3.3.3 Books and Chapters in edited Volumes/Books Published and Papers published in National/ International Conference Proceedings during Year

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Sl. No.	Name of the teacher	Title of the paper	Title of the proceedings of the conference / Title of the book/chapters published	National / International	ISBN/ISSN number of the proceeding	Name of the publisher	Page no.
1	Dr. Surendrasingh S Rathod	Enhanced Signal and Power Integrity using Novel Planar EBG design	2023 Joint Asia-Pacific International Symposium on Electromagnetic Compatibility and International Conference on ElectroMagnetic Interference & Compatibility (APEMC/INCEMIC)	International	2640-7469	IEEE	4
2	Dr. Surendrasingh S Rathod	Detecting the Attention Span of Autistic Children	IEEE 11th Int. Conf. on Emerging Trends in Engineering & Technology Signal and Information Processing, (ICETET SIP-23)	International	2157-0485	IEEE	5

3	Dr. Surendrasingh S Rathod	TIQ Comparator Based 8-bit Flash ADC for Communication Applications	2022 Sardar Patel International Conference on Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative	International	978-1-6654-6539-7	IEEE	6
4	Dr. Surendrasingh S Rathod	Self-Driving Cars: Simulation, Issues and Possible Solutions for Implementation in India	2022 IEEE Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI)	International	978-1-6654-7719-2	IEEE	7
5	Dr. Surendrasingh S Rathod	Smart Contracts for NGOs and Startups using Blockchain	2022 5th International Conference on Advances in Science and Technology (ICAST)	International	978-1-6654-9263-8	IEEE	8
6	Prachi Dalvi	Explainable Approach for Species Identification using LIME	2022 IEEE Bombay Section Signature Conference (IBSSC)	International	978-1-6654-9291-1	IEEE Explore	9
7	Dipali Koshti	Knowledge Blended Open Domain Visual Question Answering using Transformer	2023 Third IEEE International Conference on Artificial Intelligence and Smart Energy (ICAIS), Coimbatore, India, 2023	International	978-1-6654-6216-7	IEEE	10
8	Dipali Koshti	First Aid and Emergency Assistance Robot for Individuals at Home using IoT and Deep Learning	2023 7th International Conference on Computing Methodologies and Communication (ICCMC)	International	978-1-6654-6408-6	IEEE	11

9	Prajakta Bhangale	Autonomous Timetable System Using Genetic Algorithm	In 2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT), pp. 1687-1694. IEEE, 2022	International	978-1-6654-0118-0	IEEE	12
10	Merly Thomas	A Brief Review of Network Forensics Process Models and a Proposed Systematic Model for Investigation	Intelligent Cyber Physical Systems and Internet of Things	-	978-3-031-18497-0	Springer, Cham	13
11	Sushma Nagdeote, Dr. Sapna Prabhu	A Review on Computer-assisted Techniques to Analyze Histopathological Images of the Breast	2023 International Conference on Power, Instrumentation, Energy and Control (PIECON)	International	979-8-3503-9976-9	IEEE	14

Enhanced Signal and Power Integrity using Novel Planar EBG design

Publisher: IEEE

Manisha R. Bansode ; Surendra S. Rathod **All Authors**

Abstract: Simultaneous switching noise (SSN), often occurs when signals transition rapidly between the ground and power planes, is an important problem in high-speed digital circui... **View more**

Abstract

Document Sections

I. Introduction

II. Three dimensional Planar EBG structure design

III. SSN mitigation with enhanced Signal Integrity and power integrity performance

IV. Conclusion and future scope

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Abstract:
Simultaneous switching noise (SSN), often occurs when signals transition rapidly between the ground and power planes, is an important problem in high-speed digital circuits. The Electromagnetic Bandgap Structure (EBG) is a novel technique that can help to solve signal integrity and power integrity problems. In this paper, we present a three dimensional coplanar electromagnetic bandgap (EBG) structure to improve Signal Integrity (SI) , validated by eye diagram and Power Integrity (PI) shown by self impedance. This proposed planar EBG structure offers effective SSN suppression for frequency ranges between 2.38 GHz and 22.39 GHz, with an average suppression level of -30 dB.

Published in: 2023 Joint Asia-Pacific International Symposium on Electromagnetic Compatibility and International Conference on ElectroMagnetic Interference & Compatibility (APEMC/INCEMIC)

Date of Conference: 22-25 May 2023

Date Added to IEEE *Xplore*: 23 August 2023

ISBN Information:

ISSN Information:
Electronic ISSN: 2640-7469
Print on Demand(PoD) ISSN: 2162-7673

INSPEC Accession Number: 23615346

DOI: 10.1109/APEMC57782.2023.10217404

Publisher: IEEE

Conference Location: Bengaluru, India

Contents

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Detecting the Attention Span of Autistic Children

Dhanajay Kalbande ; Surendra Singh Rathod ; Riddhi Dinesh Oza ; Shreyash Dhamane All Authors

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II. Literature Review
III. Proposed Methodology
IV. Results
V. Conclusion and Future Scope

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Abstract: This study investigates methods for detecting and monitoring the attention span of autistic children in real-time, with the goal of improving learning outcomes. The study... **View more**

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Abstract:
This study investigates methods for detecting and monitoring the attention span of autistic children in real-time, with the goal of improving learning outcomes. The study involved monitoring the movements and reactions of a group of autistic children during various activities, using specialized sensors and software to capture and analyze data related to their attention span. The results showed that the attention span of autistic children varied significantly across different activities and stimuli, and certain types of games and learning exercises were more effective at capturing and maintaining their attention than others. The attention span of autistic children also tended to improve gradually over time, particularly when they were engaged in activities that were interesting and stimulating. These findings have important implications for the design of effective interventions and learning activities for autistic children, and highlight the importance of personalized and evidence-based approaches for improving attention span and learning outcomes.

Published in: 2023 11th International Conference on Emerging Trends in Engineering & Technology - Signal and Information Processing (ICETET - SIP)

Date of Conference: 28-29 April 2023

INSPEC Accession Number: 23320931

Date Added to IEEE *Xplore*: 19 June 2023

DOI: 10.1109/ICETET-SIP58143.2023.10151461

ISBN Information:

Publisher: IEEE

ISSN Information:

Conference Location: Nagpur, India

TIQ Comparator Based 8-bit Flash ADC for Communication Applications

Publisher: IEEE

Radhika Joglekar ; Rishona Daniels ; Aishwarya Jagare ; Payal Shah ; Surendra Singh Rathod **All Authors**

Abstract

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I. Introduction

II. Previous Work

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IV. Methodology

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Abstract: Primary motivation of this paper is to design an ADC that is suitable for communication applications with high operating speed in GSPS and fabricate at SCL (Semi-Conducto... **View more**

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Abstract:

Primary motivation of this paper is to design an ADC that is suitable for communication applications with high operating speed in GSPS and fabricate at SCL (Semi-Conductor Laboratory) Chandigarh, India. This paper presents an 8-bit Flash ADC using TIQ (Threshold Inverter Quantization) Comparator and ROM encoder. It has been observed that the DNL is 0.051 *LSB, INL is 1.73*LSB with dynamic power dissipation of 0.277µW, and operating speed of 0.4 GSPS. The application of the implemented ADC in communication has been demonstrated in the SID Antenna receiver. The simulation has been carried out with BSIM 180nm technology in LTspice.

Published in: 2022 Sardar Patel International Conference on Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative

Date of Conference: 22-23 December 2022

INSPEC Accession Number: 23455130

Date Added to IEEE *Xplore*: 19 July 2023

DOI: 10.1109/SPICON56577.2022.10180784

Publisher: IEEE

ISBN Information:

Electronic ISBN:978-1-6654-6539-7

USB ISBN:978-1-6654-6538-0

Print on Demand(PoD) ISBN:978-1-6654-6540-3

Conference Location: Mumbai, India

Contents

I. Introduction

Self-Driving Cars: Simulation, Issues and Possible Solutions for Implementation in India

Publisher: IEEE

Harsh Agarwal ; Aakanksha Garg ; Navya Fadia ; Payal Shah ; Surendra Rathod **All Authors**

Abstract

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I. Introduction

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Abstract: Self-driving cars being the new technology are gaining attention from all over the globe. This paper deals with the simulation results of an autonomous car trying to lear... **View more**

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Abstract:
Self-driving cars being the new technology are gaining attention from all over the globe. This paper deals with the simulation results of an autonomous car trying to learn from its environment which includes static blocks using machine learning. Learning is performed using Deep Q-learning. The neural network computes the Q-values on the basis of the rewards corresponding to the action that the car takes. The autonomous system in the car chooses that particular action that has a maximum reward. The actions are the angles through which the car can steer at a fixed speed. Also, difficulties related to the implementation of autonomous self-driving cars in India have been discussed and possible solutions to them have been presented.

Published in: 2022 IEEE Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI)

Date of Conference: 21-23 December 2022

Date Added to IEEE *Xplore*: 15 May 2023

ISBN Information:

INSPEC Accession Number: 23123226

DOI: 10.1109/IATMSI56455.2022.10119342

Publisher: IEEE

Conference Location: Gwalior, India

Smart Contracts For NGOs and Startups using Blockchain

Publisher: IEEE

Mohil Sarvankar ; Viraj Wasnik ; Aditya Tarade ; Payal Shah ; Narendra Bhagat ; Surendra Rathod **All Authors**

Abstract

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II. Literature Survey

III. Design and Implementation

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Abstract: This paper proposes and emphasizes the requirement of an Blockchain based smart contract for NGO's and startup crowdfunding in the present circumstances. It also highligh... **View more**

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Abstract:
This paper proposes and emphasizes the requirement of an Blockchain based smart contract for NGO's and startup crowdfunding in the present circumstances. It also highlights the need of an online financial system for indigenous NGO's and seed fund utilization of startups. Conventionally, most charity organizations make use of hard cash for settling its transactions making the process less transparent. However, due to the COVID-19 pandemic, financial system has been largely affected. In this case an online financial transaction cum procurement portal would be crucial for the candidates applying relief in remote locations. The system analyses their eligibility based on their Curriculum Vitae (CV). Proposed system uses Ethereum based smart contract and Truffle Box to build a complete Dapp (decentralized application). Authors have used MetaMask Extension as a cryptocurrency wallet and Ganache blockchain to develop, deploy and test the decentralized application.

Published in: 2022 5th International Conference on Advances in Science and Technology (ICAST)

Date of Conference: 02-03 December 2022

INSPEC Accession Number: 22627202

Date Added to IEEE *Xplore*: 13 February 2023

DOI: 10.1109/ICAST55766.2022.10039621

ISBN Information:

Publisher: IEEE

Conference Location: Mumbai, India

Explainable Approach for Species Identification using LIME

Mihir Nikam ; Ameya Ranade ; Rushil Patel ; Prachi Dalvi ; Aarti Karande **All Authors**

Abstract

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III. Methodology

IV. Results and Discussions

V. Conclusion

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Abstract: Plant identification has a wide array of applications in the fields of agronomy and the discovery of natural and medicinal products. This research aims to explore various... **View more**

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Abstract:
Plant identification has a wide array of applications in the fields of agronomy and the discovery of natural and medicinal products. This research aims to explore various deep learning techniques like InceptionV3, Xpection, and ResNet to identify plants. Highly accurate machine learning models generally lack explainability and interpretability. Neural networks are usually opaque systems and thus a direct understanding of the interpretations becomes necessary. We aim to remove this ambiguity of how the model reaches its conclusion by introducing Explainable AI (XAI) techniques. Explainability aims to break such barriers by diminishing the lack of transparency in Artificial Intelligence and Machine Learning models, thus taking a step toward making AI reliable. In this paper, Convolutional Neural Network has been used to identify Vietnamese medicinal plant images based on the characteristics of the leaves, stems and other parts of the plant. Upon identification, our paper also elaborates on how each model predicts which part of the image helps the CNN model to make a prediction by integrating Explainable AI (XAI) using the Lime package. Through this research, we generated images using LIME package which highlight pixels that determine the result of our plant identification process.

Published in: 2022 IEEE Bombay Section Signature Conference (IBSSC)

Date of Conference: 08-10 December 2022

INSPEC Accession Number: 22626050

Date Added to IEEE *Xplore*: 14 February 2023

DOI: 10.1109/IBSSC56953.2022.10037417

ISBN Information:

Publisher: IEEE

Conference Location: Mumbai, India

Knowledge Blended Open Domain Visual Question Answering using Transformer

Publisher: IEEE

Dipali Koshti ; Ashutosh Gupta ; Mukesh Kalla **All Authors**

Abstract

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IV. Experiments

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Abstract: Interacting with an image in the form of dialog is one of the challenging applications of the vision-language model. Image question answering allows us to interact with a... **View more**

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Abstract:
Interacting with an image in the form of dialog is one of the challenging applications of the vision-language model. Image question answering allows us to interact with an image in form of question and answer. Ask any question about the image and the machine will generate an answer in a natural language. Not all questions are image-dependent; some of the questions may require external knowledge. Integrating external knowledge in an image question-answering model has been an open research area. A novel knowledge-incorporated image question-answering model based on a transformer using deep co-attention has been proposed. The model leverages the structured knowledge present in the ConceptNet. Important objects from the image and important keywords from the question are extracted. Using these extracted objects and text keywords, related concepts from the ConceptNet have been extracted. The top five most related concepts have been considered for further processing. A novel attention mechanism using a transformer has been introduced to combine this external knowledge with the Visual question answering model. The proposed model is evaluated based on VQA 2.0 dataset. The experimental results show that the incorporation of the external knowledge base in the VQA model allows the model to answer more complex open-domain questions and achieves the accuracy of 67.97% on VQA validation set.

Published in: 2023 Third International Conference on Artificial Intelligence and Smart Energy (ICAIS)

Date of Conference: 02-04 February 2023

INSPEC Accession Number: 22881995

Date Added to IEEE *Xplore*: 27 March 2023

DOI: 10.1109/ICAIS56108.2023.10073911

ISBN Information:

Publisher: IEEE

First Aid and Emergency Assistance Robot for Individuals at Home using IoT and Deep Learning

Publisher: IEEE

Mario Dias ; Hansie Aloj ; Nijo Ninan ; Dipali Koshti ; Supriya Kamoji **All Authors**

Abstract

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Abstract: With urbanization and societal changes, there has been an increase in the number of people living alone. This raises concern for elderly people as many mishaps or acciden... **View more**

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Abstract:

With urbanization and societal changes, there has been an increase in the number of people living alone. This raises concern for elderly people as many mishaps or accidents can happen in a household environment when they are alone. This study proposes a smart IOT and Deep learning based robotic system to assist people, especially the elderly, in case they are alone at home. The objective is to detect anomalies and provide first aid to the victim or call emergency contacts if necessary in minimal time. The system has three stages: Distress detection, Navigation and Searching, and Assistance with feedback. The robot detects distress in form of audible screams and also monitors its surroundings frequently. Once it detects a tragic situation, it tries to detect the person in its camera frame. The robot then searches the person and attempts to get feedback from the person and tries to provide an appropriate remedy to the victim. If the victim is unconscious, it contacts emergency services. The prototype of the robot was designed and tested with three different test cases to draw conclusions and evaluate the system. To test the efficiency of the robot, three evaluation parameters are defined, they are, Robot Activation Time, Search Time, and Response Time. Since it is an emergency robot, the main objective is to minimize these parameters. Experimental results show that the robot is able to locate the victim in various scenarios in a reasonable amount of time when placed in a central location in a home environment.

Published in: 2023 7th International Conference on Computing Methodologies and Communication (ICCMC)

Date of Conference: 23-25 February 2023 **INSPEC Accession Number:** 22888244

Date Added to IEEE *Xplore*: 04 April 2023 **DOI:** 10.1109/ICCMC56507.2023.10083934

Autonomous Timetable System Using Genetic Algorithm

Publisher: IEEE

Yashaswini Sunil Chaudhari ; Vanessa William Dmello ; Srushti Suraj Shah ; Prajakta Bhangale **All Authors**

Abstract

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I. Introduction

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Abstract: Time Management is one of the most important factors in a student's life. Many studies have shown a relationship between the anxiety and stress of a student's life with e... **View more**

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Abstract:
Time Management is one of the most important factors in a student's life. Many studies have shown a relationship between the anxiety and stress of a student's life with effective time management. Timetable Generation is one of the most tedious jobs with the capacity for many errors and mistakes. There are several different methods proposed to solve this problem. Motivated by these studies, this article proposes an application for an autonomous system that handles the generation of the weekly timetable. The proposed framework utilizes genetic algorithm for the generation of a weekly timetable depending on various factors like time, subjects, and the difficulty of the subject for a respective student. With the genetic algorithm operators and the constraints provided by the student, the timetable generated fulfills all the required constraints and minimizes minor hindrances related to the timetable generated. The proposed framework provides the ability to the student, to customize their weekly timetable on factors related to their respective needs. This system is proposed to reduce the time taken to make a viable timetable and to provide better time management strategies to students in higher education systems.

Published in: 2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT)

Date of Conference: 20-22 January 2022

INSPEC Accession Number: 21707361

Date Added to IEEE *Xplore*: 25 February 2022

DOI: 10.1109/ICSSIT53264.2022.9716370

ISBN Information:

Publisher: IEEE

Conference Location: Tirunelveli, India

Chapter PDF Available

A Brief Review of Network Forensics Process Models and a Proposed Systematic Model for Investigation

February 2023
DOI:10.1007/978-3-031-18497-0_45
In book: Intelligent Cyber Physical Systems and Internet of Things, ICoICI 2022 (pp.599-627)

Authors:

Merly Thomas
Fr. Conceicao Rodrigues College of Engineering

Bandu Meshram

References (117)

Abstract

Network forensics is a branch of Digital Forensics concerned with analysing the network traffic to see if any anomalies are present that may indicate an attack or could lead to one. The goal is to figure out what kind of attack it is by capturing the details, store them in a forensically sound manner, analyse, and then present them in some visual form. A model based on traceability and scenarios, with proven literature and justification is desired. This study offers a professional digital framework in which the investigative process model enhances the systematic tracking of offenders. Cyber fraud and digital crimes are on the rise, and unfortunately less than two per cent is the conviction rate worldwide. Continuous and scientific research in this area is crucial to ensure safe and secure internet usage especially for money transfers and confidential personal communication. This paper examines the essential development phases of a Network forensics investigation model, and compares different network and digital forensic methods, and also offers a systematic model of a digital forensic model for cybercrime investigation. The survey also includes classifications based on infiltration detection systems, trace backs, distribution models, and attack maps. The aim of this study is to facilitate the digital forensic process and identify improvised practices. The Systematic Network Forensic Investigation model (SNFIM) aims to establish appropriate policies and procedures for practitioners and organizations.

A Review on Computer-assisted Techniques to Analyze Histopathological Images of the Breast

Publisher: IEEE

Sushma Nagdeote ; Sapna Prabhu **All Authors**

Abstract

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II. Literarture Review

III. Conclusion

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Abstract: This article provides an overview of computer-assisted techniques (CAT) used to assess histopathological images for Breast cancer. The Histopathological images analysis (... **View more**

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Abstract:

This article provides an overview of computer-assisted techniques (CAT) used to assess histopathological images for Breast cancer. The Histopathological images analysis (HIPA) is time consuming and challenging. The shape, size, color and crowding of nuclei disclose important statistics about the tissue health. For diagnosis of cancer, nuclei are an important attribute which has to be isolated from other healthy tissues followed by feature extraction which is the primary and the most critical step. In order to distinguish between tumor or cancer types, experts assess morphometric features of each and every cell and their nuclei. The most familiar steps in histopathological image analysis like stain normalization, segmentation, feature extraction and classification are covered in this review. The segmentation methods of H & E images and several challenges related to stain normalization are discussed. Since stain normalization is a stage in the pre-processing of H & E images and the first step of feature extraction. In a nutshell, this article will outline different methods for analysing breast pathology images.

Published in: 2023 International Conference on Power, Instrumentation, Energy and Control (PIECON)

Date of Conference: 10-12 February 2023

INSPEC Accession Number: 22927922

Date Added to IEEE *Xplore*: 04 April 2023

DOI: 10.1109/PIECON56912.2023.10085880

Publisher: IEEE

ISBN Information:

Electronic ISBN: 979-8-3503-0978-6

Conference Location: Aligarh, India

Print on Demand(PoD) ISBN: 979-8-3503-0977-6