



SOUVENIR



Two Days (23rd to 24th September 2022)
International Conference

On

Integrated Computing and
Recent Technologies in Computer Science
(ICICRTC-2022)



 **EDITED BY** 

DHARMENDRA PATHAK, SHAILENDRA K MISHRA, MANISH SHRIVASTAVA



:: ORGANIZED BY ::

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING AND INFORMATION TECHNOLOGY
CHAMELI DEVI GROUP OF INSTITUTIONS, INDORE**

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Technologies in Computer Science
(ICICRTC-2022)**



:: Edited By ::

**Dharmendra Pathak
Shailendra K Mishra
Manish Shrivastava**

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**Department of Computer Science &
Engineering and Information Technology
Chameli Devi Group of Institutions, Indore**



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ABOUT INSTITUTE

The renowned Agarwal Group of Indore laid a solid foundation for CDGI in the year 2006, when there was a dire necessity of quality technical education in Central India. Chameli Devi Group of Institutions was therefore established as a philanthropic initiative to nurture innovative and committed technocrats who could provide some value addition to the society.



Shri. Vinod Kumar Agarwal, the Honourable Chairman of CDGI, a great visionary dreamt of offering quality professional education to students of this region, so that they could be globally competent. Shri. Vinod Kumar Agarwal firmly believes in the integrated development of students and moulding them into responsible professionals who can bring about a positive social transformation.

CDGI is playing a significant role in the holistic development of young professionals in addition to bridging the gap between all levels of quality education. The institute has a greater responsibility of making the student fraternity to be competent at national and international levels.

At present, CDGI is also RGPV Nodal Exam Centre as well as RGPV Indore Nodal Sports Centre.





ABOUT INTERNATIONAL CONFERENCE

International Conference on Integrated Computing and Recent Technologies in Computer Science (ICICRTC-2022) will be held from 23rd to 24th September 2022, organized by Department of CSE & IT, CDGI, Indore. The ICICRTC-2022 aims to bring together the international community of researchers, academics & practitioners to discuss the latest advancements and future scope in the emerging trends. The manuscript of extended version of the selected qualitative papers will be published in SCOPUS Indexed Journal.

Objective of Conference :

- To provide a common platform to share research experiences, new ideas & products, and research findings
- To provide an international forum for the exchange of research and ideas
- To reflect the recent research efforts and progress towards integrated computing
- Discussions on research tools, trends, and technologies moreover on product development
- The conference reflects the current focus of global research, future technologies, interdisciplinary research, and practices in the fields of Engineering





CHIEF PATRON MESSAGE

It gives me immense pleasure and satisfaction that Chameli Devi Group of Institutions is organizing two days international conference on **“Integrated Computing and Recent Technologies in Computer Science” (ICICRTC-2022)** from 23rd to 24th September 2022.

I hope that the event will gather many researches under one roof and offer chances for face-to-face discussion, the development of research relationships, and the identification of international partners for future cooperation. The conference's topics and sub-themes highlight pertinent study fields to provide aspiring authors with creative prepositions concerning the scope of the discussion.

I am delighted to send my best wishes to the organizers and participants of International Conference and wish all the success for the conference.

Vinod Kumar Agarwal
Chairman
CDGI Indore





PATRON MESSAGE

I am very glad to know that Chameli Devi Group of Institutions is organizing two days international conference On “Integrated Computing and Recent Technologies in Computer Science” (ICICRTC-2022) from 23rd to 24th September 2022 and releasing a souvenir to mark the event. CDGI is one of the most vibrant Institute and has been actively contributing to the needs and demands of the society at large in fostering academic research and developments.

International conferences offer a unique setting. They usually give a lot more break-out sessions and tend to draw highly regarded professional speakers. You'll get to know people from all around the nation. You can get knowledge of common problems and concerns in education as well as how other states approach them by attending international conferences. An international conference showcases the depth and breadth of the profession.

I congratulate the organizers for their initiative and attracting a wide range of papers from experts in their fields. I wish all the speakers and delegates a most informative and enjoyable conference.

I extend my best wishes for the success of Conference and release of souvenir.

Sanjay Kumar Agarwal
Vice-Chairman
CDGI Indore



PATRON MESSAGE

I am delighted that our department of CS & IT, Chameli Devi Group of Institutions, Indore, is organizing an international conference on Integrated Computing and Recent Technologies in Computer Science (ICICRTC-2022) from 23rd to 24th September 2022 and is going to present a collection of various technical papers in the proceedings.

Research generates knowledge, provides valuable information, and helps decision-making. Without research, we will have no development in the nation. If we want our country to develop or become brighter day by day, we must work on our innovative ideas to build our nation with a strong economy. With research, we will take our country to another top level of success. CDGI does not restrict itself to imparting quality education but promotes innovative ideas and analysis. Our college always encourages our students to develop an interest in research by conducting various activities, quizzes, seminars, and conferences.

Conferences present an excellent opportunity for researchers, teachers, parents, and, in some cases—students—to sit down together to discuss academic and social progress. They are a chance for participants to ask questions, share relevant information, calibrate expectations, celebrate accomplishments, and set short and long-term goals.

We welcome you all to CDGI and hope this conference will act as a medium for all present here to ponder the topic of discussion, challenge us to strive towards it, and inspire us simultaneously.

Dr. Joy Banerjee
Group Director
CDGI Indore





CONFERENCE CHAIR MESSAGE

I am delighted to announce that the Chameli Devi Group of Institutions will hold the International Conference on Integrated Computing and Recent Technologies in Computer Science (ICICRTC-2022) from 23rd to 24th September 2022, organized by the Department of CSE & IT, CDGI, and Indore. The ICICRTC-2022 aims to bring together the international community of researchers, academicians & practitioners to discuss the latest advancements and future scope in the emerging trends.

Attending a conference has become a "must" to survive in an academic discipline in today's fast-changing world. Many academicians have become aware of this as the number of conferences and participants increased dramatically. We look forward to collaborating with you at the Chameli Devi Group of Institutes (CDGI) Conference. International conferences are a different experience. They tend to attract widely recognized expert speakers and offer many more presentations and break-out sessions. You'll meet people from all over the country. International conferences can give you an understanding of widespread issues and concerns in education and how various states handle them. The profession's depth and breadth are displayed at an international conference.

The academic conference will keep you updated on new findings that have taken place. This is in fact, one of the primary reasons why one should attend an academic conference. When attending an academic conference, he or she is sure to meet people of the same status, mindset, and goal.

Wish you all the best!

Dr. Manish Shrivastava
Principal
CDGI Indore



CONFERENCE COMMITTEE

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Patrons

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CONFERENCE SCHEDULE

**International Conference on Integrated Computing and Recent Technologies in
Computer Science (ICICRTC-2022)**

Conference Registration

Day-1 : 23 September 2022, Time: 09 : 00 AM to 10 : 30 AM, Venue : CDIPS Auditorium

Conference Opening Ceremony

Day-1 : 23 September 2022, Time : 10:30 AM to 12 : 30 PM, Venue : CDIPS Auditorium

Zoom Link :

<https://us05web.zoom.us/j/5822540325?pwd=c0JiUnBLMUorbFVWQk95ZEQ4NFcwZ09>

Meeting ID : 582 254 0325

Passcode : icicrtc22

Chief Guest : Dr. Anand Parey, Professor, IIT Indore

Guest of Honor : Dr. Joy Banerjee, Group Director, CDGI Indore

**Keynote Speaker 1 : Dr. DP Shrivastava, Associate Professor, Dubai Women's
College, HCT University, Dubai UAE**

**Keynote Speaker 2 : Dr. Basant Tiwari, Associate Professor, Institute of Technology,
Hawassa University, Ethiopia**

**Paper Presentations, Time : 01 : 30 PM to 04 : 15 PM, Venue : Seminar Hall-1/
Seminar Hall-2**

**International Conference on Integrated Computing and Recent Technologies in
Computer Science (ICICRTC-2022)**



**ICICRTC-2022 Organized by Department of Computer Science and I.T.
Chameli Devi Group of Institutions, Indore**



Day-2 : 24 September 2022, Time: 10 : 30 AM to 12 : 30 PM

Keynote Speaker-1 : Dr. Aniruddha Singh Kushwaha, Assistant Professor, IIT Indore

Keynote Speaker-2 : Mr. Sumit Rathore, Consultant-Eigen X LLC, Pennsylvania

**Paper Presentations, Time : 01 : 00 PM to 02 : 30 PM, Venue : Seminar Hall-2/
Seminar Hall-1**

Conference Valedictory Ceremony

**Day-2 : 24 September 2022, Time : 03 : 00 PM to 4 : 30 PM, Venue: CDIPS Auditorium
Zoom Link:**

<https://us05web.zoom.us/j/5822540325?pwd=c0JiUnBLMUorbFVWQk95ZEQ4NFcwdz09>

Meeting ID : 582 254 0325

Passcode : icicrtc22

Chief Guest: Dr. Piyush Kumar Shukla, Adjunct Professor, Kunsan National University, South Korea

Guest of Honor: Dr. Joy Banerjee, Group Director, CDGI Indore





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**ICICRTC-2022 Organized by Department of Computer Science and I.T.
Chameli Devi Group of Institutions, Indore**



CDGI/ICICRTC/01

Random Early Detection in Virtual Queue for QoS of Wired Network

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The sender host is sends data to destination host through intermediate nodes or directly sometime in wired network. It is rarely possible the sender and receiver are directly connected in same network. The role of route is to collect data from the different hosts and according to route of destination data packets are delivering to destination router. The problem of congestion is occurring in network due to not handling load properly. The Traditional congestion control schemes help improve the performance after congestion has occurred. Throughout congestion data packets are drop in network and network throughput may also degrades and the end to end delay may become very high. Congestion control technique facilitates the network to recuperate from the congestion situation. In this paper we proposed the congestion control multipath virtual queue management technique with RED protocol in wired network. In this technique the congestion is handled by properly by applying RED mechanism with AVQ in multipath network. The multipath path routing is provides the alternative path that's why it is better than the unipath routing protocol. The throughput is improve and delay is minimizes that enhance network performance. The proposed scheme performance is compare with the protocol performance of Droptail, Unipath, RED Unipath and AVQ in wired network. The performance all protocol are measured through performance metrics and the proposed performance is showing the better results and better data enhancing in wired network. The proposed mechanism is not completely removes the congestion but handle it properly that shows reduction in packet dropping.

Keywords : Multipath, Unipath, Wired network, AVQ, RED, routing, Congestion.





CDGI/ICICRTC/02

FPGA based Implementation of IEEE754 Compliant Double Precision Floating Point Arithmetic Units

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High speed computation is the need of today's generation of Processors. To accomplish this major task, many functions are implemented inside the hardware of the processor rather than having software computing the same task. Majority of the operations which the processor executes are Arithmetic operations which are widely used in many applications that require heavy mathematical operations such as scientific calculations, image and signal processing. Especially in the field of signal processing, multiplication division operation is widely used in many applications. The major issue with these operations in hardware is that much iteration is required which results in slow operation while fast algorithms require complex computations within each cycle. The result of a Division operation results in either a Quotient and Remainder or a Floating point number which is the major reason to make it more complex than Multiplication operation. The work described in this paper includes design and verification of a floating point divider and multiplier. The inputs of both the Multiplier and Divider and also the output are designed using the single precision IEEE Standard for floating point numbers.

Keywords : Floating Point Arithmetic, Multipliers, Digital Arithmetic, FPGA, DSP48E.





CDGI/ICICRTC/03

Automation of the Large Investment Using Several Suggested Algorithm and Pre-selection Approaches

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³Department of Physics, SISTEC, Bhopal, M.P., India

Investment management issues require allocating various resources to optimize potential returns and reduce the overall threat. The complexity of an optimal investment strategy issue leads to increased investments. When more than a few hundred properties are selected, the problem of automation is difficult to quantify. Two pre-selection procedures are suggested in this text, taking into account the return and possibility of sole investments and a wise pair correlation to eliminate investments that can not inherently be chosen from any investment to reduce the difficulty of massive investment automation. With these forms of pre-selection, the number of assets deemed to be included in the investment can be expanded to thousands. Normalized Multi-target Evolutionary decomposition-based algorithms (NMOEA/D) are employed to compare and test the suggested techniques' efficacy with many other widely used multi-target evolutionary algorithms. Six experiments in various environments were performed. The test results reveal that the suggested techniques' length is lowered while the return possibility efficiency increases. Meanwhile, NMOEA / D will solve all comparative research dependent experiments with other relative algorithms.

Keywords : Investment automation, multi-objective automation, Constraint Handling Techniques.





CDGI/ICICRTC/04

Advanced Soybean Plant Foliar Disease Detection System to Reduce the Use of Pesticides Using Deep Learning Methods

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³Manish Shrivastava

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¹RNTU Bhopal, M.P., India

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⁴IPS CTM Gwalior, M.P., India

In India, soya plant infections are a major issue. It is crucial to find and keep track of these soybean plant diseases. Soya plant diseases like hispa, brown spot, and leaf blight affected the plants. If these diseases are identified early and treated well, then the financial loss of farmers will be significantly reduced and also we consumed less pesticides. Based on image processing techniques, the proposed models will successfully detect the soya plant leaf disease. The implementation of this model makes the use of edge detection, noise filtering, morphological operations and at last that play very important role is classification with CNN machine learning method. According to the suggested approach, healthy and sick leaves were detected. The proposed method provides higher accuracy of 95.8%.

Keywords : CNN, Image Processing, Soya Plant.





CDGI/ICICRTC/05

Manson Influenced Stock Prediction by Using Machine Learning Techniques

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Among other factors that affect the market and the economy in general, the rainy season is considered a major determining factor due to the large scale agriculture in India. More than 75% of India's annual rainfall is reported to fall during this season. Rain fall is critical in the agriculture sector, which accounts for about 15% of India's \$2.5 billion economy and employs more than half of the country's 130 million people. With farm incomes rising, analysts expect demand in related sectors to increase as consumption rises. We expect the demand for housing and agricultural products to continue with the onset of the regular rainy season. Sectors like FMCG, tractors and two-wheelers as well as automobiles, chemicals and fertilisers can see good growth. Identifying Manson's clients increases investor interest, especially in the stock market. A great tool has been developed to study and predict stock prices. Machine learning algorithms are required to build and debug the stock price forecasting tool presented in this research project. This article compares the performance of specific Manson stocks using stock market forecasting, decision tree, logistic regression, and back propagation neural network methods. Fundamental analysis and machine learning help investors make better decisions. Above specified machine learning approaches have been used to capture and use recurring patterns to investigate the highly theoretical and speculative character of the stock market Index NIFTY-50 over the last five years in India. For forecasting, different organizations utilize different sorts of analysis methods, with the main goal being the precision with which they estimate which group of stocks will provide the most profit. Experiments have been performed with the selected stocks from NIFTY-50 with the help of Machine-Learning techniques and with that of the last five years data (2017-2022) of those stocks belonging to the Manson Influenced Sector stocks. Decision Tree, Logistic Regression and Back propagation Neural Network Based algorithms and tested for the prediction efficiency in between the stocks. The results have shown that Logistic Regression performed better as compared to other two methods.

Keywords : Stock market, Manson Influenced Stocks, Machine learning algorithm, Python, Back propagation Neural Network, Decision Tree, Logistic Regression.





CDGI/ICICRTC/06

Plant Leaf Disease Identification Using Machine Learning Techniques: A Review

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AI technologies help farmers to analyze land/soil/health of crop etc and save time and allow farmers to grow right crop in each season that has best yield. Vertical cropping can reduce water usage, make efficient land usage, can be cultivated in urban areas in buildings. It can reduce the problems with labour unavailability. Allows prediction of next year crop seasons, weather, climate, rainfall etc. AI based predictions enable suggesting appropriate pesticides, crops, place at right time before large scale incidence of disease. This paper presents review of machine learning techniques for plant leaf disease identification and its remedies.

Keywords : AL, Plant, Disease, Machine Learning, Crop.





CDGI/ICICRTC/07

Tumor Detection based on Multi-parameter MRI Image Analysis Using DWT and ANN

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This study examines Brain Tumor Detection Using Multi-parameter MRI Image Analysis. This paper is intended to provide a comprehensive overview of the strategies for brain tumour detection using the Magnetic Resonance

Imaging (MRI) method, which is used in various stages of the Computer Aided Detection System (CAD). Image segmentation is required for brain tumour detection; however, this paper introduces a comprehensive survey of the strategies and systems used to recognize brain tumours in MRI images. This appears to be one of the most notable but difficult parts of the process of identifying brain tumours. Finally, the paper concludes with a concise for provides a direction toward the upcoming pattern of further developed research contemplates on brain image segmentation and Tumor detection.

Keywords : MRI IMAGE, algorithm, image Segmentation, Deep Learning, Brain Tumor, CAD.





CDGI/ICICRTC/08

Computational Modeling of Hippocampus to Store and Retrieve Patterns Using Spiking Neural Network

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In this research article, a computational model is proposed for DG and CA3 region of the hippocampus. Model is designed to store overlapped patterns, and to retrieve a complete pattern from a cue. In Proposed model, DG and CA3 region of the hippocampus is designed as pattern separator and as pattern storage respectively, where firing- rate based pattern separator is used. Here, DG and CA3 is combinedly described as two sequential associative networks. First network is used as a pattern separator and other one is used as a memory for storage of pattern to perform pattern completion from the incomplete pattern. Whole model is designed using Spiking neural network which makes it more realistic in nature. Model is deployed to store the grid patterns of blackwhite blocks, and also recalling has been done successfully. Also, the architecture of proposed model follows the major phenomena of hippocampus like sparse connectivity and activation in DG.

Keywords : Hippocampus modeling, Spiking Neural Network, Recalling.





CDGI/ICICRTC/09

IoT Devices History, Evolution, and Present Scenario

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Devices that connect with each other are necessity of our lives. This is the reason individuals and companies are offering IoT based product and services also. Therefore in this article evolution of IoT and present scenario has been analyzed. IoT based products are very interesting because we already have product and we know each and every thing about the product and it's a matter that just to add this technology in the product for our advantage. Other way round product will become value added.

Keywords : Evolution of IoT, IoT Devices, IoT Products.





CDGI/ICICRTC/10

Priority based Data Transmission Mechanism to Reduce Overhead & Energy Saving in Fly Ad hoc Network

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FANET is an acronym for Flying Ad-Hoc Network. It is a collection of flying devices that are capable of coordinating, communicating, and assisting in the decentralized creation of routes. In the FANET, unmanned aerial vehicles (UAVs) act as sensors, collecting real-time environmental data such as humidity, temperature, humidity, and wind speed and transmitting it to a base station (BS). FANET's primary features are its high dynamic nature, scalability for a variety of applications, and resilience to potential communication failures. They do, however, have many limitations, including restricted flight duration for UAVs owing to low energy devices (direct electrical supply is not feasible during flight time) and routing protocols capable of supporting dynamic networks. In recent research many researchers focus to improve the QoS of FANET which is in future real time adoptable for real time data retrieval from remote area and helps to military services, weather forecasting, atmospheric data gathering etc. To improve the quality of service in this paper we investigate various existing system which work in the area QoS of FANET and proposed a system based on data priority provision to increase the importance of network with respect to type of data so that most important data taken as higher priority which helps application like military service where critical data very important to take real time decision. Data priority classify on the bases on type of data i.e. data is TCP with VBR which taken as higher priority and UDP with CBR as low priority. Data priority play the important role to utilize network for full data gathering in base station (BS).

Keywords : FANET, QoS, IoT, UAV, Dynamic Routing, Base Station, Energy.





CDGI/ICICRTC/11

Role of ICT in the Development of Farmer's Economy Special Concern with Indore District

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Meaning of Information and Communication Technology In the 21st Century in the global move towards knowledge-based economies powered by the ICT revolution, communication of research output to inform public debate and policy deliberations is a prerequisite in empowering communities to participate in the global knowledge economy. Application of Information Communication Technologies (ICT) has been seen as contributing to socio-economic, political, cultural and technological revolution and change in the development of the information society. In today scenario Information and Communication Technology is one of the most demanding area of developing countries and it is playing crucial role in the development of the nation's economy. In this article Researcher wants to study the role of ICT in the development of farmer's economy and their impact.

Keywords : ICT, E-Commerce, M2M, B2B, C2C, C2B.





CDGI/ICICRTC/12

E-learning Classification and Validation based on EEG signals Using CNN and LSTM Deep Learning Algorithms

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A lot of online e-learning platforms are emerged nowadays due to the covid-19 pandemic that targets all age groups and covers almost all subjects. Though, very few actually possess a learner-centric approach and validate user learning. Validation of E-learning and customized learning recommendations for both learners and e-learning materials are major points of concern for online learning platforms. Our approach solves these issues by collecting the real-time EEG signals of candidates wearing neuro headsets while attending online courses and later classifying them using CNN and LSTM deep learning models. Our work has achieved 68% and 97% classification accuracies by implementing CNN and LSTM models respectively. Therefore, it can be concluded that the developed models are fast and accurate in classifying the E-learning EEG signals and may be used for similar e-learning validation problems. Moreover, our work proposes an automated framework for tracking the users learning curve and providing valuable recommendations for e-learning materials.

Keywords : Automated framework, convolution neural network, deep learning, EEG signals, e-learning, feature extraction, long short-term memory, neuro headsets.





CDGI/ICICRTC/13

Assessing Long-term Impacts of Disaster Using Predictive Data Analytics for Effective Decision Support

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Disaster is a big issue that seriously disrupts and affects the community or society. The impact of a disaster causes a short and long period of time. To analyze the impacts of disasters there are role of available related datasets. Data analytics methods have the potential to assess the impacts of different types of disasters. Collectively data analytics and machine learning techniques play an important role in transforming and being able to make decisions about our social, economic, mental, and psychological things. The objective of this paper is to assess the impacts of disasters from immediate term to long-term, provide crucial help to the emergency management workforce, and policy decisions making based on the latest available datasets. Using the various data agencies for extraction of information and activities carried out to determine the effects of disaster victims, their community and society affects in general. The analysis provides the information that can guide our emergency services activities, the status of facilities, support the survivors, and other related information. Detailed assessment i.e., structural survey, hazard mapping provides specific information about reconstruction and mitigation to monitor the situation, needs of the victims, and supporting entities. The assessment is based on the type of disaster that happened and its impact after a few years.

In the current technological advancement of data analytics and machine learning algorithms the prediction of long-term effects of disaster is quite easy. To analyze the impacts over a long period of time is also dependent on the growth of actively cared datasets gathering bodies like agencies, government, NGOs, media, etc. where prediction of short-term and long-term impacts is dependent on the available datasets. Available datasets are preprocessed using data analytics tools and applying training and testing for the purpose of predictions and recommendations. As huge amount of data sets is available through the different sources, so that the classification of the datasets will also be performed for fast and accurate processing. Model validation techniques play an important role to check the validation, test result and





related outcomes. In this paper advance machine learning and data analytics tools i.e., XG boost, modified SVM, modified RF is used for better prediction. The analysis of the short-term effects of disasters has already been suggested and recommended by the various conventional approaches. Here the focus is to analyze and detect the long-term effects of a disaster along with recommendation and model preparing for good decision making. Therefore, planning should be focused on assessing the impacts from short-term to long-term. The findings of the paper would be helpful to the agencies, local & national authorities, and the government by recommending the action plans in case of disaster and its future effects for a longer period.

Keywords : Data Analytics, disaster, long-term effects, SVM, XG boost.





CDGI/ICICRTC/14

Active Contouring for Image Segmentation : A Review

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Success of person identification through image processing depends on accuracy of segmentation process applied. Image segmentation is important in various fields of computer vision technology like Biometric security systems, medical imaging, etc. In a security system, distant person identification is an urgent need in this COVID era, the system public domain application is lacking due to less accuracy in segmentation. One of the models useful for image segmentation is active contouring. With the help of active contouring heterogeneous and noisy images can be segmented easily. Since these models do not depend on edges. In this article, we are compiling available active contouring methods. We hope that this review work on active contouring will help researchers working in the field of image segmentation.

Keywords : Image segmentation, Active contouring, Edge-based active contouring, Region-based active contouring, Intensity non-uniformity, noise.





CDGI/ICICRTC/15

Some Developments in the Theory of Hypergeometric Function

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Special Functions of mathematical physics arise in the solution of the partial differential equations governing the behaviour of certain physical-quantities. Among equations of this type, the most frequent occurring equation in physics is Laplace equation; Satisfied by a certain function describing the physical situation under discussion. The important special functions are Bessel functions, Legendre function, Laguerre polynomial, Ultra spherical Polynomial, Gegenbauer polynomial and Jacobi polynomial. All these can be expressed in terms of hypergeometric function. The theory of generalized hypergeometric functions is fundamental in the field of Mathematical physics, since most of the functions in analysis and Mathematical physics are only special cases of these functions.

Keywords : Laguerre polynomial, Legendre function, partial differential equations. ultra-spherical polynomial.





CDGI/ICICRTC/16

Analysis of Fraud Detection Technique in Credit Card: Old versus New Algorithms

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With the rise of new revolutions and the adoption of current trends, technology has changed and has undergone significant advancements. Financial fraud has increased dramatically in recent years, costing the globe billions of dollars yearly as a result of the development of the information infrastructure and the use of new, efficient technology. Several strategies are being implemented using Machine Learning, Data Mining, and Deep Learning to address this issue, which the world is encountering more frequently, particularly during and following COVID moments. A comparison between different algorithms that were used in the past and those that are now being used. Neural Network (NN), Artificial Immune System, Support Vector Machines, Meta Classifiers, and many other techniques are being used on various data sets to prevent fraud detection. This study's primary goal is to categorise various frauds, then use various algorithms and compare them to find the optimum algorithm to use in the current, technologically advanced environment to avoid various credit card fraud.

Keywords : Credit card fraud, classification methods, machine learning, algorithms.





CDGI/ICICRTC/17

Role and Prospects of Computer Science in Nanotechnology : An Overview

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The rapid growth of digital technology has resulted in an enormous rise in computing activities, imposing strict requirements on next-generation computing for energy efficiency and area efficiency. For matrix and logic computing, new technologies such as in-memory computing and transistor-based computing have emerged to accommodate the increasing data need. However, in order to meet the demands of the future, new materials are desperately required. In order to expand the range of electronic devices and their applications, new technologies must be created, such as Si complementary metal–oxide–semiconductor technology. Since two-dimensional materials have a wide range of electrical characteristics, they have the potential to improve computation efficiency while allowing further device down scaling. Paper covers the challenges, pitfalls, and potential applications of integrating nano technology and computer science in this overview.

Keywords : Nano computers, Two dimensional, Quantum Computing, computation efficiency.





CDGI/ICICRTC/18

A Critical Analysis of the Intrusion Detection System Using Machine Learning

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The growing number of people using the internet renders computer networks susceptible to assaults unique to cyberspace. As a direct result, several researchers have created a wide range of intrusion detection systems (IDS), also referred to as IDSs. Research on network security faces several formidable challenges, one of the most significant being the detection of network breaches. It helps in the detection of unauthorised uses of the network as well as attacks on the network, which is a preventive measure that is taken to ensure the network's security. Methods such as machine learning-based (ML) approaches, Bayesian-based algorithms, nature-inspired meta-heuristic techniques, swarm smart algorithms, and Markov neural networks are some of the methods that have been proposed to determine the most useful features and, as a result, improve the effectiveness of intrusion detection systems. Over several years, many data sets were evaluated alongside hundreds of active research initiatives to make comparisons. This study presents a comprehensive analysis of a selection of research papers using single, hybrid, and ensemble classification techniques. The research touches on an extremely broad range of topics. We analysed and compared the different outcomes, measures, restrictions, and data sets used to develop IDS by the many papers that were taken into account. This was done so that we might arrive at our conclusions on the quality of the study.

Keywords : IDS, ML, Cyber-physical systems, UDP, TCP, IP.





CDGI/ICICRTC/19

A Network Intrusion Detection (NIDS) System Using Deep Learning-based LSTM Model

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Protecting an organisation's computer networks has recently become one of its highest priorities. Attackers use a widerange of methods to cause disruptions to systems, and as a result, developers are forced to devise novel solutions to counter act these disruptions. In addition, these invasions can change andbreach existing security mechanisms. The authors of this study apply a deep learning-based LSTM model to construct an effective network intrusion detection system (NIDS) that is able to recognise fresh threats in order to address the problems that have been identified. On the benchmark data set NSL KDD99, this approach method was evaluated, and the results of the experimental findings show that models generate effective results for the binary classification and multiple classes, respectively. Inaddition, the LSTM model that was suggested possesses a robust memory and the ability to differentiate between regular traffic packets and attacks. Further more, the identification that this model provides is more accurate than the identification that is provided by other Machine Learning classifiers.

Keywords : Network Security, Intrusion Detection System, Machine Learning, Deep Learning, Classifiers, LSTM, Dataset.





CDGI/ICICRTC/20 Design and Implementation of Women's Safety System

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According to the report, 35% of women worldwide face unethical physical harassment in public places such as market areas, rail roads, bus terminals, walking routes, etc. In this paper, the author states Women's Security: The authors live in public places and travel via public transport (school buses, private cars, company buses & cars, etc.), as well as women in public places. We feel the need for advanced women's security systems that provide alternative models of security. In this article, we focus on security systems that are solely aimed at providing security to women so that they do not feel helpless when faced with social challenges, and build advanced detectable systems.

Aside from the idea of developing smart devices for women, we can employ a large number of sensors and devices to efficiently identify the real-time situation of women who are being severely abused. It is completely comfortable and simple to use in comparison to existing women having security solutions such as clothing, bulky belts, and the in famous mobile apps that are very abstract and outdated. Trying to integrate smart devices with smartphones really does have the added benefit of lowering the device's cost and size. It's not difficult to build a safety device for women using all the technologies available these days. In addition to issuing emergency alerts, you can create a device that can be worn by women who send messages to friends, family, and stake holders, and use SOS emergency SMS with your current location to notify the police and anyone. This information can be used by police to save the victim from its location. To this end, we're using an Arduino that can interface with GSM and GPS modules to send SMS alerts and get location coordinates. RF transmitter and receiver modules for wireless communication between bands and receiving devices using GPS / GSM.

Keywords : Arduino, GSM, GPS, Raspberry Pi, Smart gadget, Hidden Camera.





CDGI/ICICRTC/21

Efficient Security Enhancement Analysis for Cross-site Scripting and Code Injection Attacks for Web Security

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SQL code injection and XSSs cross-site scripting are two new fields of computer security flaw introduced by web applications that have surpassed buffer overflows as the most common class of flaws in recent years in both new vulnerability reports and exploit reports. Both SQL injection and XSS are examples of a larger group of vulnerabilities that rely on input validation. Studying the cross-site scripting and SQL server injection vulnerabilities is the main goal of this research, which also proposes a user-centric architecture for secure data transmission. Analysis of a model that provides a framework for symmetric and asymmetric encryption, which is far more dependable than the conventional ways of encryption, is the focus of this paper.

Keywords : SQL code Injection, Cross-site scripting, Cyber Security.





CDGI/ICICRTC/22

Critical Analysis for Understanding IoT Security Threats and Challenges 5G Environments

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Internet of Things (IoT) is an inventive mechanization and examination frame work that exploits organizing, detecting, artificial intelligence and large information to give a complete frame work to items or then again benefits. The trend of Internet of Things (IoT) is growing in near future, while there are numero using redients contributing to that heightening, is supreme of which will be the development of 5G network. 5G enabled IoT has become so widespread that the progress of its security and privacy has to continue rapidly. 5G enabled IoT securities are important largely because of the expanding threat surface that is already affecting networks. Adding to these threats is un safe behaviour among users and organizations that may not have the resources or knowledge to best protect their IoT system. This research paper discusses the fundamentals of IoT in 5G environment security to decide what it is, why it is necessary, and how it can be achieved. This paper is based on the analysis of IoT security issues and challenges in 5G network environment.

Keywords : IoT, Security, Attacks, Vulnerability, Threats, Challenges, WSN.





CDGI/ICICRTC/23

An Ensemble Machine Learning Approach for Identifying Arrhythmia and Estimating Potentially Critical Health Risks

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Heart related diseases presently pose one of the major threat worldwide and the largest cause of deaths. Heart abnormalities show a wide variation because of which accurate diagnosis becomes challenging. One of the most common heart related ailment is called Arrhythmia, which is typically associated with heart irregularities. Detecting the ailment is necessary as it is one of the leading causes of human casualties worldwide. One of the best mechanisms to detect the ailment is to analyze the ECG is the suspected candidate. However, novel and newer ways are also being employed for alternative ways. Apart from the Electrocardiogram (ECG) and the Echocardiogram (echo), the Phonocardiogram (PCG) data and their analysis has opened up a new paradigm in telemedicine. The abrupt fluctuations and the randomness of the PCG signals make them difficult to analyze and extract key parameters called features. In this paper, the PCG signals are analyzed based on the attention based deep learning model. The three categories of Arrhythmia analyzed in this case are stenosis and regurgitation. It has been shown that the proposed algorithm attains an accuracy of 96.75%. Additionally, the proposed approach also a machine learning based approach using two separate models working in conjugation (ensemble) for the detection of the ailment (Arrhythmia) and also a predictive model for the detection of possibilities of the ailment in the future. The system can be seen to obtain accuracy of 93% which on comparison with existing literature proves to be superior in performance.

Keywords : Potential health risks, Ensemble Learning, Decision Tress, Conjugate Gradient, Classification Accuracy.





CDGI/ICICRTC/24

Automated Identification of Potential Radical Content Employing Semantic Analysis and Deep Learning

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With the emergence of social media as a common platform for communication among different people and communities at large, the chances of malicious usage of social media platforms for malicious activities has also increased manifold. One such malicious activity is spreading radical content over social media platforms due to the ease of sharing among several individuals and groups. The challenging aspect though for social media agencies or security agencies is the screening of humongous amounts of data to detect radical content. With no clear boundary to demarcate radical and non-radical content, the classification problem becomes challenging as the data size increases. The proposed work presents an artificial intelligence based technique for detection of radical content. The proposed approach uses the concept of dictionary learning to train a Bayesian Regularized artificial neural network. The performance evaluation parameters are the number of iterations, absolute time and the accuracy. It has been shown that while the proposed system attains a classification accuracy of 97% compared to 89% of previous work.

Keywords : Radical Content, Counter-terrorism, social networks, text analysis, Bayesian Regularization, accuracy.





CDGI/ICICRTC/25

A Dynamic Channel State Information (CSI) Based Approach for Adversarial Attack Detection on IoT Networks

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Internet of Things (IoT) networks are wide area networks typically connecting multiple types of devices. As large-scale automation is being made more vocal in several applications, the need for industrial IoT has increased manifold. The major challenge however remains to thwart security breaches and design a proactive approach for channel sensing and secure assignment of band width for attaining high through put and concurrent low latency for the networks. For this purpose, an iterative carrier-sense multiple access with collision detection (i-CSMA-CD) has been proposed. Channel Equalization is also used to revert the effects of jamming and increase the throughput. The throughput analysis for the different jamming conditions has also been performed. The analysis of the iterative approach employing CSMA-CD for proactively thwarting jamming attacks has been made based on the jamming power variation in the network. The analysis has been made in terms of the class-wise through put for the system compared to 89% of previous work.

Keywords : Wide Area Networks, IoT Networks, Jamming Attacks, CSMA-CD, Equalization, Throughput.





CDGI/ICICRTC/26

Data Authentication and Network Level Security Employing Stochastic Features and Accelerated LSTM

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Wide area networks such as fog and internet of things often encounter network level security. There would exist a continued trade-off between the error rate (authentication metric), system overhead, computational complexity and latency of the system. Hence an extremely meticulous system design with appropriate choice of stochastic parameters and authentication scheme should be adopted. In this proposed work, an acceleration learning based LSTM network has been proposed to detect attacks in IoT networks. It can be observed from the obtained results that the proposed system attains better performance compared to previously existing system. The performance enhancement can be attributed to additional features computed and the LSTM with acceleration used to train and further detect errors.

Keywords : Internet of Things (IoT), Network Level Security, Neural Networks, Deep Learning, Accuracy, Gateway Utility.





CDGI/ICICRTC/27

Human Activity Recognition Using CNN and LSTM

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Human Activity Recognition (HAR) is the problem of instantly identifying vigorous exercise done by people individuals. It is possible to sample some measures of a body's tangential acceleration and speed using inertial sensors and utilization of them just to learn models that are proficient in appropriately categorizing operations into the appropriate categories. Recognizing human activity research using detectors in personal and portable gadgets has increased in order to better comprehend human behaviour and predict human intents. Many experts are aiming toward a system that can distinguish a user's activity from raw data using a few resources as feasible. A Long-term Recurrent Convolutional Network (LRCN) is proposed as a comprehensive Human action recognition system based on deep neural networks in this paper.

Keywords : CNN, LSTM, HAR, LRCN.





CDGI/ICICRTC/28

Thermal and CFD Analysis of Shell and Tube Heat Exchanger Used in Solvent Extraction

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A heat exchanger is a device designed to efficiently transfer heat from one medium to another. Supports may be separated by a concrete wall to prevent mixing, or they may be in direct contact. They are widely used in heating, refrigeration, air conditioning, power plants, chemical plants, petrochemical plants, oil refineries, natural gas refining and sewage treatment. The classic example of a heat exchanger is found in an internal combustion engine, where a circulating fluid called an engine coolant circulates through a radiator coil and air passes through the coil, cooling and heating the coolant. The purpose of this document is to raise awareness of surface fouling and to determine the overall heat transfer coefficient for a heat exchanger. In this work, a general energy analysis of heat exchangers is also carried out and a relationship is derived for the logarithmic average temperature difference used in the LMTD method and the modification for various types of heat exchangers using a correction factor. The NTU efficiency method develops a relationship between efficiency and heat exchangers that are analyzed when the outlet temperature is unknown. Finally, a CFD and cost analysis is performed to obtain the best heat exchanger in terms of efficiency.

Keywords : Heat exchanger, heat transfer coefficient, lmt, NTU method, cfd.





CDGI/ICICRTC/29

Cancer Diagnosis Using Data Mining Technology

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A group of disorders known as cancer are characterised by abnormal body cell growth. These cells then eliminate nearby cells and their typical operations. Cancer has the ability to spread through out the body. The diagnosis of this condition is crucial due to how dangerous it is. It can spread within days in some instances. Therefore, it is crucial to get a cancer diagnosis as soon as possible. It is difficult to diagnose the primary type before identifying its subgroups. The Genes dataset is used in this study's decision support system, which was created using data mining classification technologies. By simply analysing the data, data mining technology assists in categorising cancer patients and identifying probable cancer patients

Keywords : Cancer, Data Mining, Naïve Bayesian, K-Nearest Neighbours, SVM, Classification.





CDGI/ICICRTC/30

Artificial Intelligence in Integration with Energy Storage System and Renewable Energy Sources: Challenges and Opportunities

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The development of technologies that can store energy plays an important part in expanding new capabilities for energy consumption, assuring the reliable and cost-effective operation of power systems, and fostering the broad implementation of technologies that can generate renewable energy. Several new advancements, concepts, approaches, and technologies have been introduced into this area from a variety of domains, including materials, electricity control, and artificial intelligence. These fields have all contributed to the advancement of this area. This study examines energy storage technology reviews, classifications, design optimization approaches, and applications in power systems. This assessment is based on the technical characteristics of renewable energy. The goal of this research is to provide a realistic baseline against which researchers and readers can assess their artificial intelligence (AI) endeavours, aspirations, new cutting-edge applications, issues, and global roles in policymaking. This review investigated at how AI techniques surpass traditional models in areas of controllability, largedata handling, cyber attack protection, smart grids, the internet of things, robotics, energy efficiency optimization, predictive maintenance control, and computing efficiency. Big data, the development of a machine learning model, and artificial intelligence (AI) will all play important roles in the future energymarket. An in-depth investigation of artificial intelligence applications in the optimization of set – up and energy control mechanism, as well as the adaptability of various energy storage technologies, is performed. In conclusion, a number of difficulties and insights are presented, each of which provides fresh ideas and concepts that can be used to the ongoing research on integrated energy storage systems. According to our findings, AI is increasingly becoming a crucial facilitator of a complex, innovative, and data-driven energy economy. In an increasingly competitive market, AI provides a critical magical tool for improving operational performance and efficiency.

Keywords : Energy storage, Artificial Intelligence, Smart grid, Optimization, Challenges.





Cyber and Network Security System

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Information security can be thought of as the sum of computer and network security. Network security development relies on existing computer security. One must acknowledge the vulnerability of systems that contain, control and process valuable assets. A secure system must restrict the flow of information to only authorized persons, protect system performance, and restrict the use of system resources to authorized persons and activities. Computer abuse is a negative consequence of the technology information security has become a major issue. Encrypting and decrypting data have recently been widely investigated and developed because there is a demand for a stronger encryption and decryption which is very hard to crack. Cryptography plays major roles to fulfilment these demands.

Nowadays, many of researchers have proposed many of encryption and decryption algorithms such as AES, DES, RSA, and others. But most of the proposed algorithms encountered some problems such as lack of robustness and significant amount of time added to packet delay to maintain the security on the communication channel between the terminals. In this paper, the security goals were enhanced by developing a new approach or key for cryptography which maintains the security on the communication channels by making it difficult for attacker to predicate a pattern as well as speed of the encryption / decryption scheme.

Keywords : Cryptography, Encryption, Decryption, Cypher text, Plain text, Symmetric and Asymmetric cryptography.





CDGI/ICICRTC/32

Heavy Metal Toxicity and Environmental Remediation Using Nanotechnology

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The deterioration of the environment by heavy metals is a significant issue. Heavy metals are harmful to the health of humans as well as the soil, plants, and aquatic organisms they come into contact with. Heavy metals have a harmful effect on the plant that lives in the soil because they disrupt essential microbial processes and reduce both the number and the level of activity of soil microorganisms. Heavy metals can have an effect on a plant's physiological processes even at low concentrations. In terms of the aquatic life, it has a significant impact on the fishes. It encourages the creation of reactive oxygen species, which can be harmful to fish and other aquatic organisms if they come into contact with them. Heavy metals can cause major health problems in people when present in concentrations that are higher than the threshold values for certain concentrations. The main means by which humans are exposed to heavy metals are determined, in large part, by the properties of those metals. The various types of treatment methods that can be utilised in order to successfully remove harmful metals from wastewater. Carbon nanoparticles are a distinct type of material due to the fact that they are nontoxic, have a large surface area, are simpler to biodegrade, and are especially helpful in environmental remediation.

Keywords : Toxicity, Environment, Nanotechnology, Microorganism, Heavy metal, Contamination.





CDGI/ICICRTC/33

A Review on Block Chain Technology : Applications and Challenges

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With the continuous improvement in the technologies, Block Chain Technology is explores the research in the field of academic, industrial, commercial and in other applications too. Now a days Block Chain technology and its applications contributes their roles in the various fields includes sales, finance, corporateworld, resource management and so on. Due to the Block Chain technology behaviours of having decentralisation, trust less nature, distributed provides the benefits to the business and other domain. This review paper provides the all the key designs, features, characteristics and benefits of the technology with the unique and superior among all the technologies. Blockchain uses Smart contracts, Consensus, Proof of work and decentralization to main the uniqueness and verified which can't be changed. This paper focused on the key areas for the Block Chain technology such as Security, Scalability and its challenges to adopt the technology by various domain.

Keywords : Block Chain, Decentralisation, Consensus, Proof of work, Domain, technology, Distributed Ledger, Cryptocurrency, Smart Contracts.





CDGI/ICICRTC/34

Digitalization: Forest and Wildlife Real Time Monitoring, Analysis and Prediction

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The evolution of various species in nature derives the foundation for life on earth. This paper thrives on that concept and introduces a digitization model, that will aid in real-time monitoring, analysis, and prediction of wildlife and forests. With the advent of powerful technologies like IoT, Data Analysis, and Machine Learning, we can achieve immaculate results to conserve these natural habitats. The use of real-time trackers would enable us to monitor and study wildlife behavior in events like a forest fire. Also, providing us a means for analyzing the climate, adaptability, and geographical distribution patterns of wildlife. Similarly, this model would also allow us to study and collect results on soil condition, temperature, pollution, humidity, and other such factors which play a vital role in sustaining forests. Strong visual data produced by the model would ease the outcome derivation, resulting in the easy grasping of all the patterns by a larger audience, overcoming the barriers of technical jargon.

Keywords : IoT, Data analysis, machine Learning, graphs, forest, wildlife.





CDGI/ICICRTC/35

Arsenic Impurity Detection in Potable Water Using Fiber Optic Sensor

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This paper reports the development of a sensitive fiber optic sensor probe to detect arsenic (As) impurity in water, based on the phenomenon of localized surface plasmon resonance (LSPR). A low-cost and simple photosynthesis technique was used to coat silver nanoparticles on the unclad portion of a multimode plastic-clad silica optical fiber. The confirmation of the deposition of silver nanoparticles on the core of optical fiber was done using Energy dispersive X-ray analysis. Prepared fiber optic sensor probe then successfully used to monitor arsenic impurity in potable water.

Keywords : Localised surface plasmon resonance, Silver nanoparticles, Fiber optic probe, Photosynthesis technique.





CDGI/ICICRTC/36

Mitigation Strategies of Urban Heat Island (UHI) Effect in Urban Areas : An Overview

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Exhaustive development has led to the diminution of plants and its replacement by impermeable shells, subsequent in the addition of thermal energy, with metropolitan regions becoming heated up than peripheral areas, an occurrence recognized as the Urban Heat Island(UHI). The UHI effect leads to energy depletion due to the airconditioning demand in the buildings for thermal comfort, and it causes environmental degradation due to greenhouse gasemissions. The present paper is based on the easing strategies of the urban heat island effect worldwide and its impact on the energy-saving opportunities in dwellings. The study concluded that green roofs, cool roofs, green facades, and green architecture are the strategies that mitigate the UHI effect.

Keywords : Cool roof, Green roof, Thermal Comfort, UrbanHeat Island.





CDGI/ICICRTC/37

Environmental and Climatic Changes During Covid - 19 and its Positive Impact

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The rapid spread of a new corona virus (SARS-CoV-2) in China's Wuhan city in December 2019 has attracted international interest. Dry cough, high fever, body soreness, and exhaustion are some of the symptoms of a viral respiratory infection. Evidence suggests that environmental stressors like rising temperatures, increased pollution, and the COVID-19 pandemic may have a negative impact on mental health, potentially contributing to everything from short-term mood swings to long-term conditions like anxiety, depression, PTSD, and substance abuse. Numerous questions about the connections between the emergence of novel illnesses, environmental factors, climate, and human health were highlighted by the COVID-19 outbreak. Corona virus has had some bad effects on the world, but the crisis has had some positive effects on the environment as people have moved to prevent the spread of the virus. This has resulted in less pollution and less emissions of greenhouse gases.

Keywords : Covid-19, Greenhouse, PTSD.





CDGI/ICICRTC/38

Light Pollution

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Artificial lighting, which is now required to support human activity at night, adds to what is known as "light pollution." The visibility of the night sky is diminished and needless energy is wasted when such pollution occurs. To prevent it, several cities throughout the world have already controlled the use of luminaires, particularly concerning public illumination, since the 1980s. The effects of transportation infrastructure on the environment have long been the focus of study. Light pollution is one component of transportation facilities' environmental impact that is largely disregarded. In many places, light pollution is now taken into consideration while planning and designing. Neighbourhoods are becoming increasingly aware of the stray light coming from outside and shining on their buildings and windows. The increase in skylights surrounding cities is causing astronomers and observatories considerable anxiety. According to some researchers, roadway lighting may be the cause of up to 50% of all light pollution. This firmly places the duty of finding suitable and cost-effective solutions for light pollution in the hands of traffic engineers. We can see that the effects of light pollution can be controlled by employing some simple solutions with today's technology. All it takes, perhaps the hardest part, is the political will to act.

Keywords : Artificial Lighting, pollution, environmental impact, illumination, stray light.





CDGI/ICICRTC/39

Analysis of Tragic Condition of Protagonist in Thomas Hardy's Tess, The D'Urbervilles

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Thomas Hardy was a Victorian poet and novelist whom himself denominated his novels, "Novels of Character and Environment". His novels rendered psychological insights and revelations which elucidate the characters who are accompanied by complex passions, arriving in strange predicaments. Tess of the D'Urbervilles, subtitled "A Pure Woman Faithfully Presented", published in 1891 can be considered as his tragic masterpiece which relates the story of a simple, sensuous and passionate girl Teresa "Tess" Duberfield. The novel encountered severe criticism for depicting the heroine as a "Pure Women" which was against the sexual norms of the Victorian days. The novel was rejected by many publishers for its pessimism and obsession of sex, before it appeared in the periodical as a serial story in The Graphic between July and December 1891 and in its complete original version of Wessex edition in December 1891.

Keywords : Fate, Religion, Victim.





CDGI/ICICRTC/40

Process Mining: Recent Trends and Aspects

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Since last two-decade science of data is playing key role in the forecasting of any organization but it is not periphery of information. The word Process Mining is new to dosome extension of the field of data science. It gives us more excel information to predict the data information in well-organized way. The process mining is used to enhancement of any organization or individual. The lacuna of the information required to make the data sensible it is required processing. In this paper, we are giving some resent applications and exposure to process mining.

Keywords : Data science, process mining, computer algorithm.





Future Batteries

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Battery, the quick source of power, is a system of power that exists to meet this need when power is needed but electricity supply is not possible or available. Batteries offer a variety of environmental advantages. By storing energy, batteries enable to increase the use of renewable energy while reducing the harmful environmental effects of nuclear or fossil fuel-based power. The deployment of such technologies can lessen air pollution and its negative consequences on social and natural systems. Batteries' materials can assist a sustainable way of life on earth by being recycled and recovered. Such systems only have a charging and discharging issue, and after a finite number of cycles of use, they are no longer effective for the intended function. Advanced batteries with higher charging and discharging cycles and more power storage capacity can replace such limits. Future solutions for current technology include batteries like sand batteries, solidstate lithium ion, aluminum-air, and Ryden dual carbon batteries.

Keywords : Renewable energy, Power storage, Ecological system, Sustainable life, Sand batteries, Aluminum-air batteries, Ryden Dual carbon batteries.





CDGI/ICICRTC/42

Deduction of Optimal Path in Urban Area Based on AI

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On the basis of the theory of GIS and artificial intelligence, an improved Dijkstra algorithm is proposed in order to increase the effectiveness of the traditional Dijkstra algorithm. First, a topologic graph of the traffic network is built in accordance with the features of the urban traffic network. Present are the ideas of location node and traffic node and to store the network, an appropriate data structure is used. The enhanced Dijkstra algorithm is then used to increase searching efficiency so that it can fit for complex traffic networks.

Keywords : Artificial Intelligence, Dijkstra Algorithm, GIS.





Deep Learning : An Overview

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YOLO is an algorithm that uses neural networks to provide real-time object detection. This algorithm is popular because of its speed and accuracy. It has various applications detect traffic signals, people, parking meters, and animals. This abstract introduces readers to learn about YOLO algorithm for object detection and explains how it works. It also contain some real-life applications. Object detection is a phenomenon on in computer vision that involves the detection of various objects in digital images or videos. Some of the objects detected include people, cars, chairs, stones, buildings, trees, animals etc. Object detection consists of various approaches such as fast R-CNN(region based convolutional neural network), Retina-Net, and Single-Shot MultiBox Detector (SSD). Although these approaches have solved the challenges of data limitation and modeling in object detection, they are not able to detect objects in a single algorithm run. YOLO algorithm has gained popularity because of its superior performance over the aforementioned object detection techniques. YOLO is an abbreviation for the term 'You Only Look Once'. This is an algorithm that detects and recognizes various objects in a picture (in real-time). Object detection in YOLO is done as a regression problem and provides the class probabilities of the detected images. YOLO algorithm employs convolutional neural networks (CNN) to detect objects in real-time. As the name suggests, the algorithm requires only a single forward propagation through a neural network to detect objects. The YOLO algorithm consists of various variants. Some of the common ones include tiny YOLO, YOLOv3, YOLOv4.

Keywords : Deep learning, CNN(Convolutional Neural Networks), YOLO, Image detection.





CDGI/ICICRTC/44

Cyberpsychology : An Overview

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As we know today's world is running on internet and technology. People spends their most of the time on Internet. The term cyberpsychology refers to the effects of internet on human mind and behaviour. Cyberpsychology is a study of the way people interact through the computers or any other digital devices and the emotional or mental effects that usage has on brain. Cyberpsychology is also known as Internet Psychology or Web Psychology. The study of Cyberpsychology shows how people think while using internet or what difference comes in their mindset after excessive use of internet or technology. How human minds are now depending on internet and its benefits which is not good for growth of human brains. Excessive use of social media creates different fears in human mind like FOMO (Fear of missing out), FOBM (Fear of being missed) because of which user checks its social media accounts couple a times a day. User became very sensitive about his or her profile, other people's comments on their post, reaction on their stories and so many other social media activities. It is adversely affecting their mind. The new generation is kind of obsessed with social life's but here social life does not mean talking to people face to face or small gatherings in family or society, here social life's means their life's which revolves around their social media accounts, their interaction with lots of people through internet. They are so involved in creating their social identity attractive that in the process they lost themselves and some of them even started the process of self-destruction without them knowing.

Keywords : Cyberpsychology, Social Media, Mind and Behaviour, Internet, Excessive, Obsessed, Affects.





CDGI/ICICRTC/45

Resolving the Most Common Healthcare Related Problems through Web-Application

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India being a country with a population over a billion and such a vast population requires large number of medical services but it's not the case. Only a fraction of Medical service providers are there to serve such a large population and even the people of the country are also not aware about the healthcare facilities provided by private players in the market. People living in an area find hard to locate a doctor, ambulance and other services mainly outsiders, until and unless they are living in that specified area for a longer period of time. Even in case of emergency may find themselves helpless to find right confirmation to availability of doctors near them and may waste precious parts of their time on which life of the patient counts on. The research paper implements a Web Application with latest trends and features to make quality healthcare affordable and accessible for over a billion + Indians. This would help in empowering people with the most accurate, comprehensive, and curated information and care, enabling them to make better healthcare decisions. The Web-App is revolutionizing healthcare by enabling consumers to search the best doctors, book instant appointments, consultations, and make better, more informed health decisions. It develops and distributes medical information systems. The Application offers an online software platform that provides automated appointment scheduling, billing solutions, and storage of medical records. It is a Patient-Focused, Unbiased and Independent Medical Web Application. The Application offers a secure, encrypted platform for doctors to connect with patients online. It allows patients and doctors to interact at their own convenience. With Features like Priority message Communication, Availability Status of registered Doctors and SMS alerts makes it more effective and practical in Real-Life scenarios. The paper discusses the challenges that are largely faced by people on a regular basis and its effective solution through a web based application that has potential to revolutionizing Healthcare.

Keywords : Healthcare, Medical service, Web applications.





CDGI/ICICRTC/46

Comparative Study of Various Algorithms for the Determination of Water Requirements for Plants

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The increasing demand in the food products to meet the requirement of the human hunger can be satisfied from improving the yield of the crop. In the conventional way of irrigation system, the watering to the plant is made based on the available water resources and skill of a farmer. This may not be the efficient way of utilising the water resources for agriculture. The different plants need different amount of water and other nutrition to increase the yield of any crop. There are different algorithms in artificial intelligence system used for prediction and forecasting the results. These prediction algorithms can be used to determine the amount of water and other nutrition requirements of a plant. By incorporating different machine learning techniques, it is possible that the effective water management can be done. The smart agriculture system requires the sensing of climatic changes and plant-based suggestion for the farming. In this paper comparative study of various algorithms is made. These algorithms can be adopted based on the location, type of plant and water resources available.

Keywords : Climate Change, Crop, Human Hunger, Irrigation System, Machine Learning.





CDGI/ICICRTC/47

Blockchain and its Importance

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There are lot of under table corruption and for that there is no reliable data available for that corruption which is secure other side too, So there was a Decentralized System which provide ease for this problem and we can trust it also for more reliable and secure data this Decentralized System is called Blockchain. A single block of a chain contains some. Relevant data, Hash and Previous Hash. If any vacant block that doesn't contain any information is called Genesis Block by the use of this all we can track their Block history. This paper has discussed the Importance of blockchain in this developing world. Blockchain Itself cherishes it's importance by Security layer to overcome this corruption world.

Keywords : Decentralized System, Hash, Previous Hash, Genesis Block.





CDGI/ICICRTC/48

Observation of Virtual Reality on Human Brain

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Virtual Reality environment is perceived through a device known as a Virtual Reality headset, In this modern era human body is surrounded with sensory inputs constantly. Virtual Reality is a simulated setup that completely stands out from the normal surroundings and makes us to sense a different reality. A perfectly synchronized audio and video makes a VR user sense a realistic environment and gives a perception where human brain assumes the feel of actually existing in a different plane. EM radiation conveys basic determining data like depth, contrast, size and shades behave as messengers for the user's eye. The photo-receptors present in the flat retina transform the light received into electrical signals, and helps us to get a glimpse of the realistic, colourful, and 3D world, as we know it, While brain acts as a filter during the process. A device called gyroscope is used to detect angular movement while another device magnetometers is used to get the location associated to the earth, and simultaneously an accelerometer is working to get data on 3D movement. While researching on this we found that during an experiment conducted on rats at University of California in 2014, it concludes that "neurons in a brain region associated with spatial learning behaved completely differently in virtual environments compared to in real ones, with more than half of the neurons shutting down while in VR". On the other hand a new study has reported that virtual reality amplifies brain functioning that may be pivoted for learning, memory and even treating Alzheimer's and depression. The scientists also reported that VR environments change divergent electrical rhythms present in different parts of brain neurons. All this specifies that scientists may be able to manipulate human brain rhythms in VR – not only to amplify learning, but also to treat memory-related illness.

Keywords : 3D Movement, Human Brain, Neurons, Virtual Reality.





CDGI/ICICRTC/49

Drowsiness Driving Detection System

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As we know that many road accidents are fatigue related. According to various survey done by different sources which says that around 21% road accident caused by driver getting drowsy. Out of 25 accidents, there is one accident caused during driving while being so tired. The emotional impact of the accident itself as well as related injuries can lead to depression and anxiety. The most common cause of accidents is drunk driving and late-night driving. Therefore, there is a need to develop the software that will detect and notify a driver detect and alert a driver of bad medical condition, by which driver can prevent themselves and their family members. For development of this system, we need to use several different algorithms and methods for eye tracking and monitoring from the area of machine learning and its various libraries. By using computer vision, we will observe the driver face, either using mobile camera or inbuilt camera. In this system we will use the retinal reflection which means to finding the eyes of the face then using the absence of reflection when the eyes are closed. By applying this algorithm, we will monitor the blinking of eyes on a particular time. So, we will warn the driver as soon as the closed eye is detected.

The first alternative uses a recurrent and convolutional neural network, while the second one uses deep learning techniques to extract numeric features from images, which are introduced into a fuzzy logic-based system afterwards. The accuracy obtained by both systems is similar around 65% accuracy over training data, and 60% accuracy on test data. However, the fuzzy logic-based system stands out because it avoids raising false alarms and reaches a specificity which means the proportion of videos in which the driver is not drowsy that are correctly classified of 93%. Although the obtained results do not achieve very satisfactory rates, the proposals presented in this work are promising and can be considered a solid baseline for future works. There are many products that provide the measure of fatigue level in the drivers which are implemented in many vehicles. The drowsiness driver detection system provides the same functionality but better results and additional benefits. Also it alerts the user on reaching the certain saturation point of the drowsiness measure. This system has great potential, and multiple ways of improving them were identified and will be addressed in the future.

Keywords : Computer Vision, Drowsy, Drunk Driving, Fuzzy Logic.





CDGI/ICICRTC/50

Wine Quality Prediction

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Our topic is Wine Quality Prediction. A good wine quality prediction can be very useful in the certification phase, since currently the sensory analysis is performed by human tasters, being clearly a subjective approach. This work is endeavouring to predict the quality of wine based on physiochemical data. What is meant by quality of wine can be difficult to articulate, but one such definition is that “ideally, it should be related to intrinsic visual, taste, or aroma characters which are perceived as above average for that type of wine.” An automatic predictive system can be integrated into a decision support system, helping the speed and quality of the performance. Wine classification is a difficult task since taste is the least understood of the human senses. Furthermore, a feature selection process can help to analyze the impact of the analytical tests. If it is concluded that several input variables are highly relevant to predict the wine quality, since in the production process some variables can be controlled, this information can be used to improve the wine quality. Popular Classification models are Random Forest, Stochastic Gradient Descent, SVC, Logistic Regression.

The aim of this project is to predict the quality of wine on a scale of 0–10 given a set of features as inputs. The dataset used is Wine Quality Data set from UCI Machine Learning





Repository. Input variables are fixed acidity, volatile acidity, citric acid, residual sugar, chlorides, free sulphur dioxide, total sulphur dioxide, density, pH, sulphates, alcohol. And the output variable is quality (score between 0 and 10). We are dealing only with red wine. We have quality being one of these values: [3, 4, 5, 6, 7, 8]. The higher the value the better the quality. In this project we will treat each class of the wine separately and their aim is to be able and find decision boundaries that work well for new unseen data. The main objective of this research paper was to predict wine quality based on physicochemical data. In this study, two large separate data sets which were taken from UC Irvine Machine Learning Repository were used. The instances were successfully classified as red wine and white wine with the accuracy of 99.5229% by using Random Forests Algorithm. Based on various analysis, the wine quality can be predicted prior to its production. Our work shows that among various ML models, Gradient Boosting performs best to predict the wine quality. This work shows an alternative approach that could be used to get the wine quality and, hence it can be a good starting point to screen the variables on which the wine quality depends.

Keywords : Classification Model, Gradient Boost, Machine Learning, Physiochemical Data, Wine Quality Prediction.





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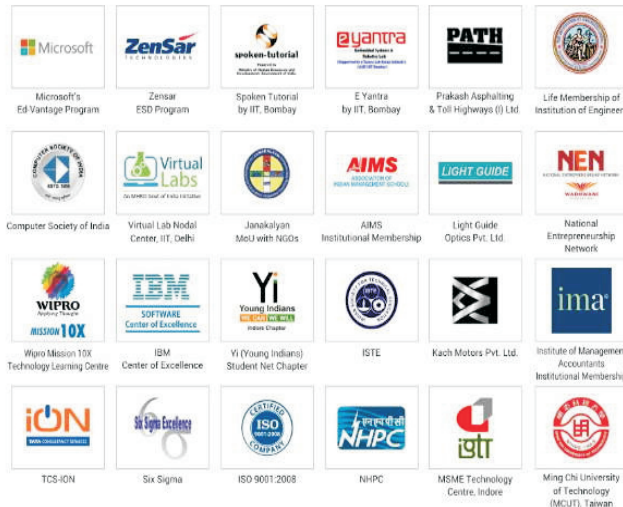


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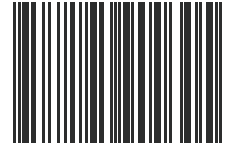
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