent analysis the amount of vehicle on the roads of Bangalore have increased from 41.56 lakhs in 2011-12 to 100,44,491 in November 2021 and increasing rapidly, so the amount of congestion and traffic is only going towards an uphill curve. The IOT Based Intelligent Parking System uses the existing CCTV cameras dotted around parking spaces. The proposed system uses them as IOT devices to identify the available parking slots. Python machine learning and Amazon Web Services (AWS) for cloud analytics are used to create the user interface. The proposed system guides the vehicle users towards the appropriate parking spaces according to the type of vehicle (2-wheelers/4-wheelers/differently abled). This system is expected to mitigate the traffic congestion problems in a big metro city like Bangalore.

Keywords: CCTV, machine learning, Amazon Web Services, Internet of Things, Python

NCCI202323: IMPACT OF SEARCH ENGINE OPTIMIZATION IN MANIPULATING THE SEARCH RESULTS ON HIGHER EDUCATION SECTOR IN BANGALORE

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ABSTRACT

The most significant website today is a search engine since that is how the audience discovers them when the search is done. Being among the top search results is the key to marketing success in the modern era. Higher education's use of digital marketing had a significant impact on both marketing and education in general. Many academic institutions all around the world are utilizing digital marketing technology to advertise with their intended audience and enhance the brand reachability. Digital marketing strategies provide desired results to increase the search visibility in the first page of the search results irrespective of the search engines. Consequently, it is crucial to use digital marketing in the education industry. The objective of any website is to appear at the top of the search results. The process of increasing a website's exposure on the first page of search engine results is known as search engine optimization (SEO). The largest obstacles in higher education marketing are optimizing search engine optimization (SEO) and search engine marketing (SEM) efforts.

Using the methods and technologies on the market, it is important to improve a website's visibility in the main section of search engine results. The purpose of this research paper is to evaluate how SEO affects in manipulating the search results on the higher education sector in Bangalore.

Keywords: *Digital marketing, Higher Education sector, Search Engine Optimisation (SEO), Online advertising, Search Engine Marketing (SEM)*

NCCI202324: A COMPARATIVE STUDY ON MEDICAL IMAGE DENOISING METHODS

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ABSTRACT

The need for more accurate and aesthetically pleasing photos is growing as a result of the rise in the amount of digital images being taken every day. However, noise always degrades the photos taken by modern cameras, resulting in a decline in the visual image quality. As a result, efforts are needed to minimize noise without sacrificing image qualities (edges, corners, and other sharp structures). Numerous strategies for reducing noise have been suggested by researchers so far. Each technique has pros and cons of its own. Image denoising is the process of taking away noise from an image so that the original image can be seen. Denoised photos may inevitably lose some detail since noise, edge, and texture are high frequency components that are difficult to differentiate throughout the denoising process. In general, it is a significant issue today to recover critical information from noisy photos during the noise removal process in order to produce good quality images. Image denoising is a well-known issue that has been researched for a very long time. It is still a difficult and open task. This is mostly due to the fact that image denoising is an inverse problem with several solutions from a mathematical point of view. We review some significant studies in the area of image denoising in this paper. We first describe the formulation of the image denoising problem before introducing various image denoising methods. We also talk about the features of these methods. As a part of the study, we analyze the methods which can be adopted for medical image denoising.

Keywords: Wavelet transform, Curve let transform, Fast Non Local Mean Filter, Convolution Auto Encoder, Convolution Neural Network

NCCI202325: WEB-PAGE SUMMARIZATION AND PARAPHRASE GENERATION USING NEURAL NETWORK BASED TRANSFORMER MODEL

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ABSTRACT

Text summarization and paraphrasing of contents in an URL is a Natural Language Processing (NLP) task that has success with the Neural Network based Transformer model. The soaring accumulation of unstructured online text data, text summarization and paraphrasing has found many applications in various domains. In this paper, we wish to provide a tool for Research students and procrastinating examinees of colleges to understand their online work material link completely just by reading the generated summary and paraphrases so that the reader can save time and decide whether to go through the entire document. Research interest growth in developing better summarization models, more human like summarizations, more processed and refined datasets have offered to test and evaluate the models to improve existing NLP model performances. This paper provides a simpler way of Paraphrasing and summarizing the online articles and materials using T5 Transformer model and analyses its performance on datasets. The proposed model has compared the resultant output with regards to ROUGE scores to determine the proficiency of the model.

Keywords: Natural Language Processing, Paraphrasing, Text Summarizing, Transformer Model

NCCI202326: A REVIEW ON FEDERATED LEARNING TECHNIQUES

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ABSTRACT

The work focuses on Federated learning technique on Machine Learning and deep learning models for attaining finer models which are trained using multiple data sources providing a better exposure to various realms of data. Review on this topic tries to establish the importance of learning with various datasets available, both public and private, to improvise the models collaboratively. Though, publicly available datasets provides a platform on which models could be trained, their number is often limited. The main reason why business firms don't share their customer details, hospitals don't share their patient details and other data sources are reluctant to share their private data is the concern for data protection. Sharing of data outside the organization may cause the violation of Data protection Act and causes breach in Data security. Federated learning, comes as a solution to this problem. In this technique, data is not shared or transferred outside the organization, but are used to train the models, for the enhancement of its performance. Global Model is updated after training with each private dataset locally, and thus collaborative learning is made possible, which eventually increases the performance of the model. Various federated learning algorithms such as Federated Learning Aggregate Methods which includes Federated Stochastic Gradient Descent and Federated Averaging, and their performance, comparison are also done in this paper which can give more insights to this technique.

Keywords : Training, FedAvg, FedSGD, Federated Learning, Federated Averaging

NCCI202327:RESEARCH ETHICS: VIOLATION OF COMPENDIUM OF FACTS USING PARAPHRASING SOFTWARE

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ABSTRACT

In the current scenario, Academia is undergoing so many ramifications owing to certain unethical practices, and the saddest truth is that people are consciously indulging in wicked things. Data Mining is a concept which collects data from various sources and compiles it in a single file as a source repository. Research in contemporary times is undergoing different multitudes, and also at the same time, they question the veracity of truths and make the unknown known. Data Mining as a concept provides scope for all positive aspects, whereas few people in academia misuse and misconceptualize data mining in a pessimistic way. Plagiarism is a curse in the academic circle, and people are finding so many loopholes to get rid of Plagiarism. The saddest truth is that there are specific parameters to be followed in research, whereas people use Paraphrasing Software to eliminate Plagiarism. This paper stresses the Academic theft made by people using paraphrasing software, and the supreme irony is that a renowned plagiarism software fails to detect it. Overall, this paper showcases the mechanisms of Paraphrasing Software and how they tend to overcome the renowned plagiarism software.

Keywords: Research, Multitudes, Misconceptualize, Paraphrasing Software, Plagiarism Software.

NCCI202328:A STUDY ON STRESS LEVEL AMONG ADOLESCENTS USING MACHINE LEARNING ALGORITHMS

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ABSTRACT

Stress is a condition of mental pressure for individual facing problems from environmental and social well-being which leads to so many diseases. Young age is the critical period because currently youth faces lots of changes in his/her life. They are expected to be the elites in the society. Thus, they should enhance their stress management abilities to live a healthy life after entering the society. When a child enters the youth age, they need to not only adapt themselves to the new life and new environment but also be familiar with many new people, events, and things. The life stress on them is considerable. Therefore, understanding the sources of stress among them and how they can cope with the stress is very important. The researcher found that the stress mainly comes from academic tests, interpersonal relations, relationship problems, life changes, and career exploration. Such stress may usually cause psychological, physical, and behavioural problems. This empirical study finds the causes of stress among adolescent, analysing it using different machine learning algorithms and to evaluate the performance of different algorithms implemented.

Keywords : Adolescent, Stress, Machine Learning algorithms

NCCI202329: A STUDY ON SOCIAL ENGINEERING ATTACKS IN CYBER SECURITY WITH SOLUTIONS

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ABSTRACT

In this world of digitalization, the necessity for data confidentiality and data security is quite important. The social engineering attacks posed a serious cyber security threat to cyberspace. Technically, social engineering is the art of exploiting weaknesses in human nature to achieve an evil objective. The art of collecting sensitive information from a human being is known as Social Engineering. Technology has increased significantly in the past few years but the risk of Social engineering is quiet a problem. Social engineering attacks are increasing day by day due to lack of awareness and knowledge. Social engineering is an actually common practice to gather information and sensitive data through the use of mobile numbers, emails, SMS or direct approach. Security is just like a coin in this world which has two sides. From inside we feel safe, comfortable and time saving things. On the other side, there are people trying to find weakness in the system to access some data to misuse. To understand any kind of security completely, we need to understand others mentality. Social engineering is not only used by hackers but it is also used in day-to-day life, whether it is a politician or a salesman or a kid, everyone uses social engineering in daily life. In this paper, a detailed literature survey is conducted, the original meaning of social engineering in cyber security is outlined, the conceptual development and technical development are analyzed systematically, and the conceptual problems are discussed. Finally the paper explained the ways to protect you from Social Engineering Attacks.

Key Words : Social Engineering, Hacking, Security Threat, Phishing

NCCI202330:ADAS - PEDESTRIAN DETECTION AND EMERGENCY BREAKING ASSISTANCE USING MACHINE LEARNING

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ABSTRACT

Advanced Driver Assistance System (ADAS) - Pedestrian detection and Emergency breaking to reduce accidents. The safety of the Driver/passengers is one of the most important aspects while buying a car and safety is connected to technology in the current generation. The earlier day's safety features were mostly passive like seatbelts, airbags which further evolved into ABS (Anti-lock Brake System) and ESC (Electronic Stability Control) the current trend, or the latest in the technology is the ADAS technology which has active features and far most superior, it can control the vehicle in the event of an accident to lower the impact with least human intervention. The main objective of ADAS is to sense the incoming risk early and avoid accidents from occurring altogether. To Significantly reduce accidents and fatalities, this research evolved a new pedestrian detection system through the application of a visual camera, infrared camera, and radar sensors combined with machine learning to design the alert system concept to achieve a high level of accuracy in pedestrian detection and avoidance during both the day and at night to avoid potentially fatal accidents involving pedestrians crossing a street. A new working model of pedestrian detection and collision avoidance systems can be fitted to today's self-driving cars to support automatic braking systems (ABS). Visible cameras are used to detect pedestrians during the day, while infrared cameras primarily detect pedestrians at night. Radar sensors are also used to detect the presence of pedestrians and calculate their range and direction of movement relative to the vehicle. Using data fusion and deep learning, the ability to quickly analyse and identify the presence of pedestrians at any time in a real-time surveillance system is realized.

Keywords: ADAS, Pedestrian detection, safety, Visible camera, infrared camera, Radar sensor

NCCI202331:MEASURES THE DRINKING WATER QUALITY SERVICE USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Water is used in multiple actions such as ingesting, cultivation, and travel, all of which have an impression on water quality. Actually water is now polluted by a diversity of industries, possessions, and analysis of the water is the most important thing for globalization. Water is the most essential nutrients which plays an important role in day to day life. Every person does not get proper quality of water even our government and private sectors providing water. The main objective of this work is to measure the Water quality by several factors such as collecting real time data from people, type of water used in household, sufficient of water and so on. Difficult to identify the quality of water, so in this work focused to reveals every household get quality of water and sufficient water by collecting real data. statistical analysis used to identify the quality measure in water and range of people getting sufficient government water service which is identified by machine learning techniques using regression algorithms. Data collected from 150 homes and its reveal the water service quality and frequency of water usage. This paper analysed the public response and examine every home getting proper and sufficient water. This analysis used to motivate the people to preserve the rainwater and get the quality water service.

Keywords: Water quality, water purity, Machine learning, Statistics and Linear Regression.

NCCI202332: LULU SMOOTHENED OKAMOTO–UCHIYAMA CRYPTOSYSTEM FOR SECURED MEDICAL CHEST IMAGE TRANSMISSION

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ABSTRACT

Medical images play an essential part in the medicine field for patient diagnosis at an earlier stage. Hospitals use a large amount of digital medical images for different diagnostic plans. Many researchers introduced different approaches like encryption and visual cryptography to preserve the images against unauthorized access. Image encryption is an efficient technique used for protecting private images during communication. Except, no improvement and no reduced time complexity by existing cryptographic methods on the peak signal-to-noise ratio (PSNR). To address these problems, Lulu Okamoto–Uchiyama Cryptographic Secured Medical Image Transmission (LOUCSMIT) Method is introduced. LOUCSMIT Method comprised three steps, namely pre-processing, encryption, and decryption for performing secured image transmission. Lulu smoothed filter helps medical images denoising. For medical image encryption, Okamoto-Uchiyama Cryptosystem is used. On the sender's side, the encryption process is performed. When the encryption process is performed, input medical images convert the images into unreadable form. The medical image is transmitted to the communication channel. Finally, the decryption is performed to increase the data confidentiality rate. Experimental evaluation is carried out using Chest X-ray medical images considering different factors like PSNR, time to encrypt, and data confidentiality rate (DCR). The discussed results are the evidence for mentioning LOUCSMIT Method high efficiency with respect to attaining the higher PSNR and DCR with lesser encryption time.

Keywords: Encryption, decryption, data confidentiality, Okamoto–Uchiyama Cryptosystem, Lulu smoothed filter

NCCI202333: AN EXPLORATORY STUDY ON HYBRID ALGORITHMS USED FOR SECURE DATA TRANSMISSION

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ABSTRACT

During last few decades, digital communication plays a vital role for various sectors such as healthcare departments, banking sectors, information technology companies, industries and several other fields. Nowadays, all data are transmitted over internet, which needs high protection for transmitting the original data from source to destination. Because there are countless ways to improve network security, we discuss the significance of coming up with hybrid approaches for providing high protection of data as well as resources. In order to secure digital communication, cryptography and steganography methods are used to achieve data security over insecure and the open networks like internet. We also explore various Machine Learning and Deep Learning strategies that can be used to develop secure environments. Cryptography is the method to encrypt the secret information in an unreadable structure. On the other hand, steganography is the technique to cover the secret data such as audio, image, text, and video. It can hide the message while transmitting the original information from one end to other end. Machine Learning and Deep Learning are widely used now a days and they are used a solution to different attacks in network. In this paper, it gives an analysis based on the concept of Cryptography, Steganography, Machine Learning and Deep Learning. It also presents several data hiding approaches and its merits and demerits.

Keywords: Security, Cryptography, Steganography, Data hiding, Machine Learning, Deep Learning

NCCI202334: THE BLOCK CHAIN TO ENHANCE THE PRIVACY AND SECURITY IN IOT BASED TRAFFIC MANAGEMENT SYSTEM

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ABSTRACT

The importance of understanding the disciplines that have been, and will be, fundamentally impacted by blockchain technology is shown by the fact that it continues to grow and expand into new industries with remarkable success. Blockchain technology, in particular, has shown to be more useful in the sector of transportation systems. The Internet of Things (IoT) presents a number of critical issues, including privacy and security in traffic system. The IoT difficulties include improper device upgrades, a lack of efficient and effective security mechanisms, user unawareness, and well-known active device monitoring. In this paper researcher explained about the blockchain which is used to enhance the privacy and security of traffic management with the help of IoT devices. As a result of this paper awareness and debate of blockchain technology's existing and prospective future capabilities, developments may be made to provide answers to challenges that are now present in autonomous car systems. This paper focuses on block chain's possible use in future transportation systems that will be combined with linked and autonomous automobiles.

keywords: Blockchain, IoT, Privacy, Security, Traffic

NCCI202335: IOT BASED INTELLIGENT AGRICULTURE FIELD MONITORING SYSTEM

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ABSTRACT

Agriculture is becoming an important growth sector globally due to population growth. The greatest challenge in the agricultural sector is to improve agricultural productivity and agricultural quality without continuous manual monitoring to meet rapidly growing food demand. Apart from population growth, climate change is also a major issue in agriculture. The purpose of this research paper is to propose smart farming methods based on the Internet of Things (IoT) to deal with adverse situations. Adopt smart farming, featuring highly accurate crop management, useful data collection, and automated farming technology. This work demonstrates an intelligent field monitoring system for agriculture that monitors soil moisture and temperature. After processing the collected data, it takes necessary actions based on these values without human intervention. Here, soil temperature and humidity are measured, and these recorded values are stored in the cloud ThingSpeak for future data analysis.

Keywords : Internet of Things, Smart Farming, Agriculture, Thing Speak cloud

Design and Development of Stacked Dielectric Resonator Antenna

NCCI202336: UWB APPLICATIONS

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ABSTRACT

In this paper, the design and development of stacked Silicon DRA for UWB application is presented which covers the band of frequency from 4.1GHz to 9.8GHz having a total bandwidth of 5.7GHz. The designed antenna is optimized to a rectangular shape of dimension (L1XW1) with the defected partial ground plane of dimension (L4xW1) by cutting a vertical shaped slot of dimension (L0XW0). The antenna is designed by using the low cost FR4 substrate of dielectric constant of (ϵ_r) 4.4 and a loss tangent ($\tan \delta$) of 0.02 and the thickness (h) of 0.0128λ . The Silicon as a DR element (to be stacked) of dielectric constant (ϵ_r) 11.9 and loss tangent ($\tan \delta$) of 0.005 of dimension (L2XW2XH) is stacked properly on the inset 50 Ω micro strip feed line. Furthermore, the antenna is designed and analysed for different parameters such as return loss, VSWR, Gain and radiation patterns. The stacked DRA is developed to produce UWB frequencies for the UWB applications.

Key Words: DRA, stacked, wavelength (λ) and ultra-wideband (UWB).

NCCI202337: STUDY ON VARIOUS NOISE REMOVAL TECHNIQUES FOR MALAYALAM PALM LEAF CHARACTER RECOGNITION

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ABSTRACT

In the field of pattern recognition, handwritten character recognition is an emerging area of research. Extraction of Malayalam characters from palm leaf manuscript is very complicated compared to other languages because of its cursive nature. The task of recognition of characters goes through different stages like acquisition of the image, reprocessing the image, noise removal from the manuscript, segmentation of characters training and testing the model. As a pre work of our research in Malayalam palm leaf character recognition, we experimented various noise removal methods in Malayalam palm leaf manuscripts. The objective of this paper is to present the various existing noise removal methods used for Malayalam palm leaf character recognition and to present the results of various noise removal methods on Malayalam palm leaf images.

Keywords: Character recognition, Pre-processing, Noise removal

NCCI202338: WORLD CHAMPIONSHIP (CRICKET) OUTCOMES PREDICTION USING SENTIMENT ANALYSIS OF TWITTER DATA

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ABSTRACT

The relationship between social media output and any game, using a dataset containing tweets from Twitter and game statistics. Specifically, consider tweets pertaining to specific teams and games and use them alongside statistical game data to build predictive models of future game outcomes (which team will win?). Experiment with several features sets using large volumes of tweets and will try to match or exceed the performance of more traditional features that use game statistics. Research motivation is to generate a system that can harness the wisdom of crowds using the sentiment information from Twitter to make match predictions. Twitter provides us with APIs for developers to engage with the Twitter platform. The biggest advantage in this is the Large Scale Machine Learning on twitter data. Use this Twitter API as a platform to extract tweets that can be used to predict cricket match outcomes. The extracted tweets are cleaned and structured. Sentiment analysis is performed on these tweets by implementing linear regression and Random forest algorithm. Our main objective is to create a predictive model which also considers the odds-on favourite, players' and teams' current form to predict the outcome more efficiently. Taking all of these into consideration, we implement Text Mining, Sentiment Analysis and Machine Learning to predict the win-draw-loss ratio of the teams and represent it graphically in the form of a pie chart. In most of the people use to express their feelings, thoughts, suggestions and opinion via blog posts, status update, website, forums and online discussion groups etc. Due to facilities a large volume of data is found to be generated every day. Especially when sports like cricket are played, then many discussions are made on social media like Twitter and respective forums using their restricted words. The opinion expressed by huge population may be in a different manner/different notations and they may comprise different polarity like positive, negative or both positivity and negativity regarding current trend. So, simply looking at each opinion and drawing a conclusion is very difficult and time consuming. Because the opinion/tweets collected from Twitter consists lot of unwanted information which burdens the process. Hence we need an intelligent system to retrieve tweets from Twitter, analysis systematically and draw an accurate result based on its positivity and negativity. Here predict the outcome (winning team and losing team) of cricket match prior to its commencement, based on the tweets shared by their fans using Twitter.

Keywords: Random forest algorithm, Machine Learning, Sentiment Analysis

NCCI202339: A COMPREHENSIVE STUDY OF MACHINE LEARNING AND DEEP LEARNING METHODS FOR CYBERSECURITY THREATS

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ABSTRACT

Smartphone innovation and its vast increase in everyday life have imposed severe security threats. With the recent advancement of the Internet, adversarial attacks are also increasing in fast phase. Data must be protected from being leaked or lost. Many Machine Learning (ML) and Deep Learning (DL) models are proposed for this purpose. Several models are designed for network security, like the convolutional neural network with Intrusion detection system, which categorizes network congestion packets into benign and malignant. Higher versions of this model were formed, such as Tree-CNN combined with Soft-Root-Sign (SRS) model and OCNN-HMLSTM (Hierarchical Multi-scale LSTM) for higher detection rate and accuracy. Also, AB-TRAP (Attack, Bonafide, Train, Realization, and Performance) is carried out to build invisibility shields to protect the network devices and to train the machine learning model for evaluating the performance. Autoencoder is implemented for detecting zero-day attacks. The execution of various constructions that are based on Recurrent Neural Network (RNN) is compared by estimating to detect domain generation algorithms that attackers use. Brute-Force Black-Box Method is multifunctional; it is used against ML-based systems, Incorporating host intrusion prevention systems and antimalware systems for Android devices, and IDS. This paper compares various techniques for detecting several cyber threats that expansively involve ML/DL.

Keywords: Deep learning, IDS, CICIDS 2017, Machine Learning

NCCI202340: USEFULNESS AND IMPLICATIONS OF BIG DATA IN ACADEMIC LIBRARIES: A LITERATURE REVIEW

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ABSTRACT

Rapid development and adoption of Information technology activities in all the industry have led to an information explosion in different forms. Digging and identifying hidden knowledge from the data is a big challenge and big data plays a pivotal role in this area. Big data has the solution to a number of important questions about the patterns, trends, and relationships of user behaviour. Academic Libraries are a reservoir of knowledge for the scholarly community through their data in various forms. The library catalogue, digital library, institutional repository and various online resources need to adopt big data technology to predict and act according to the user's need and to make it a vibrant environment for readers. The processing of information and data resources in the library is also undergoing various changes on a daily basis. Integrating these huge contents with big data allows more important valued information to be formed. This survey paper attempts to study research articles and discuss the various technologies, implications, analysing tools, best-suited algorithms and future direction of big data implications in the library.

Keywords : Big Data, Libraries, User Behaviour, Technologies

NCCI202341: CLASSIFICATION OF RAGA IN CARNATIC MUSIC COMPOSITIONS USING TRANSFER LEARNING

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ABSTRACT

Audio classification plays an important role in music information retrieval. Many researchers have proposed machine learning and deep learning models for audio classification and achieved better accuracy in their results. The main problem with machine learning model is that it require a large amount of data for training. Especially with deep neural network, huge amount of data is essential to feed it in to the network. But sometimes data repositories would not be available for our research problem or data may not be sufficient to train the neural network. We can overcome this problem by implementing transfer learning to our model. Transfer learning is a concept where a pre-trained model, which have been trained on a huge dataset would transfer the knowledge that it has learnt to solve a completely different task. One or more layers from an already trained model would be used to learn the features of the current problem and that information would be used in developing a new model for the current task. This paper aims at classifying raga of Carnatic music compositions by taking the advantage of transfer learning with custom input and dense layers fed in to the neural network. The paper also evaluates the performance of VGG 16, DenseNet 169 and Inception V3 models in classifying various ragas of Carnatic music compositions.

Keywords: *Machine Learning, Transfer Learning, Music Information Retrieval*

NCCI202342: UNDERSTANDING THE FUNDAMENTALS OF UNCERTAINTY IN NEURAL NETWORKS, CAUSES AND TYPES

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ABSTRACT

Neural Networks is a subclass of machine learning and is an essential part of deep learning algorithms. The concept of Neural Network(NN) and its functionality is influenced by the human brain and how the neurons in it communicate with each other to process a given input. The NN consists of multiple node layers, where each node represents an artificial neuron. The first layer is the input layer, followed by one or more layers of nodes and finally the output layer. Each node is associated with a particular weight and threshold value which determines the predicted output. Unfortunately, it is difficult to make predictions accurately, that is, the outputs are unstable and this is known as uncertainty. Uncertainty is the state of being unsure of something, which is an inevitable component of the real world. Uncertainty exists because of various reasons like missing information, unreliable data, noise and so on. To narrow down, there are two types of uncertainties: Epistemic and Aleatory. Epistemic uncertainty is one which arises due to limited data and knowledge. Epistemic uncertainty can be rectified by collecting more data samples for training the model. Aleatoric uncertainty on the other hand, arises due to naturally occurring vagueness in data, which cannot be reduced even when the amount of sample data increases. Aleatoric uncertainty can be measured as homoscedastic uncertainty, which does not vary from sample to sample. In contrast to homoscedastic uncertainty, heteroscedastic uncertainty is the uncertainty that varies from sample to sample. It is impractical to build a model which is unquestionably certain, but we can identify the source of uncertainty, quantify it and reduce it. As much as uncertainty is unfavourable for predicting accurate results, it helps us to identify overlooked scenarios which may turn out to be beneficial.

Keywords: *Neural network, Uncertainty, Bayes' theorem, Epistemic uncertainty, Aleatoric uncertainty.*

NCCI202343: A STUDY ON INTELLIGENT TRUSTWORTHY SYSTEM FOR CROWD-FUNDING

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ABSTRACT

Crowdfunding is a practice of supporting various government and NGOs fundraising campaigns, business ventures and startups by receiving funds from investors. The traditional methods of centralized crowdfunding platforms have a lot of shortcomings like lack of transparency, fraud campaigns, delay in raising funds and investments in projects with low success rate. Blockchain technology can overcome the shortcomings of traditional crowdfunding methods by creating a decentralized network. Blockchain is a distributed unchangeable ledger which is completely transparent and decentralized. Machine learning concepts can be employed in determining the success rate of a crowdfunding campaign. This paper presents a study on blockchain technology and the related cryptocurrencies like Ethereum and Bitcoin. The paper also covers study on Ethereum based smart contracts which enables the transactions to be executed automatically thus ensuring trust between investors and vendors. At the end we surveyed the role of blockchain technology in crowdfunding campaigns which helps to understand the practical implementation of the technologies covered.

Keywords: Crowdfunding, Blockchain, Bitcoin, Ethereum, Smart Contracts

NCCI202344: A STUDY ON INTELLIGENT SOCIAL RECOMMENDATION SYSTEM BASED ON USERS' INFLUENCE

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ABSTRACT

During the last few decades, with the advancement of technology where everything is available at one single click, recommendation systems have taken more and more place in our lives. Recommendation systems are the building blocks of modern technology, that provide different suggestions to users on the items related to them. These suggestions are provided based on user's previous activity. Social media recommendation model is a type of adaptive and intelligent recommendation system that will suggest the user various things based on the influence of the activity of those people that he reacts to or is connected with in social media. We have surveyed 21 different research papers in recommendation systems and social media recommendation domain, and through our survey we found different algorithms that have been used to build the recommendation systems. Most of the papers mentioned about using collaborative-Filtering for building their recommendation models. On further surveying it has been found that collaborative-Filtering is alone not much practical as it doesn't consider various other cases and has several drawbacks. It has been mentioned in some papers drawbacks. Further experimental analysis showed that indirect interactions between the users is much better than direct interactions. Few papers mentioned about integrating collaborative-Filtering with various other algorithms for increased efficiency. But even they lack in giving expert suggestion after a certain extent. Hence we propose to build a smart and adaptive social media recommendation model that gives correct and accurate suggestions to the user with high efficiency, based on the influence of activities of his indirect user interactions.

Keywords: Adaptive Pattern, Social Network, Recommendation System, User Influence, Collaborative-Filtering

NCCI202345: A STUDY ON INTELLIGENT CONTEXT-AWARE BASED EXPLAINABLE RECOMMENDATION FRAMEWORK

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ABSTRACT

The prime significance of contextual information has been recognized via researchers and practitioners in many fields together with e-trade personalization, information retrieval, ubiquitous and cellular computing, information mining, marketing, and control management. Tremendous research has already been finished in the area of recommender systems, however maximum of the existing approaches do no longer consider additional contextual facts including time, area, being with different people (ontology based) and so forth. This paper depicts that relevant contextual information is essential in recommender systems, and this is, when making suggestions. In distinctive phrases, historically recommender systems address packages which have simplest two forms of entities, clients and items, and do not put them in context while giving guidelines or suggestions. But it is able to no longer be enough to recall most effective users and gadgets. For example, the use of time context, a tour recommendation machine could offer a winter holiday advice which can range extensively from that within the summer time. Likewise, for customized content shipping on a website it's far essential to decide what content wishes to be introduced (advocated) to the client and when. On this basis, we have researched over many published papers, analysed, understood and decided to make a survey on this topic. Furthermore, we have examined the domains that should be valued to enhance recommendation system in many aspects. Each selected article was evaluated for its ability to improvise our decision-making model. Our findings emphasize and accentuate the importance of contextual phrases, cognitive ability, user feedback in efficient recommendation of items to users and also the benefits of improved accuracy by optimization of data sparsity.

Keywords: Adaptive Pattern, Social Network, Recommendation System, User Influence, Collaborative-Filtering

NCCI202346: WHEELCHAIR STIMULATED BY TONGUE USING ARDUINO AND HALL EFFECT SENSORS

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ABSTRACT

A severe impact to the vertebrate can cause a majority of spinal cord injuries. The people with spinal cord injuries are a burden on the society and families as they are unable to lead their daily chores regularly. Assistive technology has been developed to aid paralysed people. This technology will help in assisting them in finding work, improve their ability to govern their environment, minimise the work of the family members, and also decrease their hospital expenses. The proposed wheelchair stimulated by tongue system is one of the aiding technologies that allows severely impaired persons due to spinal cord injuries to control their lives by being a less burdened to the society or family members.

Keywords: Hall Effect Sensor, Tongue drive system, wheelchair controlled, Arduino

NCCI202347: TRAFFIC CRASH DETECTION AND PREDICTION IN INTELLIGENT TRANSPORT SYSTEM USING OPTIMAL HYBRID DEEP LEARNING ALGORITHMS

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ABSTRACT

As motor vehicles are increasing in numbers of manufacturing due to the random increase of population the congestion of traffic is considered as a major issue faced in 21st century in many countries. Accidents are considered as a major issue for traffic congestion which cannot be solved casually, but it leads to waste of time by sticking behind the wheels. To overcome such issues, earlier detection of accidents is the only way to protect the lives by clearing the roads with less time and resources with higher efficiency. The proposed research paper is about traffic crash detection and prediction in intelligent transport system (ITS-TCDP) using optimal hybrid deep learning algorithms. In ITS-TCDP model, hybrid recurrent-deep neural network (RDNN) is combined with the swarm intelligent based optimization (SIO) algorithm for detect and prediction of traffic crashes. Here, we consider a fully connected RDNN and E-layers which helps to connect the local inputs with feed forward process by reducing the local short problems. The proposed research with hybrid model is the simple and enhanced fastest method to learn and measure the networks between the layers of output and hidden with one iteration. The different control metrics are used for this detection process are traffic factors, geometric designs, pavement factors, weather condition and accident data. The main objective of proposed ITS-TCDP model can significantly improve driver safety and driving experiences so that the driver can receive assistance or be warned of potential hazards. The proposed ITS-TCDP model implement in weka tool with the collective data which is collected from the Knox County for validation of performance by accuracy detection and error rates of the models.

Keywords: Traffic crash detection and prediction in intelligent transport system, Hybrid recurrent-deep neural network, Swarm intelligent based optimization

NCCI202348: COMPARATIVE ANALYSIS OF VARIOUS FILTERS FOR DENOISING OF MEDICAL IMAGES

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ABSTRACT

Due to the physical mechanisms involved in the acquisition process, medical images are frequently distorted and noisy after transmission. Visual information is conveyed in the form of digital images, which is quickly becoming a popular mode of communication. Before an image can be utilised in an application, it must be processed. Image denoising implies modifying the image data to create an image with rich visuals. Finding effective Medical Image Denoising techniques at is still a difficult area where functional analysis and statistics meet. Image denoising is crucial to the pre-processing of images. In the realm of biomedical imaging, noise produces the most significant disruptions and has an impact on the quality of the medical images. To extract the most data from images, it should be crucial to restore the original image from noises, due to noise in its transmission and acquisition of medical images. Medical images with noise have lower contrast and resolution, which lowers their ability to diagnose. This paper primarily focuses on how various filtering techniques can be applied to noise reduction, visual quality improvement, and image reorganisation. Further performance analysis is done using various statistical performance metrics like PSNR, SSIM and Execution time. Comparative evaluation of the quality of denoised images reveals the superior ability of various existing denoising techniques to reduce noises without diluting the medical image data.

Keywords: Medical, Denoising, Filters, PSNR, SSIM.

NCCI202349:ATM CASH DEMAND PREDICTION USING REVOLUTIONIZED GRANDIANT BOOSTING REGRESSION

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ABSTRACT

Automated Teller Machine (ATM) plays a main role in cash management process of the bank which has a physical interaction points between financial institutions and real customers. The advent of Automatic Teller Machines (ATMs) enable self-service, time-independent, easy to use, mechanism through which a financial institution supports large number of services to its users. ATM cash replenishment is the process by which ATM machines are filled with the cash so that the users can withdraw it. ‘No cash’ will impact the bank’s image as well as replenishing cost of the bank, customer satisfaction and ‘Excess cash’ leads to idle cash, losing investment opportunities. Prediction of cash withdrawal from the ATM is still one of the major transactional loads for financial Institutions. Hence, a model is proposed with a lazy learning strategy as Lazy (non-eager) associative classification, by focusing on the features of the given test instance, increasing the chance of generating more rules that are useful for classifying the test instance. The most effective way of understanding the withdrawal pattern is by gaining insights from the available historical data in order to predict demand for the future. The paper proposes a machine learning approach with hyperparameter algorithm by Bayesian Optimization to improve the accuracy of ATM replenishment amount prediction by using a data driven approach for the estimation of right amount for each ATM.

Keywords: Automated Teller Machine (ATM), Machine Learning (ML), Lazy predict, Hyperparameter, Bayesian optimization.

NCCI202350: AUGMENT REALITY AS A MARKETING TOOL FOR INDIGENOUS SWAMIMALAI BRONZE ICONS

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ABSTRACT

Swamimalai bronze icons, commonly known as Panchaloha statues are manufactured in Swamimalai, a small town near Kumbakonam in Tamilnadu. Though Swamimalai Icons has rich traditional heritage spanning centuries, they are confined to Kumbakonam and Tanjore region of Tamilnadu. To popularize and market this indigenous craft, Augment reality (AR) catalogue application was designed and developed which can be used as a marketing tool for the Artisans to market their products to a wider audience. To create the application, detailed background study was done at the artisan's workplace. 75 physical models of bronze icons are 3D scanned using Artech Spider scanner for smaller icons and Artech Eva Scanner for larger icons. The scanned models are post processed using geomagic design x software. The developed 3D models are used for creating an AR catalogue application. In addition, artisans pain points in marketing their icons, (such as: 1. Not able to physically display all the icons with different metals such as Gold, Silver, bronze, Panchalokam and copper to the customer 2. Unable to arrive at an approximate price for the icon 3. Marketing their craft beyond Kumbakonam.) Are documented simultaneously. Software's such as Unity, Unreal, Zbrush, Blender, Vuforia and EasyAR are used to develop the AR catalogue application, with the AR catalogue app, artisans can display their different icons in life size 3D model with options to change and see how the icons looks with metals such as Gold, Silver, bronze, Panchalokam and copper. Potential customers can have a detailed look of how the icon looks and also arrive at approximate price for the icon. Further, artisans can go to a customer's location and show the icon in 3D at their place, with the web AR version of the app, customers can view how the icon looks in their place by accessing a web link in their smartphone. AR Catalogue app was given to the Artisans and knowledge transfer was done on how to use the app and to market their products to their potential customers.

Keywords: Heritage crafts, Swamimalai Bronze Icons, Technological intervention, Augment Reality, webAR, Xtended Reality.

NCCI202351:A SURVEY ON ILLUSTRATION GENERATION USING DEEP DREAM ALGORITHM

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ABSTRACT

A new area of artificial intelligence called "creative AI" enables machines to produce original artwork, gripping narratives, and music. A computer vision system created by Google called the deep dream algorithm is used to produce artwork. The connection between text and image is made using the clip guidance technique. They discover that people prefer the letter because they evaluate it for photorealism and caption accuracy and construct realistic images. Higher-level aspects of sensory input are gradually extracted using artificial neural networks. This ANN can extract text and visual content and then transform it into artwork. Artificial neural networks occasionally overemphasize pictures, making the image appear different from the one that had to be generated. The CNN with various image processing steps and the CNN with various optimizers aids in the extraction of high-definition unique features from the image. In this study, we deploy a deep dream algorithm that is built on cognitive-based computational art rendering systems and convolutional neural networks. Using this technique, it is demonstrated how the idea of a seed incident can be used to inspire the creation of new artwork. The deep dream algorithm is built on generative convolutional networks, where a seed incident is given into the algorithm and comparable images are generated based on the seed incident. Additionally, the GAN's Creative Adversarial Networks subcategory is employed to generate the images. There is a proposed innovative text-to-image method that addresses these deficiencies because recent text-to-image creation systems have several crucial flaws. As well as having the capacity to produce high-resolution images that enhance the visual quality, it also offers many other features like scene editing, text editing, and anchor scenes

Keywords: *CNN, ANN, Artificial Intelligence, creative AI.*

NCCI202352: WEB CYPHER - A PHISHING CLASSIFIER

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ABSTRACT

The phishing website has evolved as a major cyber security threat in recent times. The phishing websites host spam, malware, ransomware, drive-by exploits, etc. A phishing website many a time look-alike a very popular website and lure an unsuspecting user to fall victim to the trap. The victim of the scams incurs a monetary loss, loss of private information and loss of reputation. Hence, it is imperative to find a solution that could mitigate such security threats in a timely manner. Traditionally, the detection of phishing websites is done using blacklists. There are many popular websites which host a list of blacklisted websites, e. g. PhisTank. The blacklisting technique lack in two aspects, blacklists might not be exhaustive and do not detect a newly generated phishing website. In recent times machine learning techniques have been used in the classification and detection of phishing websites. In, this paper we have compared different machine learning techniques for the phishing URL classification task and achieved the highest accuracy of 98% for Support Vector Model (SVM) Classifier with a precision=1, recall = .95 and F1-Score= .97.

Keywords: Classification, Phishing, Support Vector Machine, XGBOOST, Phishing website detection

NCCI 202353: INTELLIGENT VIDEO MONITORING AND ANALYSIS

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ABSTRACT

In recent years, many cameras have been installed in public spaces and everywhere where security is more important. Every surveillance should be monitored by knowledgeable persons. It is not an easy task to track each object and find Abnormalities. Here we are introducing intelligent video monitoring systems. Such systems are constantly being developed, observed, and understanding keeps track of objects and classifies the data. find out Abnormalities in real-time systems able to warn against, alarming situations and information to first responders. Simply It observes, Inspects the data, and makes conclusions Finally inform to appropriate people. In this paper, we are providing a detailed view of implementation. With respective requirements. The following categories were considered: Object detection, tracking, and movement analysis systems, systems capable of alerting against, detecting, and identifying anomalous and alarming circumstances, vehicle detection and accident detection systems, crowds detection systems, systems basis of various linked camera views, and technologies that utilize the cloud environment. Each category is described in great detail in the paper.

Keywords: Accident Detection, Crowd Detection, CNN, YOLO, AI, ML, Python

NCCI202354: AI CHATBOT FOR MENTAL HEALTH STATUS DETECTION – A LITERATURE REVIEW

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ABSTRACT

The suicide rates in the world have increased drastically from the past four years. And the first precursor to suicide is depression. This review's goal is to study the ways to create an intelligent solution which detects the symptoms of depression early on and alert the user, through a chatbot interface. The most accessible way to diagnose depression in the present day is to consult a psychotherapist. It is counterproductive as a person in depression will be hesitant to ask for help in most cases. Also, there is negligence towards the severity of a bad mental health as the general public will not be made aware of it. These factors make it extremely difficult for a depressed person to find preventive measures. (IDPT) is a method of treatment that can be provided through internet. There are 9 main criteria of CGI that can predict the severity of depression. (TEA) Textual Emotion Analysis is a method of extracting emotions in text. It finds meaning in words at a very deep level using multilayer word-representation. CRF algorithm accuracy greater than SVM for classification of words into emotions. RNN will yield a better result if model is trained separately for depressed and non-depressed. DAICWOZ Depression Speech Data Set provides textual records of clinical interviews. It is self-administered so no party other than the user themselves will be directly involved. The analysis of text is very similar to interpretation of speech. So, determination of the users feeling will be highly accurate.

Keywords: Chatbot, Suicide, Depression, Self-administered, Treatment

NCCI202355: CLASSIFICATION OF TRAFFIC VIOLATIONS WITH HELMET DETECTION USING OPENCV AND YOLOV3

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ABSTRACT

Due to urbanisation, industrialisation, and population growth, traffic has increased significantly. According to a recent study on traffic management market statistics, more traffic offences were reported in 2021 (1.38 million) than in 2019 (1.05 million). Using intelligent traffic solutions based on information and communication technology, urban city planning can improve traffic management and the commuter experience. A component of the smart city system is smart traffic management. Vehicle-mounted cameras can provide real-time traffic information. These systems' benefits include lane occupancy, traffic violation detection, vehicle detection, and traffic monitoring. Traffic violations includes signal jumps, riding without helmet, driving without seatbelts and vehicles not following rules of the Traffic System In many developing countries like India, traffic violations are manually monitored by traffic authorities either manually or monitoring the recorded or live videos CCTV surveillance cameras. This project proposes an intelligent model that recognizes objects, classifies vehicles into cars and bicycles, and finally builds a model that recognizes helmets worn by motorcycles using Computer vision algorithm.

Keywords : smart traffic management, CCTV, Computer vision algorithm, Vehicle-mounted cameras

**NCCI202356: AN INDUSTRY BASED STUDY TO DETERMINE THE
RELATIONSHIP BETWEEN AGILE PRACTICES AND FACTORS
RESPONSIBLE FOR TIMELY SOFTWARE DELIVERY IN THE
CONTEXT OF SME-IT FIRMS
(A STUDY FOCUSED ON BENGALURU REGION)**

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ABSTRACT

In a highly competitive world, quality of the product is the only factor which can help the firms to survive. One of easiest way to ensure a quality product is to make sure that the quality of the Process which creates the Product is maintained at every step. This paper is an attempt to understand the relevant factors capable of influencing Process quality and determine how they directly impact the quality of the product and in turn, affect the delivery schedule. To conduct the study, we used a structured questionnaire and received inputs from the software professionals working in the SME IT firms. Based on the literature study and the feedback from the professionals, we decided to move ahead with four key factors having a direct impact on delivery schedule and quality of product. The factors were named F1, F2, F3 and F4; F1 being timely delivery, F2: concurrent involvement in different projects, F3: team formation and F4: Waste Activities Identification. While F2, is an individualistic trait, F1, F3, and F4 are team traits. We have also tried to determine if there is any relationship between the application of DMAIC principles by the Project Manager and these factors. The paper provides empirical evidence to support the findings. This work could be used as a ground work to create a model to optimise the process for SME-Agile firms.

Keywords : Software quality, MSME, sustainable software, agile, lean software development, leagile

NCCI202357: AUTOMATED EXTRACTION AND ANALYSIS OF USABILITY ATTRIBUTES FROM PLAY STORE REVIEWS

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ABSTRACT

Though a wide range of tools exist for depicting the usability of an app, the user reviews of the app on Google Playstore provide a plethora of information regarding the usability of an app, covering a wide range of test cases. However, the data is in a highly unstructured text format with noise in the form of emoticons, acronyms and abbreviations. The user reviews are of varying quality, and in some cases, the users have failed to fully express their intent. Previous studies stated that more than 60% of user reviews do not contain substantial information. The user needs and keywords in the reviews are usually domain- specific and thus require further insight. This demands the use of proper pre-processing and feature extraction techniques, to vectorize the corpus to machine understandable notations. Reliability and user satisfaction are some of the attributes that affect the usability. Our model was able to segregate the reviews to clusters. From the keywords obtained in the clusters, we assigned Reliability and Satisfaction scores to the applications.

Keywords: User reviews, play store, usability, Bag of words, cosine similarity, clustering

NCCI202358: BIG DATA PRIVACY PROTECTION

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ABSTRACT

In recent years, big data has become a hot research topic. The increasing amount of big data also increases the possibility of violating the privacy of individuals. Because big data requires large computing power and large storage space, distributed systems are used. As these systems involve multiple parties, the risk of data breaches increases. To protect privacy, several privacy-related mechanisms have been developed at different stages of the big data life cycle. The purpose of this article is to provide a comprehensive overview of privacy-preserving mechanisms in big data and to present challenges to existing mechanisms. In this article, we specifically describe big data infrastructure and state-of-the-art privacy-preserving mechanisms at each stage of the big data life cycle. In addition, we discuss the challenges of preserving privacy in big data and directions for future research.

Keywords: Big data, privacy, data auditing, big data storage, big data processing

NCCI202359: SMART PARKING FOR URBAN CITIES USING IOT AND EGDE AI

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ABSTRACT

With increase in economic growth more and more people are able to afford to buy vehicles to commute. In metropolitan cities like Bengaluru the number of people using two-wheels and cars are highest in records. The number of cars and vehicles in cities have increase in two folds and created issues such as traffic jams, non-availability of parking slots, congestions etc. Using information and Communication technology with sensors and IoT the problem of parking can be addressed. We aim to address the parking availability at malls / smart parking areas in the city prior to the vehicles arriving at the mall or place of interest. Both the vehicles and the parking area of the malls/smart parking area are integrated to the cloud. The customer who wishes to find slot in a particular mall/smart parking area would check list of availability of free slots using mobile app. The App implemented with features to freeze parking slot, cancel the slot and view the list of free slots. Sensors are used to detected if a slot is free or blocked. Edge based AI in the smart parking area/mall parking area is used to give a consolidated report on slots available to reduce the latency to display the free slots. We propose to implement Smart Parking System based on IoT and Edge -AI to predict the possibility of getting the slot based on conditions such as weekdays, weekends, festive days, offer days.

Keywords: Internet of things, Edge-AI, RFID, Mobile App

NCCI202360: TECHNICAL SURVEY ON AN IOT BASED VEHICLE FOR FARMING ASSISTANCE

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ABSTRACT

Agriculture is considered the sustenance of mankind as it is the primary source of agricultural raw materials and plays a chief role in the development of the national economy as it provides great job opportunities for people. Unfortunately, traditional farming methods are still used by many farmers, resulting in low crop and fruit yields. However, productivity has improved as automation has been introduced and people have been replaced by automated machines. Smart agriculture is an emerging concept in IoT as it provides information about farmland and can take necessary actions on the user input. As a result, robots are increasing productivity and appearing in large numbers on the job site. Therefore, it is necessary to utilize modern science and technology to increase productivity in the agricultural sector. Hence, this paper proposes a system that helps in tracking field data and field operation management and provides flexibility. This paper was assembled after researching various papers. The proposed system focuses on performing functions such as tillage and seeding using Raspberry Pi microcontroller that acts as the brain of the IoT-controlled robots which are connected to control devices via Wi-Fi. The proposed system is an asset to the farmers as it helps automate physically demanding processes by using robotic systems to cultivate farmland with minimal human assistance.

Keywords: Agriculture, Farming, Internet of Things (IoT), Wi-fi, Raspberry Pi, Plowing, Seeding

NCCI202361: A STUDY ON CRYPTOGRAPHIC ALGORITHMS

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ABSTRACT

Cryptography is the science to encrypt and decrypt information. Nowadays, the privateness of people and companies is given via cryptography at a extensive level, making sure that information espatched is stable such that authorized receiver can access this data. Today's entire world is depending on the internet and its application for every part of life. Here comes the requirement of protecting data byways of Cryptography. Cryptography plays a significant role in the science of secret writing. It is the art of protecting data by transforming and technology applications. The main purpose of using email is most likely the convenience and speed with which it very well may be transmitted, irrespective of geographical distance. Cryptography gives several security objectives to guarantee of protection of data, on-alteration of data, and so on.Day by day the vulnerabilities are rapidly increasing on the Internet. A robust encryption set of rules is required to counter these weaknesses. In this paper, we describe a top level view of current conventional encryption algorithms.

Keywords: Cryptography; Secret Key; Encryption; Decryption; DES; Blowfish; AES, RSA.

NCCI202362: EFFICIENT METHODOLOGIES USED FOR RESOURCE ALLOCATION IN FOG SCENARIO- A TECHNICAL REVIEW

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ABSTRACT

The value of cloud computing in tackling the analytically demanding requirements of implementations has already been established. Due to the considerable delay induced by network connections to data centre and excessive dataflow, which may congest the network, cloud computing is not advised for latency-critical applications, despite its widespread use. Fog computing was created to solve this issue by enhancing the quality of service for these latency-critical applications and expanding the computing performance of Cloud computing. Fog devices are far more important to human beings than data centres. One of the most difficult challenges in running Internet of things in a fog environment is the issue of resource allocation. In order to give a full overview of the research examined planning and performance and what dilemmas require future care, the goal of this paper is to assess previous work on resource allocation as in mobile cloud using a multi - method project technique.

Keywords : Fog computing · Resource sharing · Resource allocation

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