



# Book of Abstract

**Editors:**  
**Dr. Sukhpreet Kaur,**  
**Dr. Sushil Kumar**

## **CONFERENCE PROCEEDINGS**

### **3rd International Conference on Computational Methods in Science & Technology (ICCMST-2022)**

**on**

**January 19-20, 2023**

**Editors:**

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**Associate Editors:**

**Dr. Manish Kumar, Dr. Amanpreet Kaur**

**Organized by:**

**Department of Computer Science & Engineering  
& Department of Information Technology  
Chandigarh Engineering College**

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**Title: 3rd International Conference on Computational Methods in Science &  
Technology (ICCMST-2022) - CONFERENCE PROCEEDINGS**

**Editors:** Dr. Sukhpreet Kaur, Dr. Sushil Kumar

**Associate Editors:** Dr. Manish Kumar, Dr. Amanpreet Kaur

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## WELCOME TO ICCMST 2022

Chandigarh Engineering College, CGC Landran is pleased to organize the **AICTE Sponsored 3rd International Conference on Computational Methods in Science & Technology (ICCMST 2022) on 19-20 January 2023**. ICCMST 2022 is an international forum for researchers, engineers, academicians as well as industrial professionals from all over the world to share and publicize their research work and development activities in various research areas. This conference provides opportunities to our college students & faculty members to interact with the external researchers and delegates to exchange new ideas and application experiences. It also helps to find global partners for establishing educational and research relations and for future collaboration. The conference holistically aims to promote translation of basic research into applied investigation and convert applied investigation into practice. This conference will also create awareness about the importance of basic scientific research in related fields and synchronizing with the product market.

After passing a rigorous round of reviews by the Technical Program Committee, out of 182 submissions from all over the world, a total of 52 manuscripts have been finally accepted after double blind peer review and have been considered for publication in IEEE Digital Xplore and Springer prestigious "Lecture Notes in Communications in Computer and Information Science" series (<https://www.springer.com/series/7899>). In addition to this, 35 posters were also accepted for presentation. Reviewers from all around the world contributed to the review process and we would like to thank them for their valuable efforts. We would also like to thank the Keynote Speakers from within the country and abroad, who had given their consent to share their experiences amongst the researchers from all around.

2nd International Conference on Computational Methods in Science & Technology (ICCMST 2021) was organized on 17th and 18th Dec 2021. We have received a total of 179 papers through EasyChair. A total of 54 papers were accepted after a double blind peer review and published through IEEE CPS which had been present in 7 different tracks of the conference. The Proceedings in IEEE Xplore are available at: <https://ieeexplore.ieee.org/xpl/conhome/9784421/proceeding>

1st AICTE Sponsored International Conference on Computational Methods in Science & Technology (ICCMST 2020) was held on 11-12 June 2020 through online mode in Chandigarh Engineering College, Landran. The Conference received 184 submissions from 12 nations all over the world, a total of 96 manuscripts were finally accepted after double blind peer review and were considered for publication in Scopus indexed journal/UGC CARE approved journal. In addition to this, 119 posters were also accepted for presentation.



## ACKNOWLEDGEMENTS

The Conference Chairs would like to express their gratitude towards a considerable number of volunteers and helpers who have devoted their time and endless patience to organize ICCMST 2022. CGC is a powerful and ever-growing learning association of many enthusiastic people who have organized this conference for the third time after the great success of the ICCMST 2021 and ICCMST 2020 and we are very grateful to be a part of it. In particular, we have to thank the chairs, who were working on a voluntary basis for a whole year to make this conference a success.

We would also like to thank all the members of the International Program Committee, who provided timely and insightful suggestions and reviews without complaint and little credit. Finally, we would like to thank the Advisory Board Members and Organizing Committee Members of the conference for their support in this amazing endeavor. These are the people who have worked incredibly hard behind the scenes to guide all the aspects of the conference. Special thanks go to Hon'ble Chairman, S. Satnam Singh Sandhu and Hon'ble President, S. Rashpal Singh Dhaliwal for believing in us and giving nod to organize such an event. We would also like to take this as an opportunity to thank all those who have actively taken part as local organizers of the conference. Last but not least, we would like to thank the Administration of CGC Group, Technical Partners, Publication Partners and our Sponsors for their timely support. We especially welcome conference delegates who are attending ICCMST - 2022 and hope it will be a great learning experience. We kindly ask all ICCMST 2022 committee members to extend a heartiest and warm welcome to all the participants and research scholars, who are now becoming a valuable part of the constantly expanding CGC community.

Warm greetings and welcome to ICCMST 2022.

Prof. (Dr.) Sushil Kumar  
Prof. (Dr.) Sukhpreet Kaur  
Conference Conveners

## MESSAGE



**S Satnam Singh Sandhu**

Chairman, Chandigarh Group of Colleges



“The advance of technology is based on making it fit in so that  
you don't really even notice it, so it's part of everyday life.”

— Bill Gates, Co-founder of Microsoft

It gives me great pleasure to provide this foreword to the abstract book of the Chandigarh Engineering College, CGC Landran which is hosting Third International Conference on Computational Methods in Science & Technology (ICCMST-2022), which will take place from January 19-20, 2023. The purpose of this event is to discuss innovations, difficulties, current trends, and potential future developments in the field of computers. On a shared platform, researchers, professionals, educators, and students will discuss the current issues.

I really believe in the power of computers since they are enabling the tremendous changes that are taking place in modern society across all spheres of daily life. We have always aimed for excellence, exceeding attendees' expectations for the calibre of the speakers, the punctuality of the invited speeches and discussions, as well as the chance to network and share expertise. The ICCMST has been hosted twice before and all efforts are made to ensure that you have an enriching time this year as well.

I'm happy to see that researchers from various institutes, universities, and businesses from across the nation and abroad are presenting their original research papers on cutting-edge topics like Machine Learning, IoT, Cloud Computing, Communication Networks, System Design, Big Data Analytics, and many other cutting-edge fields.

I have no doubt that this conference will act as a platform for bringing together various academics, researchers, and scholars to cross boundaries in quest of new research frontiers and to present their innovations and discoveries.

I would like to take this opportunity to wish you all the best of luck at the ICCMST-2022 International Conference.

## MESSAGE



**S. Rashpal Singh Dhaliwal**  
President, Chandigarh Group of Colleges



“Computing is not about computers any more. It is about living.”

— Nicholas Negroponte.

The third international conference on computational methods in science and technology, sponsored by the AICTE, is being held at the Chandigarh Engineering College, CGC Landran with the goal of achieving long-term success in the fiercely competitive field of engineering and technology (ICCMST-2022).

Investigating diversely integrated and interdisciplinary engineering approaches has become essential for addressing the numerous growing difficulties on multiple engineering and technological fronts.

I have no doubt that researchers, students, and professors would significantly benefit from this conference. The information in the proceedings will be useful to young scientists and researchers as they plan their future undertakings. I extend my warmest welcome to the attendees, as well as my sincere congratulations to all the employees and students of CGC, CEC, and I wish the conference great success.

I hope your efforts make this event as successful as the previous ones.

## MESSAGE



**Dr. P.N. Hrisheekesha**

Campus Director, Chandigarh Group of Colleges



“ Technology is best when it brings people together.”

— Matt Mullenwag,  
Social Media Entrepreneur

On behalf of Chandigarh Engineering College, CGC Landran, which is hosting the AICTE-sponsored 3rd International Conference on Computational Methods in Science & Technology (ICCMST 2022), I am pleased to extend a warm welcome to all dignitaries from around the world. The ICCMST 2021 and ICCMST 2020 have been a great success and I am looking forward to another successful affair.

The hosts' innovative ideas, enthusiasm, and vision will undoubtedly make this conference an unforgettable experience for all participants.

Computing has widened the divide between humans and machines, and it will do so in the future as well. Will "Artificial Intelligence" eventually dictate how people behave? In the modern era, such questions are undoubtedly a cause for concern.

We must meet on January 19–20, 2023 at CGC-Chandigarh Engineering College to talk about additional trends, problems, and algorithms in the field of computing. I'm hoping that the discussions will be fruitful and that the researchers and conference attendees will present insightful findings.

I appreciate the teams' efforts in organizing the conference, and I wish them the best of luck in making the event a success.



## MESSAGE



**Dr. Rajdeep Singh**

Director-Principal, Chandigarh Engineering  
College, CGC Landran



“ The technology you use impresses no one. The experience you create with it is everything.”

— Sean Gerety

On behalf of the faculty and professionals of Chandigarh Engineering College, CGC Landran, I would like to extend a very warm welcome to all the researchers, students, and the dignitaries from all around the world. The department of CSE and IT at Chandigarh Engineering College will host the third International Conference on Computational Method in Science & Technology (ICCMST 2022), which is supported by the AICTE, on 19-20 January, 2023. CEC hosted the first and second ICCMST conferences successfully and has contributed to the various fields of technology and Engineering.

Through this conference, the significance of fundamental scientific research in the diverse domains of engineering and technology such as Cloud Computing, Machine Learning, IoT, Communication Networks, and numerous other fields will be discussed. We hope that the conference will add to the existing knowledge of the conference attendees and enhance their understanding concerning their respective domains.

The teams' efforts to plan the conference are greatly appreciated, and I wish them luck in making the occasion a success.

## MESSAGE



**Prof. Shyam Sundar Pattnaik**

Director, National Institute of Technical Teachers  
Training and Research (NITTTR), Chandigarh



*“United we work, Together we achieve and Team we win.”*

I am glad to find out that Department of Computer Science & Engineering and Information Technology, Chandigarh Engineering College, CGC Landran, Mohali, one of the Pioneer Institutions of Northern India is organizing AICTE sponsored International Conference on Computational Methods in Science & Technology (ICCMST 2022) for two days on 19-20 January, 2023.

This conference is expected to provide an opportunity to Academicians, Researchers and Industry Practitioners to share their research ideas and interact closely online with each other. I wish all the success to the conference and I congratulate the organizers of the institute in taking a leading step in this direction.

## MESSAGE



**Dr. Satish Kumar**

Chief Scientist, Center of Excellence for  
Intelligent Sensors and Systems (ISenS) CSIR-  
CSIO, Chandigarh



“An expert is a person who has made all the mistakes that can be made in a very narrow field.”

— Niels Bohr

I am very pleased to be involved in this prestigious event. The ICCMST 2022 brings together academicians, researchers, and industrialists to exchange and share experiences and research results. It also provides an interdisciplinary opportunity for researchers and practitioners to present and discuss the most recent innovations in numerous fields of Computer Science.

I congratulate all the organizers for their effort and I hope you will enjoy this valuable event.

## MESSAGE



**Dr. Amir H. Gandomi**

Professor, Faculty of Engineering & Information  
Technology University of Technology, Sydney,  
Australia

*“No Data is clean but most is useful”*

— Dean Abbott,  
Co-founder at SmarterHQ

It gives me immense pleasure that the department of Computer Science and Information Technology at Chandigarh Engineering College (CGC) is organizing its third International Conference on Computational Methods in Science & Technology (ICCMST 2022) sponsored by AICTE.

The conference is expected to cover various domains in the field of computer science and add to the knowledge of all the researchers, faculty and students that are going to attend the this event. I congratulate all the participants and organizers for their contribution.

Best Wishes for ICCMST2022.



## MESSAGE



**Dr. Daniel D. Dasig Jr.,**

Professor, College of Science and Computer  
Studies De La Salle University, Dasmariñas,  
Philippines

I am pleased to learn that the Department of Computer Science & Engineering and Information Technology, Chandigarh Engineering College, CGC Landran, Mohali, one of Northern India's Pioneer Institutions, will host an AICTE-sponsored International Conference on Computational Methods in Science & Technology (ICCMST 2022) on January 19-20, 2023.

The 1st and 2nd ICCMST conferences that were hosted by CGC in 2020 and 2021 were a great success, not only they provided a good platform for showcase of all the researches but, improved a huge amount of knowledge of all the participants in their respective fields.

I look forward to another successful event and most importantly the new innovations and researches done in various fields of Computer Science and Technology.

Best wishes to the team as well as participants for ICCMST2022 !

## MESSAGE



**Mr. Sanjeev Kumar Sharma**

Deputy Director (I.T.), National Informatics Centre  
Ministry of Communication and Information Technology,  
Government of India

“By 2029, computers will have emotional intelligence and be convincing as people.”

— Ray Kurzweil

It's a matter of great pleasure that the Department of Computer Science & Engineering and Information Technology, Chandigarh Engineering College, Landran, is organizing AICTE sponsored 3rd International Conference on Computational Methods in Science & Technology (ICCMST 2022) for two days on 19- 20 January, 2023.

I wish all the success to the conference and I congratulate the organizers of the institute in taking a leading step in this direction.

Heartiest Wishes for ICCMST 2022.

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## Using Machine Learning to Develop Judgment Classification Models

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### Abstract

With the world becoming more and more reliant on technology, we are transitioning from a society that values rational evaluation over intuitive thinking to one in which both of those methods coexist. AI devices rely solely on rational evaluation and machine learning allows us to focus on intuition. The task of intelligence is to deduce which method should be relied upon when solving various problems via the establishment of realistic judgments, according to what kind it identifies as being best for that particular problem. However, human judgments cannot simply be quantitatively compared and ranked by a computer according to conditions set by algorithms because certain difficult-to-measure criteria are not easily passable through algorithm systems such as ethics and common sense. In this research, the authors focus on developing judgment classification models using random forest and support vector machines. The authors attempt to test the effectiveness of sentiment proportions as features in judgment classification models.

## A Survey on Firewall for Cloud Security with Anomaly Detection in Firewall Policy

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### Abstract

Due to the explosive growth of the internet, the security related issues are also increasing. Firewall is a core element of network security. A firewall is a series of sequential filtering rules that the network administrator has established. The number of firewall policies has increased quickly due the extensive network of devices and irregular activities. As a result, unforeseen anomalies between policies. Cloud computing infrastructure is typically designed to store and transmit sensitive data and high speed computer resources via the internet. Cloud systems frequently host a wide variety of apps, the typical packet-level firewall technique is ineffective against sophisticated attacks. This paper describes the concept of cloud firewall with anomaly firewall rules detection. It explains the traditional firewall for network security and three different types of cloud firewall. This paper also explains the different approaches used for detecting anomaly firewall policy. Finally a comparative analysis related to the firewall concept (rule redundancy, anomaly detection) is explained in this paper.

## Industrial IoT Condition Monitoring using Wireless IoT Sensor

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### Abstract

To detect problems with industrial machines, this study developed a rigorous methodology for predictive maintenance. Predictive maintenance is a developing area of study with the goals of extending the useful life of machinery and cutting down on unplanned downtime by using data gleaned through the Internet of Things (IoT) monitoring conducted via wireless sensors. The suggested framework will comprise data collection, processing, analyzing it using a machine learning strategy, and making a conclusion for predictive maintenance. The suggested model is implemented in a LabView simulation developed to track the health of a piece of industrial machinery with fluctuating vibration levels. This study demonstrated the efficacy of the suggested model for predictive maintenance by analyzing current, temperature, and vibration patterns in LabView. Overall, the research makes a valuable contribution by using a Machine Learning technique and proposing a systematic framework for failure detection of industrial equipment using IoT applications.

## Discrete Wavelet Transform: A Breakthrough in Segmentation of CT scans for Intracranial Hemorrhages

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### Abstract

Head injury is a major source for grimness and mortality worldwide and traumatic head wounds are a main source of neurological disability. Head wounds might go from a basic knock on the head to a skull crack and may cause cerebral harm and may even result in death. A traumatic brain injury happens when the skull is harmed, either due to an accident or an injury. This causes the blood to coagulate outside the brain matter within the skull or inside the brain matter itself which is recognized as Intracranial Haemorrhage. This is easily diagnosed using a CT scan of the brain. However, the CT scans may vary in complexity. To address the complexity of the brain CT images, this research paper suggests a method of intracranial Haemorrhage segmentation using discrete wavelet transform. The proposed method is based on a wavelet family used to help in extracting regions of Intracranial haemorrhages in the gray scale images and further applying morphological operations to denoise the image for better segmentation of the Haemorrhage. The proposed algorithm has achieved an Intersection Over Union Score of 78% and is tested on publicly available Kaggle's Computed Tomography CT dataset to verify the segmented region.

## Fake Information Detection using Deep Learning Methods: A Survey

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### Abstract

Fake content has always existed, even before the internet was founded. Because social media is free to use and accessible, a great deal of information is shared these sites. These platforms play a significant role in the dissemination of information, whether accurate or false. The unregulated proliferation of fake information creation and dissemination that we've seen in recent years poses a constant threat to democracy. Fake content articles have the power to persuade individuals, leaving them perplexed. Deep learning techniques are extremely useful for detecting fake information. This paper analyses multiple DL techniques and datasets used by different researchers for analysis that aids in the detection of bogus information.

## Assessing the Robustness of Multi-Criterial Recommendation Systems

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### Abstract

Being able to comprehensively understand the intricacies of recommendation systems - can be a significant competitive advantage. No surprise, then, that marketers are increasingly preferring robust and cost-effective multi-criteria recommendation systems in this age of personalisation and lifetime value maximization. Multi-criterion recommendation systems as a methodology is already fairly well analysed. Yet, as selection criterion complexity increases - it becomes an exponentially more difficult task to check the robustness of such a system. The authors try to evaluate the strength of these systems as a part of this research. In this paper, we empirically compare two different mechanisms which measure similarities and ratings to evaluate their rating estimation performance. The results achieved can be considered one step closer to the understanding of how multidimensional evaluation can be used to assess the underlying value of multi-criteria ratings.



## Face Spoof Detection Techniques: A Review

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Face detection allows the interaction between humans and machines naturally and efficiently. The issue related to the detection of face and facial regions has become a famous research field in image series. This approach is growing popular in various application fields such as payment, access & security, criminal identification, advertising, and healthcare. Face detection fundamentally localizes and extracts a face part from the background. Human beings can do this task without much effort. But this task is extremely complex in terms of computer vision. A wide-ranging testimonial of the issue can be described by providing a still or video image, detecting and localizing an unidentified face. Image segmentation, feature extraction, and authentication of faces and perhaps facial attributes from an abandoned backdrop include the answer of this issue. A face detection system should have the ability to accomplish the task despite lighting, orientation, and camera remoteness like a visual frontend computer. The task of face spoof detection is carried out in different stages. The various schemes of face spoof detection are reviewed in this paper. Machine learning and deep learning models provide the foundation for the systems under review.

## Scientific Landscape and the Road Ahead for Deep Learning: Apple Leaves Disease Detection

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### Abstract

Agriculture industry experiences a significant loss in crop productivity as a result of unpredictably occurring environmental factors such as hailstorms, draughts, fog, and untimely rains. Leaves infections are one of the main causes. Thus, it becomes imperative to identify plant leaf diseases in advance in order to prevent them and reduce crop output loss. A bibliometric analysis of deep learning-based apple leaf disease diagnoses is summarized in the publication. The research concentrates on 139 scientific publications from various periodicals, including journals, articles, and book chapters. Such materials were extracted from the Scopus database after it was searched for keywords relating to the taxonomy of plant diseases and deep learning. The papers are examined between the years of 2017 and 2022. Tools like VOSviewer, an open-source programme, were used for the investigation.



## Survey on Heart Disease Prediction Techniques

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### Abstract

Heart Disease is a severe health problem that has impacted many people all over the world. Heart disease has recently overtaken other causes of death and has become the primary factor in the deaths of people of all age groups. Blood vessel function is impacted by heart illness, which also results in coronary artery infections that weaken the patient's body. In order to effectively treat cardiac patients before a heart attack or stroke occurs; early detection of heart disease is crucial. Wearable sensors and medical testing can be used to detect cardiovascular disorders. With the aid of various DL techniques, the health industry needs to improve its ability to forecast cardiac attacks. Breathlessness, physical illness, and swollen feet are some of the signs of heart disease that are frequently observed. Because the current methods for heart disease diagnosis are less effective in early detection, researchers work to develop an efficient method that can identify heart illness. The heart disease prediction process involves a number of steps. Some of these phases include pre-processing, feature extraction, and categorization.

## IoT Based Vehicle Management System in Medical Emergency

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### Abstract

In today's life, people won't reach on time when their near and dear one's need them in medical conditions due to which many patients lose their life. In our idea, we are making person's personal vehicle, an emergency vehicle. So, the person could get priority in case of medical emergency. Making a vehicle, an emergency vehicle there will be many things which the vehicle would encounter such as getting all the lights green on his/her way to hospital, changing of headlight colour so that no traffic officer should break the patient's path and the main feature is that hospitals will get a notification saying about the patient's current pulse rate. Different IoT based sensors will be used to fulfil this problem.

## Image Caption using CNN in Computer Vision

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### Abstract

Programmatic captioning is the system of making captions or textual content primarily based totally on picture content material. This is an AI challenge that consists of each everyday speech processing (producing textual content) and PC vision (information picture content material). Program captioning is presently a completely lagging and evolving examination topic. Different new techniques are discovered little by little to obtain perfect outcomes on this area. Still, it takes a number of price to get human-equal outcomes. This studies is supposed to discover precise and present day strategies and fashions used for imaging with deep mastering in a particular manner. What strategies are carried out to apply those fashions, and what strategies provide right outcomes? To this end, we performed an green paper seek of late-level research from 2017 to 2019 from noteworthy datasets (Scopus, Web of Sciences, IEEEExplore). A overall of sixty one considerable research had been observed which can be applicable to the factors on this study. It seems that CNN is used to recognize picture content material and hit upon gadgets in images, even as RNN or LSTM is used withinside the age of languages. The maximum normally used datasets are MS COCO, utilized in all tests, and Glimmer 8k and Glint 30k. The maximum normally used grading framework is BLEU (1-4) that's utilized in all grading. It became additionally cited that LSTM with CNN beat RNN with CNN. We observed that the 2 maximum promising strategies for going for walks this version are encoderdecoders and attention tools. Combining those can power huge outcomes. This studies gives course and concept for researchers thinking about including programmed closed captioning

## Data Augmentation for Automated Essay Scoring using Transformer Models

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### Abstract

Automated essay scoring is one of the most important problem in Natural Language Processing. It has been explored for a number of years, and it remains partially solved. In addition to its economic and educational usefulness, it presents research problems. Transfer learning has proved to be beneficial in NLP. Data augmentation techniques have also helped build state-of-the-art models for automated essay scoring. Many works in the past have attempted to solve this problem by using RNNs, LSTMs, etc. This work examines the transformer models like BERT, RoBERTa, etc. We empirically demonstrate the effectiveness of transformer models and data augmentation for automated essay grading across many topics using a single model.

## A Survey on Malware Classification using Deep Learning Techniques

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### Abstract

Information technology is emerging at fast phase in present environment. The main concerns for a cyber-attack are Privacy and Security. New malwares are increasing at a very fast rate, according to studies. The war between the attackers and security concerns are needed to protect the system from dangerous and malicious software is a continuous process. Attackers are constantly attempting to avoid Malicious malware signatures that are generally being developed by antivirus vendors. Deep learning architectures are used in cyber security applications to examine the essential properties of sample. Also, emerging DL (Deep Learning) techniques and resources identifies the disadvantages in the current work that is used to represent an image of the current trends in the area, that is also used to provide insights and provide the researchers and developers with the best practices that work on similar issues.

## Breast Cancer Prediction: Impact of Straified Sampling Approach on Classifier Accuracy

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### Abstract

Late identification of breast cancer is a major concern in India. After lung cancer, breast cancer is the second most common cause of mortality for women. In the present study, artificial intelligence is utilised to determine if a breast tumour is benign or malignant. The goal of this paper is to offer a thorough investigation of how K Nearest Neighbor (K-NN) is used to identify breast cancer. One of the most basic supervised learning-based machine learning algorithms is KNN. A new data point is classified using the K-NN algorithm based on similarity after all the existing data has been stored. Additionally, we have investigated how stratified sampling affects the classifier's accuracy. The proposed work shows that stratified sampling increases accuracy and F1-scores considerably.

## Stock Market Prediction Approach: An Analysis

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### Abstract

Data mining is a method that can glean meaningful information from a wealth of data. The data mining method known as prediction analysis uses current data to forecast potential future outcomes. Pre-processing the image, to extract the features, and classify the image are just a few of the operations used in the prediction analysis methodology. The stock market forecast is the foundation of this review essay. This study reviews a number of classification-based stock market prediction systems. Python is used to put the stock market forecasting concepts into practice.

## Clustering and Reinforcement Learning Based Multi-Access Edge Computing in Ultra Dense Networks

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### Abstract

Multi-access edge computing (MEC) and Ultra-dense networks (UDN) are a special case of 5G cellular networks where the density of base stations is higher compared to that of the end users (UE). Hence, a UE is likely to be present in the coverage of multiple base stations at any given time instant. This paper deals with providing scheduling algorithm for multiaccess edge computing in UDN. Unlike existing works, where the transmission scheduling (i.e., assigning the base stations for each client) and the computation resource scheduling are jointly considered. Due to the uncertainties in the task generation and path losses, we model the scheduling problem as deep reinforcement learning (DRL) problem which maximizes the total utility of the clients. The DRL model (based on actor-critic neural networks) is trained using the deep deterministic policy gradient (DDPG) algorithm. The results show the convergence of the total utility and better performance compared to a greedy policy and a priority based scheduling policy.



## Analysis and Categorization of Emotet IoT Botnet Malware

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### Abstract

To provide the ease control and remote monitoring, Internet of Things (IoT) plays an important role in smart devices. The IoT system ranges from smart city to healthcare sector, and supply chain management. This extent of advancement generated a huge amount of data which may be the reason of malware threats of the IoT system. IoT Malware is a threat which may affects all sectors such as business, network, telecoms, media, military, etc. The recent report claimed the proliferation of global cost of malware estimated that till 2023 it would be around 8 trillion dollars annually which may double due to coronavirus outbreak. The analysis of IoT malware needs serious concern as now warfare and digital retaliation can cause serious damage than the war lead on ground. The major aim of this paper is performing the critical analysis of an IoT malware named Emotet. The IoT malware analysis can be categorized in two types such as static and dynamic malware analysis. Static analysis is the process of analyzing malware or binary without executing it. It is considered a more effective method when it comes to the diversity of processor architecture. While dynamic analysis is based on the detection of malware and its behavior with real-time execution. This paper focused on the testbed and Analysis of Emotet malware statically and dynamically using distinguished malware analysis tools.



## Sentiment Analysis During Covid-19 using Machine Learning Techniques

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### Abstract

Social-media gaining a lot of popularity in day-to-day life of human being. It is a medium where users can share the opinions and their views freely. Covid-19 is tough time for every one of us that brings distinguished problems in human life survival. Therefore, the use of social media increased at pandemic time. In this paper, we classify and analyze the sentiments of persons and classify their opinions on the basis of their thoughts and sentiments shared on social media. This paper focused on twitter data and trending hashtags which was trend during covid time. The experiment is performed using neural network, Bi-LSTM, and CNN algorithms. It achieves the overall accuracy for the proposed model is 95.7% with 0.0019 average training time and 0.0082 standard deviation.

## Crime Analysis and Forecasting using Twitter Data in the Indian Context

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### Abstract

Since the late 1990s, social media has added more features and users. Due to the rise of social media, blogs and posts by common people are now a part of mainstream journalism. Twitter is a place where people can share their ideas about culture, society, the economy, and politics. India's large population and rising crime rate make it hard for law enforcement to find and stop illegal activities. This article shows the use of Twitter data to analyse, forecast, and visualise criminal activity using statistical and machine learning models and geospatial visualisation techniques. This helps law enforcement agencies make the best use of their limited resources and put them in the right places. The research aims to present a spatial and temporal picture of crime in India and is split into three parts: Classification, Visualisation, and Forecasting. Crime tweets are identified using a hashtag query argument in the tweepy python package's search\_tweets function, followed by substring-keyword classification. The visualisation uses gmaps and bokeh python packages for geospatial and matplotlib for analytical applications. The forecasting portion compares AR, ARIMA, and LSTM to determine the best model for time series forecasting of crime tweet count

## Identification and Detection of Behavior Based Malware using Machine Learning

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### Abstract

Malware that exploits the Web on a regular basis becomes a real menace. The transmission of malware is very rapid during the last two decades which needs to be detected. One of the efficient approaches for the detection of malware is manual heuristics analysis. To recognize and identification of behavior -based malware detection, machine learning techniques are in the consideration which may provide the optimum solution. Every malware's activity in a mimicked scenario would be continuously assessed, as well as behavior evaluations would be generated. Therefore, a major challenge is to identify the real-time identification of malware using signature matching algorithms. The classification methods used for this article such as KNN, J48, Decision Tree, SVM, Naïve Bayes, Neural Network, and Multilayer perceptron. J48 decision trees, which focused on the results of the testing that consisted of all 5 classifications, had a recall of 95.7%, a specificity of 97.3 percent, a positive predictive rate 2.4%, and accuracy is 96.8%. This was their collective best performance. In conclusion, malware could be identified in an efficient and effective way using a proof-of-concept that focuses on autonomous behavior-based malware classification.

## Skin Lesion Classification: Scrutiny of Learning-Based Methods

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### Abstract

In this advanced era of technology, learning-based methods or models are popular among various applications, even in medical imaging. For example, several disease detection systems utilize this technology and help doctors in early diagnostics. However, the body's internal organs' outermost layer of defense is their skin. Unfortunately, the prevalence of numerous skin conditions is rising today due to increased pollution and many other causes. Categorizing skin lesions is a complex process since they come in various shapes and kinds, and now learning-based methods also help in this field. So, this paper elaborates on the current state of work using learning-based methods and highlights their shortcomings to analyze the future scope of the technology. Moreover, this paper also demonstrates the details of the imaging techniques and benchmark datasets for skin lesion detection.

## **GNN Model Based on Node Classification Forecasting in Social Network**

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### **Abstract**

In the time of ever-growing technology, engineering, and deep learning methods, one thing that has caught the attention of people is the invention of Neural Networks, also known as Artificial Neural Networks (ANN) [1]. These are the subset of machine learning and are at the core of deep learning. Their structure and nomenclature are modelled after the human brain, mimicking the communication between biological neurons [2]. This work is presented and explained a type of ANN, Graphical Neural networks (GNN) [3]. It is a type of neural network that works on graphs. In today's world, one can see various real-life applications of GNNs like those in various social networks, prediction of molecules, and drug preparation in medical sciences, road traffic, etc. The article deals with the application of the GNN showing how can a GNN helps in forecasting information about a person in a social network based on various given datasets. In the end, one can easily forecast the information of a person using various tools like Pytorch, etc

## **Presentation of futuristic Malarial Disease through a Hybrid Model of A.I. and Big Data**

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### **Abstract**

Malaria is a fatal disease caused by the transmission of parasites of female Anopheles mosquito and most common symptoms are high fever, headache, abdominal pain, muscle pain, vomiting, diarrhea, Anemia, etc. Healthcare is a field where Forecasting is most beneficial and helpful for the cure of diseases and it can be possible only by using models of Neural Networks, Regression, and LSTM for predicting the number of confirmed cases, recovered cases, and death cases of any disease based on past and present data for forecasting the future trend of these cases. Even though forecasting can be done by traditional methods but traditional methods are time consuming. The machine learning techniques are fast and accurate then also for adding efficiency and accuracy to these methods and techniques, Artificial Intelligence takes place in the field of Data Sciences. Artificial Intelligence came into the picture 100 years ago and shows remarkable growth in every field in the past few years. There are a lot of models proposed for different types of diseases in the field of healthcare. The visible patterns of symptoms and cases related to the disease can help in the medical field to prevent and cure it. This work is going to deal with the applications of Artificial Intelligence in Data Sciences which is to make an early reliable prediction of Malarial disease using Neural Networks, Regression, and LSTM model. It Compares the trends of different models and comparative results will demonstrate that the techniques of machine learning can be applied to forecast the malarial disease along with visible patterns gives information related to the patient's data.



## Alternative Approach to Solve Goal Programming Problem

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### Abstract

In this article we study an alternative approach to the simplex method to solve the Goal programming problem. This method is going to be a new alternative approach, through which, we are able to solve goal programming problems with better solution as other methods. It will take less iteration, save many efforts and time by neglecting calculations of net evaluation.

## Heart Disease Prediction Using Machine Learning Techniques

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### Abstract

Cardiovascular diseases (CVDs), heart disease, acknowledged as the most common cause of death during the preceding several decades, is now recognized as the most lethal condition, not just in India but throughout the globe. In humans, the heart is important. A small error can result in tiredness issues or even death. One of the most significant challenges confronting medical sector today is the prediction or forecasting of heart illness. It is associated with numerous and intimidating factors and components. An early diagnosis must be made using a prediction model that is reliable, trustworthy, and reasonable in order to achieve rapid disease treatment. It has been discovered that machine learning may help with decision-making and prediction-making using the vast amounts of data that gathered from several healthcare firms. Machine learning methods and approaches have been used to automate the study of big and complicated medical information. Recently, some researchers have employed various machine learning to assist the healthcare sectors and professionals to identify heart-related illness. Represented research evaluates the effectiveness of multiple models built based on supervised machine learning techniques and schemes such as K-Nearest Neighbor (KNN), Logistic Regression (LR), and Random Forest (RF). The ultimate goal of the presented study is to foretell which individuals having heartdisease based on particular attributes. The result of the proposed model demonstrates that the Random Forest Algorithm has the highest accuracy rating.

## An Effective Model for Smartphone Based Classification and Admin Alerting System

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### Abstract

This research analyses and compares machine learning and deep learning models for classifying pothole images and recording exact GPS coordinates using smartphones' built-in sensors. This deep learning classification algorithm uses convolutional neural networks (CNN) built with the TensorFlow library. Five distinct deep learning and machine learning models were trained and compared (SVM, Random Forest, Decision trees, KNN, InceptionResnetV2, InceptionV3). The most accurate model has a 91 percent accuracy rate. According to the results of this study, the suggested approach is reliable and inexpensive.



## Predictive Academic Performance of Students Using Machine Learning Models

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University, Greater Noida, UP**MK Sharma**

Defence Cyber Agency, New Delhi

**Umag Garg**

Graphic Era Hill University, Dehradun

### Abstract

The NEP- 2020 of India has reemphasized the need of delivering quality education in order to decrease the drop out rate of students by the HEI. In post-cover era, retention of the students specially in Engineering and Management disciplines was more prominent. This paper is an attempt to empower HEI predict students' performance/ potential drop out using ML algorithms based on six factors namely; Family size, Study time, Time-spent on extra-curricular activities, Absenteeism, Time spent on Internet, and Health. Three ML algorithms namely, KNN, Random Forest and Decision Tree have been implemented and compared on efficiency and accuracy criteria so as to attain at the top algorithm for subject prediction usecase. The paper's findings on academic performance prediction are likely to help educational institutions and the learners by the way of early identification of potential drop out and implementation of corrective measures. A small data set of 390 students on various predictors has been utilized for ML algorithms implementation. This paper seeks to address the problem of quality education delivery system in India and elsewhere. It is a pilot research on academic performance monitoring with an aim to reduce drop out rate of students. This research work shall pave way for further scaled up research work implementing various algorithms on larger datasets to make a use case for education industry wide implementation potential.

## Study and Performance Comparison of Various MIMO Antenna Configurations Under Rayleigh Fading Channel

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**Parveen Singla**

Electronics and Communication  
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Research and Development, Chandigarh  
Engineering College, Landran

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Department of Computer Science & Engg., Chandigarh Engineering College, Mohali, Punjab

### Abstract

Wireless communications have been captivated by MIMO technology because it provides significant increases in data throughput and link quality without requiring additional transmission bandwidth or power. Greater spectral efficiency (more bits per second per hertz of bandwidth) and enhanced reliability or link diversity allow it to do this (lessen fading). These characteristics have made MIMO a crucial component of practically all wireless communication systems. The present paper deals with the performance and capacity comparison of all MIMO configurations. On the basis of simulation results it is established that the MIMO system outperform all the existing antenna configurations.

## Multiclass Classification of Prostate Cancer Gleason Grades Groups Using Features of multi parametric-MRI (mp-MRI) Images by Applying Machine Learning Techniques

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### Abstract

Prostate cancer (PCa) accounted for 7.8% of all new cases and was the fourth most common cancer in 2020 with 1.4 million new cases. With 15.4% of all newly diagnosed cases in 2020 being prostate cancer, it was the second most prevalent type of cancer in men globally. Due to complex nature of PCa, it is matter of concern that development of Computer Aided Diagnosis (CAD) systems for detection PCa is not keeping up with other cancer disciplines. Feature extraction using region of interest (ROI) is an important step for developing CAD systems. Around the centre of 112 PCa lesions from 99 patients, region of interest was extracted from BVAL, ADC, and T2W MRI images. Features based on two and three dimensions are extracted from the ROI. Total 444 features are extracted and used for machine learning based classification. Comparison of the proposed approach for feature extraction is tested on three classifiers viz. Support Vector Machine (SVM), Naïve Bayes (NB) and k-Nearest Neighbour (KNN). The assessment measures used to compare the aforementioned classifiers include accuracy, recall, precision, and accuracy as well as the F1-score, Receiver Operating Characteristics Curve (ROC), AUC, and U. Kappa. SVM classification outperform as best model with features extracted from ADC and T2W modality with an accuracy of 44.64 %, FPR 0.1604, and PPVGG>1= 0.7500.

## Impact of Cybercrime on E-Governance: Confidentiality of Government Data affected by the Cybercrime

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### Abstract

E-governance has become an important part of modern government, which has seen a massive increase in the use of computers and other digital technology. As a result, the amount of data that governments are collecting, storing, and using has also increased immensely. This has made it necessary to ensure that this data is kept secure from malicious attacks. The increasing number of digital devices being used by governments and their citizens means that there is a greater need to ensure that these devices are secure against malicious attacks such as malware infection, phishing attacks, etc. However, many governments do not have sufficient resources to invest in cybersecurity solutions that can protect their infrastructure against such attacks. In order to overcome these challenges and ensure that e-governance systems are safe from cyberattacks, it is important for governments to take steps towards improving their cybersecurity practices by investing in cyber defense solutions such as firewalls and antivirus software; conducting regular audits; implementing policies regarding data privacy; training employees on how to handle sensitive information responsibly; etc.

### Key Management Scheme for Cloud Integrated Internet of Things

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### Abstract

The primary challenge for IoT devices susceptible to malicious assaults is security. Several important controlling arrangements are already in place to secure the communication between IoT devices. Any protected application's primary management strategy must at the very least provide safety features like honesty. Without authentication, Diffie-Hellman key exchange is susceptible to man-in-the-middle attacks. In order to address this problem, we've developed a method (DHDEAM) constructed on Diffie-Hellman that employs dual encryption and can identify and counteract Sybil attacks. It combines Chacha20 encryption on the client side with AES256 cryptographic approach on the server side for permission. When assessing the performance of DHDEAM, three performance metrics—Detection Rate, Throughput, and Average End-to-End Delay—are used.

## Load Optimization Accessions, Ramification the QoS in Software Defined Networking

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### Abstract

It is difficult to manage traditional networks due to network growth, an increase in user numbers, and the emergence of new technologies like big data and cloud computing. Consequently, it is required to alter the current network design. SDN is a well-liked architecture because it offers customizable control and centralized management in data centers. To achieve scalability and dependability, it was necessary to propose the geographical dispersal of a logically centralized control plane due to the huge scale of networks. Software-defined networking (SDN) load-balancing optimization has been studied for a long time. Many approaches to the load-balancing conundrum have been put forth by researchers, but very few have taken the impact of transmission delay between controllers and switches under heavy network load into account. In this article we elaborate the various techniques of load balancing in SDN those working on different areas like multi-controller, switch migration, multi-agent, strategy, time sharing, prediction, reinforcement learning etc. We discuss the methods used along with the advantages and disadvantages of various costs, service quality, and network performance metrics.



## Detection of Botnet in Machine Learning

**Bal Krishna Yadav****Prof. Vipin Kumar Kushwaha**

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**Dr. Manish Kumar****Ankur Chaudhary**

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### Abstract

It is difficult to manage traditional networks due to network growth, an increase in user numbers, and the emergence of new technologies like big data and cloud computing. Consequently, it is required to alter the current network design. SDN is a well-liked architecture because it offers customizable control and centralized management in data centers. To achieve scalability and dependability, it was necessary to propose the geographical dispersal of a logically centralized control plane due to the huge scale of networks. Software-defined networking (SDN) load-balancing optimization has been studied for a long time. Many approaches to the load-balancing conundrum have been put forth by researchers, but very few have taken the impact of transmission delay between controllers and switches under heavy network load into account. In this article we elaborate the various techniques of load balancing in SDN those working on different areas like multi-controller, switch migration, multi-agent, strategy, time sharing, prediction, reinforcement learning etc. We discuss the methods used along with the advantages and disadvantages of various costs, service quality, and network performance metrics.

## Automated Scene Text Detection Systems: An Imminent Progress

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### Abstract

In this techno-savvy world, digitalization has become apart of our daily lives and has various applications in every field of work. For example, an automatic scene text detection system utilizes a video camera to capture the frames and then detect and recognize the text on the frames to help in different applications like navigation for blind people, sign detection, text retrieval, etc. So, it is essential to understand the current state of the work done in this field. Therefore, in this paper, with the same objective, the theoretical analysis includes the details of the present benchmark datasets, existing systems, and approaches. Moreover, the current methods' shortcomings are also discussed in this paper, along with the future requirement which will help the researchers to target their objectives.

## QoD Metrics: Indicators of Quality of Design in Software Engineering Paradigm

**Dr. Pravneet Kaur****Dr. Sukhpreet Kaur**

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### Abstract

Measuring quality has always been a tedious task by the software specialists and the domain engineers. Software quality is a subjective term which means that it is non-quantifiable and is regarded as non-discrete. Different quality indicators and metrics have come into light in regard to measure the quality of a software like DRE, RE and throughput which are used in different aspects of software engineering projects and in software design. In this paper a different set of QoD metrics are introduced which measures the Quality of the Software in a purely objective manner. In quality of design for software components, usability attribute is taken into consideration and then bifurcated to include metrics like CPD, CID, CIID and CAID. Usage of these metrics gives the end user a clear and crisp idea value of the quality of design.

## IoT Based Sewage System Blockage and Water Accumulation Prevention System

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**Dr. Heena Wadhwa**

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### Abstract

Under the project of developing smart cities, role of the Internet of Things (IoT) is crucial to provide a unified and exclusive access to public resources including electricity, water and sewage, transport facilities along with their optimal utilization. In India, the untreated sewage is the major cause of pollution water sources causing various diseases including diarrhea. The proposed research deals with the blocked sewage system and solving the problem of blockage faster based on IoT devices. Pressure sensor on the bottom as well as on the top of the manhole cover are used to predict the sewage blockage and water logging problem. When the water level rises in the sewage, the pressure inside the manhole gradually increases. When the sewage water starts building up the pressure and reaches at a certain point (threshold limit), pressure sensor (P1) beneath the manhole cover will be triggered and an alert message will be raised in the service cooperation through phone application. When the water level above the manhole increases, the pressure sensor (P2) will be triggered and a red small LED will glow to indicate that the water staggered on the top of the manhole.

## On Assaying the T-score Value for the Detection and Classification of Osteoporosis using AI Learning Techniques

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### Abstract

Osteoporosis is a disease of the bones that causes a decrease in bone density and increases the risk of fractures. Due to increased life expectancy, osteoporosis has become a worldwide health issue. However, early detection is difficult due to the absence of visible symptoms. Therefore, to screen osteoporosis using AI techniques via dental based panoramic radiographs would be cost-effective as well as beneficial. This study investigates the contributions of researchers in detecting and classifying osteoporosis in women using various learning models. In addition, the methods are also analyzed and compared for future reference to determine the optimal algorithm for osteoporosis prediction. The study has also focused on the ongoing difficulties faced by researchers.

## A Study on the Detection and Diagnosis of Cervical Cancer using Machine and Deep Learning Models

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### Abstract

Cervical cancer is among the most common gynaecologic cancers worldwide. As this disease is highly preventable, hence, accurate and early detection is crucial for minimizing its threatening effects on people's lives, particularly women. In this paper, a study has been conducted to compare the researchers' contribution in detecting and diagnosing cervical cancer using various machine and deep learning techniques. In addition, a framework has also been framed briefly to understand the working of AI techniques in predicting cervical cancer and its stage. The previous methods have also been analyzed to draw some conclusions..



## Machine Learning Based Classification for Diabetic Retinopathy Detection Using Retinal Images

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### Abstract

Diabetic Retinopathy is an eye disease that damages the retina and can lead to blindness. It occurs when high level of blood sugar damages the blood vessels in the retina or blocks the flow of blood from the eye. It can lead to blindness in diabetic patients. Therefore, it is necessary to identify diabetic retinopathy in the initial stages so it can be treated. Diagnosing diabetic retinopathy (DR) from kaggle dataset of retinal images requires physician with experience to recognize the existence and importance of many minor signs. In this work, Convolutional Neural Network model is used for diagnosing Diabetic Retinopathy with the help of fundus images. Kaggle dataset is used for classification. The Convolutional neural network is more efficient and accurate and it also saves time. An accuracy of 84% is achieved.

## A Novel Framework for Satellite Image Denoising and Super Resolution using CNN- GAN

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### Abstract

Denoising and Super-Resolution are two challenging tasks in the area of Computer Vision. Benefits of the results are applicable in many domains. Many applications of Deep Learning and other methodologies have made significant achievements in this field. Generative Adversarial Network advancement takes researcher attention towards this area due to results obtained by GAN. In this paper, We focused on the speckle noise denoising and super-resolution of satellite images. Speckle noise is multiplicative noise captured in satellite images by airborne acquisition devices. Here, we propose a Generative Adversarial Network which is responsible for noise removal as well as 4-times magnification of satellite images. Generative adversarial network proposed in this paper consists two layered generator as well as discriminator network. The first Layer of generator which is multi layered CNN is responsible for extracting noise from given input images, for learning noise mapping from image sample, we used mean square error function for learning this mapping. While lower or second layer of generator are used for magnification of images which employed combined mean loss function and adversarial loss function. Apart from generator network, we used discriminator network responsible for separating high-resolved images and real images, which make generator more robust. Our discriminator network also used adversarial loss function. The Generative adversarial network reconstructed more realistic textured images from heavily degraded quality images. Standard satellite database images are used for experiments, and results generated by the GAN are superior performance of state-of-art in both the term of quantitatively as well as visually over existing similar methods.

## **A 2x2 Compact and Portable UWB MIMO Dielectric Resonator Antenna (DRA) For Future Mobile Handset with Improved Diversity and Isolation Level**

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### **Abstract**

In current research article, a double-port microstrip fed dielectric resonator antenna (DRA) with defective ground structure (DGS) is designed and experimentally tested for future Smartphones. The structure of the design comprises two identical pairs of compact microstrip-fed that are placed symmetrically at different edge corners of the Smartphone main board. The proposed DRA array is designed on FR-4 substrates with total dimensions of  $23 \times 54 \times 1.57$  mm<sup>3</sup>. The top and bottom layers of this substrate consists of two L-shaped microstrip fed networks and an airplane shaped DGS respectively. Initially a single input single output (SISO) rectangular dielectric resonator of alumina material is placed over the respective feed network which is changed to an inverted L-shaped DR to improve the bandwidth of the antenna. After that, a 2x2 array is formed from the SISO mentioned above and two aeroplane shaped DGS are introduced on surface of the ground plane in order to attain the desired impedance bandwidth i.e. 6.3–12.6GHz. That helps to provide a maximum gain of 4.5dB at 7.6GHz frequency with high isolation value i.e.  $S_{21} \leq -22.5$  dB.



## Human Motion Detection Using Ultra-Wide Band Radar

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Academy of Scientific and Innovative Research (AcSIR), Ghaziabad**Siddhartha Sarkar****Vaibhav Kumar**

CSIR- Central Scientific Instruments Organization, Chandigarh

### Abstract

The detection of the presence of humans is a scientific challenge in the area of automatic target recognition. Researchers have presented different sensing modalities for human detection such as seismic, acoustic, and imaging. All the sensing modalities impose different environmental challenges. To overcome these challenges, Ultra-Wide Band (UWB) radar is used as sensing modality for static and moving human detection. UWB PulseOn 440 radar detects human targets in indoor and outdoor scenarios using monostatic mode. This study describes the experimental results in which a monostatic UWB radar detects human presence. Different techniques such as Short-Term Average to Long Term Average ratio (STA/LTA), wavelet transformation, mean averaging, background removal, and CFAR-based approaches are developed and presented here. The performance of the presented methods is evaluated on the collected radar return signals in different scenarios where STA/LTA, mean averaging, wavelet and CFAR provided average accuracy of 87.1%, 84.1%, 78.3%, and 73.6% respectively. These approaches could be useful in coal mines for human safety, real-time target detection, industrial applications, human posture classification, military surveillance, and pedestrian safety.

## Research on Problems and Solutions of Overfitting in Machine Learning

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### Abstract

A significant problem with supervised machine learning is overfitting, which inhibits models from correctly generalising to well-fitting observed data on the training set and unobserved data on the testing set. Because of the existence of noise, the incomplete size of the training set, and the complication of the classifiers, overfitting occurs. Overfitting will be examined in this paper from the angles of its causes and remedies. There are several potential techniques to address these issues in order to diminish the effects of overfitting: 1) The "Regularization" strategy is planned to greatly assure model performance while addressing real-world issues by differentiating more and less useful features; 2) A new method called "Earlystopping" is used to stop training before performance optimization degrades; 3) "Cross validation" is separating the data into pieces, a statistical approach of assessing and contrasting learning algorithms is used. 4) In "Featureselection" we minimize the complexity of the model and part of the data noise by removing the least significant features from it. 5) A strategy called "Ensemble learning" is implemented to remove noises from the training set and increase accuracy; 6) For complex models, the "Data expansion" technique is advised near polish up the hyper-parameter setting with a major amount of information.

## Image to Text to Speech: A web-based application using Optical Character Recognition and Speech Synthesis

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Mohali, Punjab

### Abstract

According to the WHO (World Health Organization) 36 million people are completely visually impaired and out of which approximately 1 billion people are affected by a kind of visual impairment. The only major requirement of such affected people is their ability of reading. This paper proposed a model: Image to Text to Speech. It is a web/mobile application that captures the image of text with a mobile camera. The captured images are then converted to text using the OCR (Optical Character Recognition) framework. The converted text is further converted to speech using a Text to Speech Converter using the TTS framework. With the help of this application, a visually impaired person can understand the printed material, which is not written in Braille, by listening to the content instead of touching it.

## Deep Learning based Enhanced Text Recognition System

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### Abstract

The branch of artificial intelligence called "deep learning" enables the computer to take on and learn new rules. Deep learning algorithms are capable of recognizing objects, photos, messages, observations, and other structures. The underwhelming performance of the current scene recognition algorithms has motivated many researchers in the computer vision field in recent years, yet scene text recognition still need improvement. This study offered an innovative method for scene text recognition that uses a CraftNet model with enhanced learning capabilities. In the proposed approach, edge information is first collected from the images after image enhancement using a median filter. The deep learning model is given these edge characteristics, so it can recognize text area and build a bounding box around it. The discovered region is next transformed into text and then, using a text-to-speech conversion model, into voice. The efficacy of the suggested model is confirmed by comparison with the existing models.

## Seat Belt Detection System- A Software Based Application for Traffic and Safety Monitoring

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### Abstract

The purpose is to build software for automated seat belt detection. The job of the seatbelt is to hold the passenger in place, so that the passenger becomes a part of the car. This prevents the passenger from flying forward, as the vehicle stops abruptly in the case of a collision. The approach I have followed takes the video of a moving car as an input, which is then divided into frames and by use of edge detection and line detection, line segments are detected. And finally the detection of seat belt is done using the results of the analysis and the thresholds set through experiments. Canny edge detection techniques gave the best results for my project, and for line detection I have used Hough Transforms. I have also used certain preprocessing techniques such as contrast stretch and histogram equalization which enhances the quality of the image frames. Thus helping in better detection of seat belt.

## Design and Development of Hybrid Spectrum Access Technique for Cr-Iot Network

**Dr. Ajaybeer Kaur****Renu Saini****Nthatisi Margaret Hlapis****Dapinty Saini****Mehak Gambhir**

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Punjab and SEEED, LPU, Punjab

### Abstract

The radio spectrum is an underutilized natural resource with significant untapped potential. The prompt proliferation of Internet of Things (IoT) devices are driving a dramatic increase in radio spectrum demand. These devices can utilize cognitive radio (CR) technology to access the bandwidth left unused by licensed spectrum users, also known as primary users (PUs), to meet end users spectrum requirements efficiently. However, because PUs are given priority, CR-enabled Internet of Things (CR-IoT) devices, also known as secondary users (SU), must frequently communicate with one another in an opportunistic manner or under stringent power constraints. This can complicate CR-IoT device communication, render it unstable, and restrict its throughput. This paper proposes a hybrid spectrum access algorithm that combines underlay and interweave spectrum access methods to address this issue. When a PU is detected, under the proposed scheme, CR-IoT devices utilize underlay spectrum access. In contrast, when no PU is detected, CR-IoT devices employ interweave spectrum access. In addition, a proposed iterative algorithm permits CR-IoT devices to adapt their sensing thresholds, and sensing time elicited from the Signal-to-Noise ratio (SNR) received from PUs to strike a balance between achievable throughput and fairness among PUs and CR-IoT devices in extremely noisy channel. Simulation results demonstrate that the throughput for CR-IoT devices increases by 28% in proposed scheme when compared to the conventional spectrum access schemes.



## In-Depth Analysis of Parkinson's Disease: A Comprehensive Approach

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### Abstract

Recent developments in bioinformatics and information technology have made outstanding contributions to the medical sciences. For the computerized disease diagnosis of various diseases, there have been significant advancements in thermometers, digital devices, health monitoring systems and digital equipment. These computerized tools help clinicians diagnose illnesses precisely and effectively. A neurodegenerative condition that affects the neurological system is Parkinson's disease. Numerous initiatives have been made throughout the years to effectively diagnose Parkinson's disease automatically. For analysis and detection, a variety of datasets have been used, counting voice data samples, radiological pictures, gait specimens and handwriting samples. Widespread usage of methods like deep learning and machine learning has produced encouraging outcomes. The ageing neurodegenerative condition Parkinson's disease (PD) impairs both cognitive as well as motor function. Although the cause of PD is largely understood, genetic factors and environmental conditions are probably concerned. In contrast, the pathophysiology of Parkinson Disease at the network level is quite well characterized. The motor manifestations of PD treatment can be effective with several medicines. Additionally, stimulation of deep brain activity is frequently used to indulge in medication-resistant Parkinson's disease (DBS). Despite DBS's effectiveness in treating Parkinson's, nothing is learned about how it functions. Worldwide, several millions of people get affected with this PD. Around 1% of persons over 60 have Parkinson's disease, and as people get older, their symptoms get worse. Patients may suffer irregularities in speech and voice that may go unnoticed by listeners but that can be examined utilizing recorded speech signals. Because of the enormous technological breakthroughs, there is a need to use data mining and machine learning methods to extract scientific understanding from the vast amounts of medical data that have been generated. To scrutinize medical data sets and diagnose issues like Parkinson's disease, various categorization approaches were applied (PD). Additionally, feature selection techniques have been widely applied in various sectors to enhance classification performance.

## Sign Language Detection using LSTM Deep Learning Model and Media Pipe Holistic Approach

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**Aayush Gore**

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### Abstract

In this study, we aim to develop a deep learning model to recognize alphabet signs depicted in images and videos. We collect hand movement data using media pipe, which extracts coordinates of 21 points on the palm. These coordinates are then converted into a NumPy array and input into a long short-term memory (LSTM) model for sign detection. The output of the model is a string representation of the detected alphabet, ranging from 'A' to 'Z'. To improve the scientific validity of the model, we plan to use a larger and more diverse dataset, conduct cross-validation, and perform statistical analysis of the results. We will also consider using alternative deep learning models and data preprocessing techniques to further optimize model performance.

## Data Analytics for Pandemic: A Covid-19 Case Study in Kolkata

**Supratim Bhattacharya****Saberi Goswami****Jayanta Poray**

Techno India University, Kolkata

**Poulami Chowdhury****Prashnatita Pal**

Manipur International University, Manipur

Thomas College of Engg. &amp; Tech., Kolkata

### Abstract

The essence of devastating Covid - 19 pandemic has been a novel public health challenge in the recent years. The epidemic not only affect individual health & economic structure, it also put the universal health status as well as global economy in a considerable threat. Lockdown & other restricted activities put another step forward to disquieting the socio-economic activities viciously. Government authorities, both at National or regional level, are always in a hunt to analyse and forecast the spread of Covid - 19. Kolkata Municipal Corporation (KMC), being the administrative authority of Kolkata, consistently being devoted for the enhancement of human health and livelihood. The foremost challenging task for them is to restrict the spreading of disease at community level. Keeping that in mind a tracking system - "CDTS" was primarily designed to track patients details on daily basis, which was further stretched with an aim to analyse, predict & foresee Covid - 19 cases, through predictive analysis & modelling. The study encompasses exploratory data analysis to visualize the present situation and apply SIR epidemiological model to predict the future trends. Furthermore, a modified SIR model is being proposed for better analyse & prediction. The study helps the associate Government authorities & Medical Practitioners in estimating and measuring the trends in Kolkata and draw up combat plan with demanding & uncompromising measures.

## Evaluating the Vulnerabilities in ML Systems in terms of Adversarial Attacks

**Mr. John Harshith**

VIT University, Vellore Campus, Tamilnadu,

**Mr. Mantej Singh Gill**

Hewlett Packard Enterprise,

**Mr. Madhan Jothimani**

Anna University, Chennai, Tamilnadu

### Abstract

There have been recent adversarial attacks that are difficult to find. These new adversarial attacks methods may pose challenges to current deep learning cyber defense systems and could influence the future defense of cyberattacks. The authors focus on this domain in this research paper. They explore the consequences of vulnerabilities in AI systems. This includes discussing how they might arise, differences between randomized and adversarial examples and also potential ethical implications of vulnerabilities. Moreover, it is important to train the AI systems appropriately when they are in testing phase and getting them ready for broader use.



## Using ARIMA and LSTM to Implement Stock Market Analysis

Avinash Pandey  
Herjuno Hadiyuono

Gurneet Singh  
Kolli Mourya

Mir Junaid Rasool

Computer Science and Engineering, Lovely Professional University, Punjab

### Abstract

There has been a lot of discussion about the rapid shift that is taking place in the global environment toward the adoption of online shopping on a massive scale as well as the previously unheard-of volatility of the global stock market. Both of these topics have received a lot of attention in recent times. Both of these subjects have generated a significant amount of debate recently. Making accurate predictions about the market has always been a cause of anxiety for investors. Investors have always been interested in finding a practical solution that could perfectly predict the price. This may be accomplished by having an awareness of how the market repeats itself or by analysing patterns that may assist achieve a higher return on investment. Investors have always been interested in discovering a solution that could accurately anticipate the price, regardless of the strategy that has been used. In this investigation, the methodologies of "Long Short-Term Memory (LSTM), Recurrent Neural Network (RNN), and Auto-Regressive Integrated Moving Average" are combined to create a one-of-a-kind hybrid model (ARIMA). This study analyses and predicts movements in the stock market by looking at a broad variety of technologies, including those that are presently in use. The overall objective of this research is to analyse and predict changes in the stock market. An investigation into the development of historical patterns was carried out with the assistance of the data collected from the companies whose stocks are traded on the National Stock Exchange (NSE). This investigation included a time span of six years and made use of the facts pertaining to the stock's previous close, open, high, and low values. We will utilise the historical trends that have occurred in the past so that we may analyse and forecast patterns that will occur in the days that are to come. This will be accomplished via the use of historical trends. Because of its capacity to process large datasets and do trend analysis, Python and R have attracted a lot of attention in recent years.

## IOT Based Smart Meter Using Node-Red

**Dr. V Mahesh Kumar Reddy**Dept of Electrical and Electronics  
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Kadapa, Andhra Pradesh**Malavika K.V**Dept of Electrical and Electronics  
Engineering, Hindustan Institute of  
Technology and Science, Chennai**Lokasree B S**Dept of Electrical and Electronics  
Engineering,**K. Nanda Kumar**CMR Institute of Technology and Science,  
Chennai, Tamil Nadu

### Abstract

The conventional electrical transmission and distribution network should be upgraded to an interactive network due to rising energy demand and consumption. A smart grid or a service network one of these is smart meters where smart grid solutions have been presented. In order to enable real-time data collection, processing of meter readings, real-time monitoring, and decision-making, smart metering over the air is a crucial component of a smart grid. In traditional energy monitoring systems, utility usages are written on paper by workers in traditional meter reading systems, and there is a high risk of human mistakes, which raises the cost to users/companies. And no real-time monitoring and data communication between utility and energy meters. This project aims to use an IoT-based smart meter to control the power system's power consumption. This system uses a power monitoring strategy and leads to better data processing, real-time energy monitoring, and data sharing. By doing this, the energy system's power usage can be adjusted, which lowers overall consumption and costs. A novel power theft idea is used, and the user may also turn on and off certain appliances based on power requirements. The smart meter is controlled by an Arduino micro controller. Embedded C Proteus software is used for simulation, while Node-red can be used for visualization, data storage, and remote access.

## IoT & Smart City Viability: An Empirical Study

**Pardeep Kumar**

ECE Department, IKG PTU Jalandhar, Punjab

**Dr. Amit Gupta**

### Abstract

The rapid development of wireless technology has had a profound effect on people's daily routines. In their homes, they have installed high-tech gadgets based on the most recent innovations in technology including based on IOT. Residents of contemporary global cities have access to this lucrative amenity. And India isn't falling behind, either. There will be more than 100 "Smart Cities" in India, where inhabitants will be required to make extensive use of ICT via connecting to the internet. IoT has wide application for implementation of policies for common men. The goal of this research is to determine what obstacles stand in the way of the planned Smart Cities of India (SCI) in successfully implementing information systems integrating the Internet of Things and Intelligent Systems.

## Big Data Analytics and its Applications

**Priyanka Garg****Pallavi Thakur****Pujita**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Big Data refers to enormous and vast amount of data that cannot be dealt with conventional methods but need new methods to deal with it. This poster deals with all the knowledge about the technology of Big Data and the all the applications of it.

### Cloud Computing

**Vanshika Singla****Vishu Narula****Vipul Kumar****Vinay Karan**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Cloud computing is a model for delivering computing resources, including servers, storage, databases, networking, software, analytics, and intelligence, over the Internet (the cloud). Instead of using local servers or personal devices to store and process data, organizations can use cloud computing to access these resources remotely. This allows businesses to lower their IT costs and to focus on their core competencies. There are three main types of cloud computing: infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS). IaaS provides access to computing resources, such as servers and storage, over the Internet. PaaS provides a platform for developing and deploying applications. SaaS delivers software applications over the Internet. Cloud computing offers many benefits, including increased collaboration and productivity, greater flexibility, improved security, and reduced IT costs. However, it is important to carefully consider the security and compliance requirements of your organization before moving to the cloud.

## Machine Learning

**Anshika Bhasin****Aniket Dhiman****Aryan Aggarwal**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy. Machine learning algorithms build a model based on some sample data, known as training data, in order to make predictions or decisions without being explicitly programmed. Machine learning algorithms are used in a wide variety of applications, such as in medicine, email filtering, speech recognition, agriculture, and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the tasks.

## Cyber Security

**Kunal Saini****Mandeep Saini**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Cybersecurity is the practice of protecting devices, networks, and data from unauthorized access, use, disclosure, disruption, modification, or destruction. It is a critical concern in today's digital age, as more and more people and organizations rely on technology and the internet to store and transmit sensitive information. There are many different aspects of cybersecurity, including network security, data protection, and malware prevention. To effectively defend against cyber threats, organizations and individuals must implement robust security measures and practices, such as firewalls, antivirus software, and user authentication protocols. Additionally, it is important to continuously monitor and assess the security posture of a system to identify and address vulnerabilities in a timely manner.

## Machine Learning

**Laxman Singh Koranga****Lokesh Thakur**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

The machine learning field, which can be briefly defined as enabling computers make successful predictions using past experiences, has exhibited an impressive development recently with the help of the rapid increase in the storage capacity and processing power of computers. Together with many other disciplines, machine learning methods have been widely employed in bioinformatics. The difficulties and cost of biological analyses have led to the development of sophisticated machine learning approaches for this application area. Machine learning (ML) is the scientific study of algorithms and statistical models that computer systems use to perform a specific task without being explicitly programmed. Learning algorithms in many applications that we make use of daily.



## Block Chain

**Chelsy Mittal****Dipesh**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

A blockchain is a type of distributed database or ledger—one of today's top tech trends— which means the power to update a blockchain is distributed between the nodes, or participants, of a public or private computer network. This is known as distributed ledger technology, or DLT. Nodes are incentivized with digital tokens or currency to make updates to blockchains

## Cloud Computing

**Janmeet Singh****Garv Vinayak**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

The role of virtualization in cloud computing, servers, and personal devices is discussed. As the modern world gravitates from PCs to mobile devices and tablets, it is critical to have the technology that increases the performance, provides outside storage, reduces the power usage and makes up for the deficit in computing power of these devices. Four main areas that are benefited by virtualization techniques are explored; cloud computing, server management, program management and performance. Cloud computing supports mobile devices by allowing devices to run applications and store information elsewhere, ultimately reducing the necessary resources on the device. Program management techniques enable increased power efficiency by effectively managing cores and resources on the device. By adding flexibility and a level of Abstraction, virtualization is a powerful tool for the cloud. This paper evaluates these 4 main topics of virtualization and concludes by showing how these topics will be important not just in the future of the field, but also in the development of mobile platforms.

## Machine Learning

**Rahul Yadav****Prateek Mittal****Pranav Singhal**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Machine Learning is a field of computer science that involves the use of algorithms and statistical models to enable computers to learn and make predictions or decisions without explicit programming. It is a subset of artificial intelligence that focuses on the development of systems that can automatically improve their performance through experience.

## Artificial Intelligence

**Rahul Kumar****Rashu Rani****Priya**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Artificial Intelligence (A.I.) is a multidisciplinary field whose goal is to automate activities that presently require human intelligence. Recent successes in A.I. include computerized medical diagnosticians and systems that automatically customize hardware to particular user requirements.

## Feature Selection

**Khushi Modi****Kritika Arora****Gunjan Jain**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Feature selection is a process where you automatically select those features in your data that contribute most to the prediction variable or output in which you are interested. Having irrelevant features in your data can decrease the accuracy of many models, especially linear algorithms like linear and logistic regression. The input variables that we give to our machine learning models are called features. Each column in our dataset constitutes a feature. To train an optimal model, we need to make sure that we use only the essential features.

## Screenless Display Technology

**Harsimran Singh Bedi****Kashish**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

This note discusses advent of the Screen less display which is an emerging new technology, has become a good prospect in the near future for a wide range of applications. As the name implies it deals with the display of several things without the use of screens using projector.

## Internet of things

**Mehak Dadhwal****Mehak****Nikhil Kumar**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

In this paper we present Internet of Things (IoT) in a wider context. The fundamental concept of IOT is the interconnection and communication of things that we everyday use so that they can take smart decisions themselves. In this paper, we describe the generic architecture of IoT and the key components of Internet of Things. In addition to that, we state the major application domain where the Internet of Things will play a crucial role. Then we talk about the different IoT technologies and find the gap between them, which needs to be bridged so as to bring IoT in practice.

## Electronic Data Backup and Recovery System Based on Network

**Sanjay Kumar**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

To transfer the data resources processing, analysis processing, thus constituted a variety of application system, provide convenience for our production and living and service. In this paper, based on the realization of the network data backup and restore adopted by the customer, the management, server layer composed of system structure.

## Mobile Communication Through -5G Technology

**Shivneet Kaur**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Future 5G wireless networks will aspect new contests, as well as growing claim on network capacity to support a huge number of devices running application necessitating high data rates and always-on connectivity; and supportive the emerging business models in the wireless network market demanding networks to be more open. New challenges initiative , resolutions and involve changed plans in the network. management, and operation of future 5G wireless networks equated to wireless .

## Reinforcement Learning

**Shriya Dogra**

Department of Computer Science & Engg., CEC Landran, Punjab

### Abstract

Reinforcement learning is an area of Artificial Intelligence; it has emerged as an effective tool towards building artificially intelligent systems and solving sequential decision making problems. Reinforcement Learning has achieved many impressive breakthroughs in the recent years and it was able to surpass human level in many fields; it is able to play and win various games. Historically, reinforcement learning was efficient in solving some control system problems. Nowadays, it has a growing range of applications.

## Cloud Computing- E-Learning Process

**Sunaina**

Department of Computer Science & Engg., CEC Landran, Punjab

### Abstract

As an aid in the teaching-learning process, online communications systems are used to facilitate e- learning, a form of virtualized computing and distant learning. The rise of E- learning platforms emerged drastically in the past two years. Data mining for education information processing uses facts generated from internet databases to enhance the educational learning paradigm for educational purposes when the learning process is computerized.

## Malbolge

**Abhay Raina**

**Abhinav**

**Abhishek Bagaryan**

Department of Computer Science & Engg., CEC Landran, Punjab

### Abstract

Malbolge is a public domain esoteric programming language invented by Ben Olmstead in 1998, named after the eighth circle of hell in Dante's Inferno, the Malebolge. It was specifically designed to be almost impossible to use, via a counter- intuitive 'crazy operation', base-three arithmetic, and self-altering code. It builds on the difficulty of earlier challenging esoteric languages (such as Brainfuck and Befunge), but takes this aspect to the extreme, playing on the entangled histories of computer science and encryption.



## Internet of Things (IOT)

**Anushka Tyagi****Afeef Ashraf****Anushka Singh**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

The Internet of Things (IOT) describes a kind of network which interconnects various devices with the help of internet. IOT assists to transmit data with among devices, tracing and monitoring devices and other things. IOT make objects 'smart' by allowing them to transmit data and automating of tasks, without lack of any physical interference. A health tracking wearable device is an example of simple effortless IOT in our life connected with the help of internet.

## Cloud Computing

**Harsh Bhatnagar**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Cloud computing is becoming an increasingly popular enterprise model in which computing resources are made available on-demand to the user as needed. The unique value proposition of cloud computing creates new opportunities to align IT and business goals. Cloud computing use the internet technologies for delivery of IT- Enabled capabilities 'as a service' to any needed users i.e. through cloud computing we can access anything that we want from anywhere to any computer without worrying about anything like about their storage, cost, management and so on. In this paper we provide a comprehensive study on the motivation factors of adopting cloud computing, review the several cloud deployment and service models. It also explore certain benefits of cloud computing over traditional IT service environment-including scalability, flexibility, reduced capital and higher resource utilization are considered as adoption reasons for cloud computing environment.

## IIOT

**Harsh Rana****Dikshant Sharma****Harshit Rahal**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

We're entering a new era of computing technology that many are calling the Internet of Things (IoT). Machine to machine, machine to infrastructure, machine to environment, the Internet of Everything, the Internet of Intelligent Things, intelligent systems—call it what you want, but it's happening, and its potential is huge. We see the IoT as billions of smart, connected “things” (a sort of “universal global neural network” in the cloud) that will encompass every aspect of our lives, and its foundation is the intelligence that embedded processing provides. The IoT is comprised of smart machines interacting and communicating with other machines, objects, environments and infrastructures. As a result, huge volumes of data are being generated, and that data is being processed into useful actions that can “command and control” things to make our lives much easier and safer—and to reduce our impact on the environment. The creativity of this new era is boundless, with amazing potential to improve our lives. The following thesis is an extensive reference to the possibilities, utility, applications and the evolution of the Internet of Things.

### Ethical Design of Internet of Things

**Manav****Lovedeep****Nandish**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Even though public awareness about privacy risks in the internet is increasing, in the evolution of internet to the Internet of Things (IoT) these risks are likely to become more relevant due to the large amount of data collected and processed by the “Things”. Beyond the protection of privacy, this paper highlights the need for new approaches, which grant a more active role to the users of the IoT and which address other potential issues such as the digital divide or safety risks. In the proposed framework, users are provided with wider controls over personal data or the IoT services by selecting specific set of policies, which can be tailored according to users' capabilities and to the contents where they operate.

## Mobile Application Development

**Tarun Uniyal****Sumit Singh Dangwal****Sumit Thakur**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Mobile apps are programs designed to run on smartphones, tablets, and other mobile devices. These apps usually perform a specific task, such as reporting the weather forecast or displaying maps for navigation. Mobile devices have special requirements because of their small screens and limited input options. Furthermore, a touch screen is typically the only way to enter information into a mobile device. Programmers need special knowledge to understand the mobile platform for which they wish to create apps.

## NFC- Near Field Communication

**Vishal Droch****Hitender Singh****Arnab Biswas**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

NFC-Near Field Communication is becoming one of the most important advances in wireless communications technologies because it allows the incorporation of the RFID technology into mobile devices. This technology is used in ubiquitous computing to obtain different kinds of information and services from different sources anytime and anywhere. In order to build smart environments, in which we are able to obtain information from the objects surrounding us using NFC, the development of a tool that provides all the basics options for defining, storing and retrieving this information and services is mandatory. In addition, the tool has to use different standards defined by the NFC-Forum in order to interact with different devices and RFID tags.

## Traffic Sign Recognition: Using Machine Learning

**Sakshi**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

This poster presents a system to recognize and classify road and traffic signs for the purpose of developing an invention, of them which could assist the highway engineers' tasks of updating and maintaining them. It uses images taken by a camera from a moving vehicle. Recognition of traffic signs is carried out using fuzzy shape recognition.

## Cloud Computing

**Sunil****Yukta Juneja****Wasim Ahmad Dar**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Cloud computing is a virtualized compute power and storage delivered via platform-agnostic infrastructure of Abstracted hardware and software accessed over the internet. The name cloud computing was inspired by the cloud symbol that is often used to represent the internet in flowchart and diagrams. Cloud computing is a general term for anything that involves delivering hosted services over the internet. A cloud can be public or private.

## Green Computing

**Udit****Aarjav Jain****Siddharth Chauhan**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Green computing in a broader way is the practices and procedures of designing, manufacturing, using of computing resources in an environment friendly way while maintaining overall computing performance and finally disposing in a way that reduces their environmental impact.

## Sixth Sense Technology

**Simranjit Singh Malhi****Navjot Singh Bakshi****Taranpreet Singh Kalirao**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

This paper gives you just an introduction to a sixth sense. This paper makes you familiar with sixth sense technology which provides the freedom of interacting with the digital world using hand gestures. The sixth sense prototype is comprised of a pocket projector, a mirror, mobile components, color markers, and a camera. The sixth sense of technology is all about interacting to the digital world in the most efficient and direct way. Sixth Sense devices are very much different from Computers; this will be a new topic for hackers and other people also. Everyone can get a general idea of sixth sense technology by looking at this poster.



## Twitter Sentiment Analysis

**Madhuri Kumari****Harmandeep Singh**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Sentiment analysis deals with identifying and classifying opinions or sentiments expressed in the source text. Social media is generating a vast amount of sentiment rich data in the form of tweets, status updates, blog posts etc. Sentiment analysis of this user-generated data is very useful in knowing the opinion of the crowd. Twitter sentiment analysis is difficult compared to general sentiment analysis due to the presence of slang words and misspellings. The maximum limit of characters that are allowed in Twitter is 140. Knowledge base approach and Machine learning approach are the two strategies used for analysing sentiments from the text. In this paper, we try to analyse the Twitter posts about electronic products like mobiles, laptops etc using Machine Learning approach. By doing sentiment analysis in a specific domain, it is possible to identify the effect of domain information in sentiment classification. We present a new feature vector for classifying the tweets as positive, negative and extracts people's opinion about products.

## Metaverse

**Hunardeep****Isha****Isha Saini**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

The Metaverse is the post-reality universe, a perpetual and persistent multiuser environment merging physical reality with digital virtuality. It is based on the convergence of technologies that enable multisensory interactions with virtual environments, digital objects and people such as virtual reality (VR) and augmented reality (AR). Hence, the Metaverse is an interconnected web of social, networked immersive environments in persistent multiuser platforms. It enables seamless embodied user communication in real-time and dynamic interactions with digital artifacts.

## Near-Field Communication

**Khusboo****Jyotika****Keshav Sharma**

Department of Computer Science &amp; Engg., CEC Landran, Punjab

### Abstract

Near Field Communication (NFC) technology is being grown up at enormous speed. NFC technology provides the fastest way to communicate two devices with in a fraction of second. This technology has only been implemented on smart phones so far. Like Bluetooth it works only in short range and data transfer takes place at very low speed. Several security issues are attached with NFC, which is a big concern. Security attacks like eavesdropping, data corruption and modification, interference attacks and theft, are the most dangerous for the customer who is using his/her smart phone for payment purpose. In this paper we present the comparison of NFC with Bluetooth and security analysis of NFC.

## Artificial Intelligence

**Hardik Batra****Ayush Raj****Arshdeep Singh**

Department of Information Technology., CEC Landran, Punjab

### Abstract

Machine Learning (ML) is a field of inquiry devoted to understanding and building methods that 'learn', that is, methods that leverage data to improve performance on some set of tasks. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as training data, in order to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as medicine, email filtering, speech recognition, agriculture and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

## VFX and Animation

**Kanak Tygai****Hritik Bhatt****Karan Singh Pathania**

Department of Information Technology., CEC Landran, Punjab

### Abstract

The world has evolved tremendously and so has technology. From black and white to color television to the craziest visual effects; technology has prospered leaps and bounds. In this transformation, both are important elements that make a story lively. Be it small TV series, cartoons, or huge hit movies, they play an integral part in the production of a motion picture. The use of VFX is now sighted in every possible digital space. Be it a simple social media post or the news channel or the movie.

## ML-Based Facial Recognition

**Devank****Aditya Raj****Harshil Sharma**

Department of Information Technology., CEC Landran, Punjab

### Abstract

This poster aims to use the biometrics recognition in the surveillance system. Two modalities of biometrics (face and gait) were proposed for the automatic surveillance system. The objectives of this system are identified the outsiders of the organization by using the face recognition and to know the terrorist/robber attacks by using the gait recognition. The way of human stands is need to be recognize because the attackers of organization have different way of stand than the normal people. The system cost will be more cheap as compare to the existing surveillance system. This system didn't need human interaction i.e. self-control and easy to install. While in every big organization, there are already cameras installed to keep the place more security, for that the system will be connected to the same cameras. The novel idea is to recognize the robber/attacker by using the gait biometric because the walk of robber/attacker is different from the normal people. On the basis of face recognition, the proposed system is found to be satisfactory as compare to the existing system..

## Machine Learning

**Sanjana Kumari****Ritvija****Shobhit Saini**

Department of Information Technology., CEC Landran, Punjab

### Abstract

Machine Learning (ML) is the scientific study of algorithms and statistical models that computer systems use to perform a specific task without being explicitly programmed. Learning algorithms in many applications that we make use of daily. Every time a web search engine like Google is used to search the internet, one of the reasons that work so well is because a learning algorithm that has learned how to rank web pages. These algorithms are used for various purposes like data mining, image processing, predictive analysis, etc. to name a few. The main advantage of using machine learning is that, once an algorithm learns what to do with data, it can do its work automatically. In this paper, a brief review and future prospect of the vast applications of machine learning algorithms has been made.

## Cyber Security

**Sakshi****Shivali Kumari****Shalini Thakur**

Department of Information Technology., CEC Landran, Punjab

### Abstract

Our daily routines are becoming increasingly dependent on a growing cyberspace virtual reality as we may know it. Influencing major aspects our life, like economy, health and education. We need to be aware that recently cyberspace challenges new domains: our personal and national security. In the last years, we've witnessed a major increase in cyber attacks, situation that forced governments to create space on their agenda of the cyberscurity



## About Chandigarh Group of Colleges

### “Building Careers, Transforming Lives”

The heritage campus, Chandigarh Group of Colleges Landran, stretching back to a decade and half is superlative in giving professional education to the students from all corners of the country. The group commenced its journey in the year 2001 with strength of only 100 students and with two programmes. Today, the campus has more than 15000 students across 15 programmes. CGC is committed to maintain the numero Uno position in placements in the north Indian region and ensuring that every CGCian gets the best possible placement opportunities and multiple job offers in hand with hefty pay packages.

## About Chandigarh Engineering College

Chandigarh Engineering College (CEC), Landran achieved a milestone by being the only private engineering college to have been accredited by the National Board of Accreditation (NBA) for 5 years. It is now among the top 25 private colleges and top 50 accredited institutes of the country in terms of quality education, research and other state-of-the-art facilities. The college has more than 250 well qualified faculty members looking after the operations, research and teaching in the institution. CGC bagged Rs 4 crore grant from World Bank for raising its academic standards through National Project Implementation Unit (NPIU), New Delhi. CEC has more than 1100 computers in their FCPIT, Communication and Computer Graphics laboratories. The institution feels proud of the students who are already working with acclaimed companies like Microsoft, Infosys, TCS, WIPRO, L & T, Samsung, Capgemini, Tech Mahindra, Cognizant to name a few. The institution has gone miles in establishing a name in the field of technical education.



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