

PCET's Pimpri Chinchwad College of Engineering and Research, Ravet, Pune



E&TC Publication Booklet (A.Y. 2022-23)



Journal Papers

04



Conference papers

10



Book Chapters

01



Books

--

**Department of Electronics and Telecommunication,
PCCOER, Ravet, Pune**

Index

Sr. No.	Particulars	Page No.
1	Summary of Publication	03
2	List of Journal Publication	04-04
3	List of Conference Publication	05-06
4	List of Book-Chapter Publication	07-07
5	Proofs of Journal Publication	08-12
6	Proofs of Conference Publication	13-23
7	Proofs of Book-Chapter Publication	24-25

Summary of Publication

Department-wise Summary of publications (A.Y. 2022-23)

Sr. No.	Department	Publications				
		Journal	Conference	Book Chapter	Books	Total
1	Electronics and Telecommunication	04	10	01	-	15

Summary of Publications

Journal Paper Indexing	
WoS (SCI/ESCI/SCIE)	00
Scopus	03
UGCCare	01
Conference Paper	
National Conference	-
International Conference	10
Scopus-Indexed Conference	09

List of Journal Publication

Sr · No	Paper Id	Department	Title of Article	Author(s)	Journal	Volume	Issue	Pages	DOI	Indexing
1	JP202223_ ETC_1	Department of Electronics and Telecommunication Engineering	Fusion of Features: A Technique to Improve Autism Spectrum Disorder Detection Using Brain MRI Images	Dhamale T.D.;Bhandari S.U.;Harpale V.K.	Biomedical and Pharmacology Journal	16	4	2443- 2455	10.13005/bpj/2819	Scopus
2	JP202223_ ETC_2	Department of Electronics and Telecommunication Engineering	Hybrid artificial neural network algorithm for air pollution estimation	Vijayalaxmi S. Kumbhar ., Shaminder Singh Sohi ., V Jayaram ., Pillai G Sreelekshmy ., Surendra Kumar Shukla ., K S Abhilash .,	International journal of health sciences				10.53730/ijhs.v6ns 5.9080	NA
3	JP202223_ ETC_3	Department of Electronics and Telecommunication Engineering	Pulse charging based intelligent battery management system for electric vehicle	Sunil Somnath Kadlag, Pawan Tapre, Rahul Mapari	Bulletin of Electrical Engineering and Informatics	12	4	1947~1 959	10.11591/eei.v12i4. 4564	Scopus
4	JP202223_ ETC_4	Department of Electronics and Telecommunication Engineering	A novel pulse charger with intelligent battery management system for fast charging of electric vehicle	Sunil Somnath Kadlag, Mohan P. Thakre, Rahul Mapari, Rakesh Shriwastava, Pawan C. Tapre, Deepak P. Kadam	Bulletin of Electrical Engineering and Informatics	12	3	1388~1 396	https://doi.org/10.11591/eei.v12i3.4890	Scopus

List of Conference Publication

1	CP202223_ETC_1	Department of Electronics and Telecommunication Engineering	Maithili Andhare ., Kishor Bhangale ., Vijayalaxmi S. Kumbhar ., Arti Tekade ., Suyash Choudhari ., Ajinkya Deshpande ., Sanket Chavan .	IoT-Enabled RFID-Based Library Management and Automatic Book Recommendation System Using Collaborative Learning	Shakya, S., Du, KL., Ntalianis, K. (eds) Sentiment Analysis and Deep Learning. Advances in Intelligent Systems and Computing, vol 1432	-	1-5	International	10.1007/978-981-19-5443-6_57	May, 2023	Detecting Cybersecurity Attacks in Industrial Internet of Things: A Systematic Literature Review	NA
1	CP202223_ETC_2	Department of Electronics and Telecommunication Engineering	Andhare M.S.;Kumbhar V.S.;Tekade A.A.	Detecting Cybersecurity Attacks in Industrial Internet of Things: A Systematic Literature Review	5th Biennial International Conference on Nascent Technologies in Engineering Icнте 2023	-	-	International	10.1109/ICNTE 56631.2023.10146705	20-21 January 2023	Navi Mumbai, India	Scopus
1	CP202223_ETC_3	Department of Electronics and Telecommunication Engineering	Patil M.;Waware T.;Yawalkar A.;Kumbhar V.;Andhare M.;Tekade A.	Design of Ultra Low Power, Area Efficient Ring Counter Based SAR ADC	2023 3rd International Conference on Intelligent Technologies Conit 2023	-	-	International	10.1109/CONIT 59222.2023.10205732	23-25 June 2023	Hubli, India	Scopus
1	CP202223_ETC_4	Department of Electronics and Telecommunication Engineering	Patil A.;Kapare S.;Shinde G.;Tekade A.;Andhare M.;Kumbar V.	Create a 32-bit Vedic Multiplier and Compare it Against Other Multipliers Using A Carry Look-Ahead Adder	2023 4th International Conference for Emerging Technology Incet 2023	-	-	International	10.1109/INCET 57972.2023.10170076	26-28 May 2023	Belgaum, India	Scopus
1	CP202223_ETC_5	Department of Electronics and Telecommunication Engineering	Pisale P.;Kope M.;Naik T.;Bhangale K.B.	IOT Based Automation of Pre-treatment Plant for Surface Coating with	5th International Conference on Energy Power and Environment Towards Flexible	-	-	International	10.1109/ICEPE 57949.2023.10201573	15-17 June 2023	Shillong, India	Scopus

				Multiple Batch System	Green Energy Technologies Icepte 2023							
15	CP202223_ETC_6	Department of Electronics and Telecommunication Engineering	Gupta N.;Thakur V.;Patil V.;Vishnoi T.;Bhangale K.	Analysis of Affective Computing for Marathi Corpus using Deep Learning	2023 4th International Conference for Emerging Technology Incet 2023	-	-	International	10.1109/INCET57972.2023.10170346	26-28 May 2023	Belgaum, India	Scopus
16	CP202223_ETC_7	Department of Electronics and Telecommunication Engineering	Bhangale K.;Dhake D.;Kawade R.;Dhamale T.;Patil V.;Gupta N.;Thakur V.;Vishnoi T.	Deep Learning-based Analysis of Affective Computing for Marathi Corpus	2023 3rd International Conference on Intelligent Technologies Conit 2023	-	-	International	10.1109/CONIT59222.2023.10205770	23-25 June 2023	Hubli, India	Scopus
17	CP202223_ETC_8	Department of Electronics and Telecommunication Engineering	Dhamale T.D.;Bhandari S.U.	Generative Adversarial Network based Brain MRI Data Augmentation	2023 7th International Conference on Computing Communication Control and Automation Iccubea 2023	-	-	International	10.1109/ICCUBEA58933.2023.10392247	18-19 August 2023	Pune, India	Scopus
18	CP202223_ETC_9	Department of Electronics and Telecommunication Engineering	Dhamale T.D.;Bhandari S.U.	Recent Trends in Automatic Autism Spectrum Disorder Detection Using Brain MRI	Lecture Notes in Networks and Systems	587	375-387	International	10.1007/978-981-19-7874-6_27	September 9-10, 2022	Tribhuvan University, Nepal	Scopus
19	CP202223_ETC_10	Department of Electronics and Telecommunication Engineering	Dhake D.;Gaikwad K.;Gunjal S.;Walunj S.	LSTM Algorithm for the Detection of Mental Stress in EEG	2023 3rd International Conference on Intelligent Technologies Conit 2023	-	-	International	10.1109/CONIT59222.2023.10205636	23-25 June 2023	Hubli, India	Scopus

List of Book Chapter Publication

<u>Sr.No.</u>	<u>ID</u>	<u>Department</u>	<u>Title</u>	<u>Author(s)</u>	<u>Book Chapter</u>	<u>Volume</u>	<u>Pages</u>	<u>DOI</u>	<u>Indexing</u>
3	BC202223_ETC_1	Department of Electronics and Telecommunication Engineering	FPGA-Based Automatic Speech Emotion Recognition Using Deep Learning Algorithm	Kawade R.;Dhamale T.;Dhake D.	Artificial Intelligence Applications and Reconfigurable Architectures	1	187-204	10.1002/9781119857891.ch10	Scopus

Fusion of Features: A Technique to Improve Autism Spectrum Disorder Detection Using Brain MRI Images

Triveni D. Dhamale*, Sheetal U. Bhandari and Varsha K. Harpale

Department of Electronics and Telecommunication, Pimpri Chinchwad
College of Engineering, Nigdi, Savitribai Phule Pune University (SPPU), India.

*Corresponding Author E-mail: trivenidhamale08@gmail.com

<https://dx.doi.org/10.13005/bpj/2819>

(Received: 14 July 2022; accepted: 15 February 2023)

Autism Spectrum Disorder (ASD) is a major incident neurological disorder. Medical practitioners use different diagnostic techniques such as Electroencephalogram (EEG) Analysis, Magnetic Resonance Imaging (MRI) analysis, and traditional Behavioral Analysis for ASD detection. However, diagnosis success largely depends on specialists' knowledge and remains seldom accessible to remote patients. To address this issue, recently, various machine learning (ML) approaches have been developed for ASD detection using brain MRI images. The performance of these approaches is often limited because of poor feature discrimination, inferior quality of features, high feature length, and poor correlation of features. Thus, there is a need for robust feature extraction and selection techniques to improve the performance of ASD detection. The proposed work demonstrates a fusion of three features, namely Gray Level Co-occurrence Matrix (GLCM) based holistic texture features, Local Binary Pattern (LBP) based local texture features, and Geometrical Features of the Corpus Callosum (GFCC) from brain MRI images. Further, a correlation-based feature selection technique is employed for the salient feature selection from the GLCM, LBP, and GFCC set to improve the feature quality. The effectiveness of the selected feature is evaluated using three ML classifiers such as K-Nearest neighbor (KNN), Support Vector Machine (SVM), and Classification Tree (CT). The proposed ASD detection scheme provides an accuracy of 95.86% with 10-fold cross-validation with a CT classifier. It is observed that the accuracy of the proposed system is improved by 11.32% over the recent GLCM-based ASD system. The correlation-based feature selection techniques minimize the recognition time by 34.95% over the ASD system without feature selection.

Keywords: Autism Spectrum Disorder; Classification Tree; Gray Level Co-occurrence Matrix; K-Nearest Neighbor; Local Binary Pattern; Machine Learning; Magnetic Resonance Imaging; Support Vector Machine.

Autism Spectrum Disorder (ASD) is a neurological disorder characterized by persistent social communication impairments like difficulties in talking and interacting, limited interests, and repetitive activities that increase with time¹. According to the World Health Organization (WHO), Autism affects one out of every 160 children and can cause physical and psychological

developmental problems. In the United States, the prevalence of ASD is estimated to be 1.47 percent, with an average lifetime cost of one million dollars per patient. The disorder is caused by various factors, including inheritance, brain structure, function, and environmental influences²⁻³.

The symptoms of ASD usually appear in the first two years of life. Early diagnosis is

This is an  Open Access article licensed under a Creative Commons license: Attribution 4.0 International (CC-BY).
Published by Oriental Scientific Publishing Company © 2023



How to Cite:

Kumbhar, V. S., Sohi, S. S., Jayaram, V., Sreelekshmy, P. G., Shukla, S. K., & Abhilash, K. S. (2022). Hybrid artificial neural network algorithm for air pollution estimation. *International Journal of Health Sciences*, 6(S5), 2094–2106. <https://doi.org/10.53730/ijhs.v6nS5.9080>

Hybrid artificial neural network algorithm for air pollution estimation

Vijayalaxmi S. Kumbhar

Assistant Professor, PCET's Pimpri Chinchwad College of Engineering and Research, Ravet

Email: vijayalaxmi.kumbar@pccoer.in

Shaminder Singh Sohi

Assistant Professor, Chandigarh University, Gharuan, Mohali, Punjab

Email: Shaminder.e12325@cumail.in

Jayaram V

Research Scholar, Dept of Mechanical Engineering, Noorul Islam Center for Higher Education
Tamilnadu

Email: jayaramvijayan@gmail.com

Sreelekshmy Pillai G

Associate Professor In Civil Engineering, NSS College Of Engineering, Palakkad

Email: sreelekshmypillai@gmail.com

Dr. Surendra Kumar Shukla

Associate Professor, Department of Computer Science & Engineering, Graphic Era Deemed to be University, Dehradun, Uttarakhand, India, 248002

Email: surendrakshukla21@gmail.com

Dr. Abhilash. KS

Managing Director, EduCorp Centre for Research and Advanced Studies Pvt. Ltd.
Thiruvananthapuram, Kerala

Email: dr.abhilashks@gmail.com

Abstract--In recent years, airborne broadcasting has grown more prevalent in cities. Air quality degradation is a severe air pollution issue that exists daily. To forecast the amount of pollutants, Artificial Neural Network (ANN) and Linear Vector Quantization (LVQ) techniques were utilized. The data set dimensions are defined by the pre-processing procedure and the feature extraction mechanism. The ANN model predicts categorization concentration, allowing the LVQ model to classify direct situations with greater accuracy using explanatory factors. The ANN+LVQ model outperformed other

International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X © 2022.

Manuscript submitted: 18 Feb 2022, Manuscript revised: 27 April 2022, Accepted for publication: 9 June 2022

2094

Pulse charging based intelligent battery management system for electric vehicle

Sunil Somnath Kadlag¹, Pawan Tapre², Rahul Mapari³, Mohan Thakre⁴, Deepak Kadam⁵,
Dipak Dahigaonkar⁶

¹Department of Electrical Engineering, Amrutvahini College of Engineering, Savitribai Phule Pune University, Sangamner, India

²Department of Electrical Engineering, S.N.D. College of Engineering and Research Center, Yeola, India

³Department of Electronics and Telecommunication Engineering, Pimpri Chinchwad College of Engineering and Research, Pune, India

⁴Department of Electrical Engineering, SVERIs College of Engineering, Pandharpur, M.S. India

⁵Department of Electrical Engineering, MET's Institute of Engineering, BKC, Nashik, India

⁶Department of Electronics and Communication Engineering, Shri Ramdeobaba College of Engineering and Management, Nagpur, India

Article Info

Article history:

Received Aug 15, 2022

Revised Nov 2, 2022

Accepted Nov 27, 2022

Keywords:

Battery management system

Electric vehicles

Neural network

PID controller

ABSTRACT

Electric vehicles (EVs) are now an important part of the automotive industry for two main reasons: decreased reliance on oil and reduced air pollution, which helps us contribute to the development of an environmentally friendly environment. EV buyers examine overall vehicle mileage, recharge time, vehicle mileage after every charge, batteries charging/discharging security, lifespan, charged rate, capability, and temperature increase. A new improved pulse charging technique is proposed, in which the battery is charged using proportional integral derivative (PID) control action and a neural network. A PID controller is used to develop the charging unit in this design. The feed forward neural network was used to determine the values of the PID control parameters. The battery management system (BMS) ensures that this designed battery charging system takes less time to charge the battery efficiently. The system is built with MATLAB/Simulink.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Sunil Somnath Kadlag

Department of Electrical Engineering, Amrutvahini College of Engineering

Sangamner, Maharashtra, India

Email: asunilkadlag5675@gmail.com

1. INTRODUCTION

Li-ion batteries used to have low levels of self rate and a high energy density. For electric vehicle (EV) sectors, lithium-ion batteries must improve power management, energy density, control, security, and charger [1]. Low ambient temperatures in EV markets impede Li⁺ ion diffusion at electrolytes and electrodes, slowing complication kinetics. It is hard to eliminate proficiently and uniformly which leads to degradation and concerns into safety-related problems due to the heat generated while doing fast charging of the battery [2]-[4]. The improvement of batteries technology with battery-management systems, that include surveillance, security, and monitoring of battery variables that serve as the battery platform's brain, has critical to the evolution of electric vehicles. Since incorrect actions such as over-current, over-voltage, or over-charging/discharging may cause serious safety concerns to the cells, significantly accelerate the ageing process or even wildfires if left unattended [5]-[7]. As a result, battery management system (BMS) plays a vital role in guaranteeing battery reliability and safety. It also has an automatic cut-off feature, which disconnects the battery from the electrical circuit and loads the side when charging and discharging levels exceed the set limits [8]-[10].

There are many challenges to manufacturers to introduce electrified solutions with their ranges, motor configuration, and converters acceptance by the customer of EVs and battery electric vehicles that are not

Journal homepage: <http://beei.org>

A novel pulse charger with intelligent battery management system for fast charging of electric vehicle

Sunil Somnath Kadlag¹, Mohan P. Thakre², Rahul Mapari³, Rakesh Shrivastava⁴, Pawan C. Tapre⁵,
Deepak P. Kadam⁶

¹Department of Electrical Engineering, Amrutvahini College of Engineering, Sangamner, India

²Department of Electrical Engineering, K.K. Wagh Institute of Engineering Education and Research, Nashik, India

³Department of electronics and telecommunication Engineering, Pimpri Chinchwad College of Engineering and Research, Pune, India

⁴Department of Electrical Engineering, Matoshri College of Engineering and Research Centre, Nashik, India

⁵Department of Electrical Engineering, S.N.D. College of Engineering and Research Center, Yeola, India

⁶Department of Electrical Engineering, MET's Institute of Engineering, BKC, Nashik, India

Article Info

Article history:

Received Sep 26, 2022

Revised Nov 16, 2022

Accepted Jan 3, 2023

Keywords:

Arduino Uno

Artificial neural network

Battery management system

Electric vehicle

PID control action

Pulse charging technique

ABSTRACT

Electric vehicles contribute a major role in building an eco-friendly environment. Li-ion batteries are most widely used in electric vehicles. It is very important to maintain the operation of Li-ion batteries within their "safety operation area (SOA)". Hence implementing a battery management system (BMS) becomes a necessity while using Li-ion batteries. This paper proposes an intelligent BMS for electric vehicles using proportional integral derivative (PID) control action along with artificial neural network (ANN). It prefers the improved pulse charging technique. The design consists of a battery pack containing four 12 V Li-ion batteries, MOSFETs, Arduino Uno, a transformer, a temperature sensor, a liquid-crystal displays (LCD), a cooling fan, and four relay circuit are used. Arduino Uno is used as a master controller for controlling the whole operation. Using this design approximately 38 minutes are required to fully charge the battery. Implementation results validate the system performance and efficiency of the design.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Sunil Somnath Kadlag

Department of Electrical Engineering, Amrutvahini College of Engineering

Sangamner, Maharashtra 422608, India

Email: sunilkadlag5675@gmail.com

1. INTRODUCTION

Industries face numerous challenges in introducing electrified approaches to their ranges, and engine configurations, as well as inverters' acquiescence by customers of electric vehicles (EVs) and electric vehicle batteries that are not hybridized with ICEs. The investigators discuss different electrical drives, such as switched reluctance motor (SRM) [1]-[4], brushless DC motor (BLDC), permanent magnet synchronous motors (PMSM), and induction motor drives, in addition to their constraints, and presented configurations for EV applications in [5], [6]. High-efficiency DC-DC converter for renewable energy applications employing a fuzzy logic controller has been presented in [7]. Contrasts the experimental applications of over-modulation schemes in modular multilevel cascaded converters for harmonic elimination for 3-phase two-level voltage source inverters are discussed [8], [9]. For voltage balancing, [10] presented a modular multilevel converter with a simplified nearest-level control (NLC) strategy. Characterizes the implementation and monitoring conceptions of a value stream mapping (VSM-based) multilevel PV-STATCOM for harmonic elimination in a distributed energy system [11]. The uses of include flexible AC transmission systems (FACTS) controllers

Journal homepage: <http://beei.org>

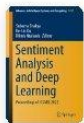
CP202223_ETC_1

Home > Sentiment Analysis and Deep Learning > Conference paper

IoT-Enabled RFID-Based Library Management and Automatic Book Recommendation System Using Collaborative Learning

| Conference paper | First Online: 01 January 2023

| pp 753–765 | [Cite this conference paper](#)



Sentiment Analysis and Deep Learning



Maithili Andhare, Kishor Bhangale, Vijayalaxmi S. Kumbhar, Arti Tekade, Suyash Choudhari , Ajinkya Deshpande & Sanket Chavan

 Part of the book series: [Advances in Intelligent Systems and Computing](#) ((AISC, volume 1432))

 1166 Accesses  5 Citations

Abstract

Libraries are a valuable resource for learning. A person must acquire and retain knowledge. However, the current library system has several disadvantages, including manual management of books by librarians, tedious tasks of book searching, and difficulty to track the unreturned books. Thus, this article presents the automatic library management system (LMS) based on radio frequency identification (RFID) and the Internet of Things (IoT). The proposed system helps to identify and track a large number of tagged books using radio waves. The proposed LMS provides an interactive portal to display the availability of books in the library, book issue facility, tracking of issued books, book return facility, etc. The LMS portal also provides book recommendations based on the K-Means clustering algorithm and collaborative learning. The IoT helps to collect the data on the cloud platform so that remote access to the library system. This action simplifies the process of borrowing, updating, and returning books using RFID tags.

 This is a preview of subscription content, [log in via an institution](#)  to check access.

Access this chapter

Log in via an institution

Subscribe and save

 Springer+

from €37.37 /Month

Detecting Cybersecurity Attacks in Industrial Internet of Things: A Systematic Literature Review

Publisher: IEEE [Cite This](#) [PDF](#)

Maithili Shailesh Andhare ; Vijayalaxmi Sandeep Kumbhar ; Arti Avinash Tekade [All Authors](#)

2
Cites in
Papers

218
Full
Text Views



Abstract

Document Sections

- I. INTRODUCTION
- II. LITEARTURE REVIEW
- III. Analysis on the collected research works
- IV. RESEARCH GAPS AND CHALLENGES
- V. CONCLUSION AND FUTURE SCOPE

[Authors](#)

[Figures](#)

[References](#)

[Citations](#)

[Keywords](#)

[Metrics](#)

[More Like This](#)

Abstract:

Cybercriminals and hackers are actively pursuing critical city infrastructures that rely on smart "Industrial Internet of Things (IIoT)" devices. Regardless of the fact that it has prompted a number of interests in recent decades, there isn't an accurate approach for Industrial IoT attack detection. Prior to actually developing an appropriate approach for detecting Industrial IoT attacks, it's indeed necessary to have knowledge of previous literature works. As a result, a concise and conceptual literature evaluation is conducted in this research work, including the most applicable methodologies dedicated to IIoT attack detection. All of the research papers gathered is from the years 2020 to 2022. Furthermore, each of the gathered publications is examined in terms of a variety of criteria, including the information source, attack detection methodologies, and performance metrics. Finally, current study gaps in the literature have been highlighted, and this will serve as a benchmark for future IIoT threat detection researchers.

Published in: 2023 5th Biennial International Conference on Nascent Technologies in Engineering (ICNTE)

Date of Conference: 20-21 January 2023

DOI: 10.1109/ICNTE56631.2023.10146705

Date Added to IEEE Xplore: 12 June 2023

Publisher: IEEE

► ISBN Information:

Conference Location: Navi Mumbai, India

[Sign in to Continue Reading](#)

Authors	▼
Figures	▼
References	▼
Citations	▼
Keywords	▼
Metrics	▼

Need Full-Text

access to IEEE Xplore for your organization?

[CONTACT IEEE TO SUBSCRIBE >](#)



CP202223_ETC_3

Design of Ultra Low Power, Area Efficient Ring Counter Based SAR ADC

Publisher: **IEEE** [Cite This](#) [PDF](#)

Mayur Patil ; Tanmay Waware ; Atharva Yawalkar ; Vijayalaxmi Kumbhar ; Maithili Andhare ; Arti Tekade [All Authors](#)

2
Cites in
Papers

446
Full
Text Views



Abstract

Document Sections

- I. Introduction
- II. Proposed Technology
- III. Results and Discussions
- IV. Conclusion
- V. Future Scope

[Authors](#)

[Figures](#)

[References](#)

[Citations](#)

[Keywords](#)

[Metrics](#)

[More Like This](#)

Abstract:

We have discussed about counter-based SAR ADC in this research paper. A significant component of the high-speed application of ADCs is the SARs critical path. ADCs needed for long term and battery-operated applications typically consume relatively less power. Applications requiring low power, moderate resolution, and medium speed is best suited for SAR ADC. Dynamic latch is employed in our ADC to boost performance and achieve low power consumption. We have demonstrated a 45nm CMOS-simulated, 4-bit low power SAR ADC. Utilizing an ADC design with the maximum amount of simplification, which consists of a dynamic latch comparator, in this paper we are primarily focusing on increasing the sampling frequency of the SAR ADC in order to get high conversion rate. The continuous time analogue low pass filter, which is typically used in front of the ADC to avoid aliasing, was also explored in this paper. Active-RC filters and operational transconductance-C filters are investigated and developed. Results from simulations and measurements are offered to illustrate the performance and functionality.

Published in: 2023 3rd International Conference on Intelligent Technologies (CONIT)

Date of Conference: 23-25 June 2023

DOI: 10.1109/CONIT59222.2023.10205732

Date Added to IEEE Xplore: 07 August 2023

Publisher: IEEE

ISBN Information:

Conference Location: Hubli, India

[Sign in to Continue Reading](#)

Authors



Figures



References



Citations



Keywords



Metrics



Need Full-Text
access to IEEE Xplore
for your organization?

CONTACT IEEE TO SUBSCRIBE >

[IEEE Personal Account](#)

[Purchase Details](#)

[Profile Information](#)

[Need Help?](#)

[Follow](#)



Create a 32-bit Vedic Multiplier and Compare it Against Other Multipliers Using A Carry Look-Ahead Adder

Publisher: **IEEE** [Cite This](#) [PDF](#)

Abhijeet Patil ; Shreyas Kapare ; Ganesh Shinde ; Arti Tekade ; Maithili Andhare ; Vijayalaxmi Kumbar [All Authors](#)

5
Cites in
Papers

288
Full
Text Views



Abstract

Document Sections

- I. Introduction
- II. Proposed Technology
- III. Results and Discussions
- IV. Conclusion
- V. Future Scope

Abstract:

Over the past ten years, the field of digital electronics has experienced tremendous expansion, and technology advancement is accelerating daily. This technology needs to be implemented at a rapid pace with a powerful multiplier. This is an important consideration while developing any digital system. A circuit known as a multiplier produces the product of the inputs it receives. Any number of bits can be multiplied by a multiplier in arithmetic and logic circuits. Because the multiplier uses adders to conduct the action of summing partial products, the multiplier's delay time can be decreased by using more sophisticated adders. In order to compare different parameters and evaluate their performances, this article provides a design and implementation of various multipliers with carry look ahead adder.

Published in: 2023 4th International Conference for Emerging Technology (INCET)

Date of Conference: 26-28 May 2023

DOI: 10.1109/INCET57972.2023.10170076

Date Added to IEEE Xplore: 10 July 2023

Publisher: IEEE

► ISBN Information:

Conference Location: Belgaum, India

Authors

Figures

References

Citations

Keywords

Metrics

More Like This

Sign in to Continue Reading

Authors

Figures

References

Citations

Keywords

Metrics

Need Full-Text
access to IEEE Xplore
for your organization?

CONTACT IEEE TO SUBSCRIBE >



IOT Based Automation of Pre-treatment Plant for Surface Coating with Multiple Batch System

Publisher: IEEE [Cite This](#) [PDF](#)

Prathamesh Pisale ; Mahesh Kope ; Tejas Naik ; Kishor.B. Bhangale [All Authors](#)

21
Full
Text Views



- Abstract**
- Document Sections
- I. Introduction
- II. Research Background
- III. Design Methodology
- IV. Results and Discussions
- V. Quality Inspection Using Ahp
- Show Full Outline ▾
- Authors
- Figures
- References
- Keywords
- Metrics
- More Like This

Abstract:
Powder Coating is a method of applying decorative and protective finish to a wide range of materials and products that are used by both industries and consumers. Pre-Treatment is a process that manufactures need to go through to remove all grease, oils and dirt from the metal (usually conductive) surfaces. The process of pre-treatment has the following stages: Degreasing, Derusting, Phosphating, Passivation and Water Rinsing. Depending on the type of material that is to be pre-treated, the stages of the pre-treatment cycle can be varied accordingly. The existing system lacks in modes and in efficiency due to the inability for simultaneous execution. The pre-treatment process can be operated in three modes: Automatic, Manual and Maintenance. The system is a multiple batch system that allows multiple trays (batches) to be treated simultaneously with the help of electromagnetic latching mechanism. Integrating the system with IOT removes the restriction of localized operation and allows the operator to control the entire system remotely, without being present on the assembly floor. Further the quality of the proposed system is evaluated using Analytic Hierarchy Process(AHP).

Published in: 2023 5th International Conference on Energy, Power and Environment: Towards Flexible Green Energy Technologies (ICEPE)

Date of Conference: 15-17 June 2023 **DOI:** 10.1109/ICEPE57949.2023.10201573

Date Added to IEEE Xplore: 09 August 2023 **Publisher:** IEEE

► ISBN Information: **Conference Location:** Shillong, India

▼ ISSN Information:

[Sign in to Continue Reading](#)

- Authors ▾
- Figures ▾
- References ▾
- Keywords ▾
- Metrics ▾

Need Full-Text
access to IEEE Xplore for your organization?
[CONTACT IEEE TO SUBSCRIBE >](#)



Analysis of Affective Computing for Marathi Corpus using Deep Learning

Publisher: **IEEE** [Cite This](#) [PDF](#)

Nehul Gupta ; Vedangi Thakur ; Vaishnavi Patil ; Tamanna Vishnoi ; Kishor Bhangale [All Authors](#)

6
Cites in
Papers

52
Full
Text Views



Abstract

Document Sections

- I. Introduction
- II. Related Research Work
- III. Proposed Methodology
- IV. Experimental Results and Discussion
- V. Conclusion and Future Scope

[Authors](#)

[Figures](#)

[References](#)

[Citations](#)

[Keywords](#)

[Metrics](#)

[More Like This](#)

Abstract:

Speech Emotion Recognition (SER) offers a wide range of potential uses, including strengthening human-computer interaction in virtual reality and gaming settings, enhancing the detection and tracking of mental health disorders, and enhancing the precision of speech based assistants and chat bots. It faces the challenge of cross corpus SER, intonation variations, dialects variations and prosodic changes in language due to age, gender, region, and religion, etc. This paper presents deep Convolution Neural Network based SER for Marathi language Our novel Marathi data set consists of 300 recordings of 15 speakers for Anger, Happy, Sad and Neutral emotions. The performance of the proposed DCNN is evaluated on the novel data set based on accuracy, precision, recall and F1-score. The suggested scheme provides overall accuracy of raw data is 0.4750, 0.4076 and 0.3927 for 5,10 and 15 speakers respectively and the overall accuracy after feature extraction is 0.6652, 0.6361 and 0.5800 for 5, 10 and 15 speakers respectively shows improvement in existing state of arts utilized for SER for Marathi Corpus.

Published in: 2023 4th International Conference for Emerging Technology (INCET)

Date of Conference: 26-28 May 2023

DOI: 10.1109/INCET57972.2023.10170346

Date Added to IEEE Xplore: 10 July 2023

Publisher: IEEE

ISBN Information:

Conference Location: Belgaum, India

Abstract
Introduction
Related Research Work
Proposed Methodology
Experimental Results and Discussion
Conclusion and Future Scope
References
Citations
Keywords
Metrics
More Like This

[Sign in to Continue Reading](#)

Authors



Figures



References



Deep Learning-based Analysis of Affective Computing for Marathi Corpus

Publisher: **IEEE** [Cite This](#) [PDF](#)

Kishor Bhargale ; Dipali Dhake ; Rupali Kawade ; Triveni Dhamale ; Vaishnavi Patil ; Nehul Gupta [All Authors](#)

7
Cites in
Papers

58
Full
Text Views



- Abstract**
- Document Sections
- I. INTRODUCTION
- II. Related work
- III. Proposed methodology
- III. Experimental results and discussions
- V. Conclusions and future scopes

- [Authors](#)
- [Figures](#)
- [References](#)
- [Citations](#)
- [Keywords](#)
- [Metrics](#)
- [More Like This](#)

Abstract:

Speech Emotion Recognition (SER) has a broad variety of potential applications, including improving human-computer interaction in virtual reality and gaming environments, improving the identification and monitoring of mental health conditions, and improving the accuracy of chatbots and speech-based assistants. It must contend with cross-corpus SER, intonation and dialectal differences, as well as prosodic shifts brought on by factors like age, gender, locality, and religion. Deep Convolution Neural Network-based SER for Marathi is presented in this study. For the emotions of anger, happiness, sadness, and neutrality, our fresh Marathi data set includes 300 recordings of 15 speakers. On the basis of accuracy, precision, recall, and F1-score, the performance of the proposed DCNN is assessed using the new data set. The proposed scheme offers overall data accuracy of 0.4750, 0.4076, and 0.3927 for 5, 10, and 15 speakers, respectively, and overall accuracy of 0.6652, 0.6361, and 0.5800 for 5, 10, and 15 speakers, respectively, after feature extraction, which represents an improvement over the current state of the art used for SER for Marathi Corpus.

Published in: 2023 3rd International Conference on Intelligent Technologies (CONIT)

Date of Conference: 23-25 June 2023

DOI: 10.1109/CONIT59222.2023.10205770

Date Added to IEEE Xplore: 07 August 2023

Publisher: IEEE

ISBN Information:

Conference Location: Hubli, India

[Sign in to Continue Reading](#)

- [Authors](#)
- [Figures](#)
- [References](#)
- [Citations](#)
- [Keywords](#)
- [Metrics](#)



Generative Adversarial Network based Brain MRI Data Augmentation

Publisher: IEEE [Cite This](#) [PDF](#)

Triveni D. Dhamale ; Sheetal U. Bhandari [All Authors](#)

63
Full
Text Views



Abstract

Document Sections

- I. Introduction
- II. Related Work
- III. Proposed Methodology
- IV. Proposed Methodology
- V. Conclusions and Future Scopes

[Authors](#)

[Figures](#)

[References](#)

[Keywords](#)

[Metrics](#)

[More Like This](#)

Abstract:

Autism spectrum disorder (ASD) is becoming an increasingly important problem for individuals between the ages of 6 and 17. This disorder leads to a neurological condition impacting a person's ability to communicate and connect socially. The symptoms of ASD include despair, anxiety, hyperacidity, and so forth. Individuals can develop severe problems as a result of this. Therefore, a diagnosis in the early stages is reasonably necessary. The most common diagnostic method for autism spectrum disorder (ASD) is magnetic resonance imaging (MRI) of the brain. Deep Learning (DL) enables enhanced computational complexity, the capability to handle bigger data sets and high algorithmic efficiency. However, the performance of DL techniques is hugely affected by the data scarcity problem that occurs due to limited or uneven dataset size. Thus, there is a need to increase or balance the dataset size to equalize the qualitative and quantitative results of ASD detection. Therefore, this paper presents the Generative Adversarial Network (GAN) for brain MRI data augmentation. The performance of the suggested approach is evaluated on Autism Brain Imaging Exchange (ABIDE-I) dataset.

Published in: 2023 7th International Conference On Computing, Communication, Control And Automation (ICCUBEA)

Date of Conference: 18-19 August 2023

DOI: 10.1109/ICCUBEA58933.2023.10392247

Date Added to IEEE Xplore: 22 January 2024

Publisher: IEEE

► ISBN Information:

Conference Location: Pune, India

▼ ISSN Information:

[Sign in to Continue Reading](#)

[Authors](#)

[Figures](#)

[References](#)

[Keywords](#)

[Metrics](#)



Need Full-Text
access to IEEE Xplore
for your organization?
[CONTACT IEEE TO SUBSCRIBE >](#)



CP202223_ETC_9

Recent Trends in Automatic Autism Spectrum Disorder Detection Using Brain MRI

| Conference paper | First Online: 23 February 2023

| pp 375–387 | [Cite this conference paper](#)



Proceedings of Third International Conference on Sustainable Expert Systems

Triveni D. Dhamale & Sheetal U. Bhandari

Part of the book series: [Lecture Notes in Networks and Systems](#) ((LNNS, volume 587))

900 Accesses

Abstract

Autism spectrum disorder (ASD) is a multifaceted developmental and psychological disability that consists of importunate challenges regarding non-verbal and speech communication, repetitive or restricted behavior and social interaction. Early detection of ASD can help to take proper curative and preventive measures to improve the health and lifestyle of the patients. Various machine learning-based and deep learning-based approaches have been presented in the past for the automatic detection of ASD. This paper presents the survey of a recent machine and deep learning approaches for ASD detection using brain Magnetic Resonance Images (MRI). It focuses on the methodology, feature extraction techniques, classifiers, database, and evaluation metrics of the various ASD detection approaches. The performance of several machine learning systems such as K-Nearest Neighbour (KNN), Support Vector Machine (SVM) and Classification Tree (CT) is validated for ASD detection on ABIDE-I dataset. Finally, it provides the challenges, constraints and gives the future direction to enhance the performance of the various machine and deep learning-based ASD detection approaches.

This is a preview of subscription content, [log in via an institution](#) to check access.

Access this chapter

Log in via an institution

Subscribe and save

Springer+

from €37.37 /Month

LSTM Algorithm for the Detection of Mental Stress in EEG

Publisher: **IEEE** [Cite This](#) [PDF](#)

Dipali Dhake ; Kunal Gaikwad ; Shreyas Gunjal ; Sanket Walunj **All Authors**

3
Cites in
Papers

184
Full
Text Views



Abstract

Document Sections

- I. Introduction
- II. Related work
- III. Methodology
- IV. Experimental Results and Discussion
- V. CONCLUSION

Authors

Figures

References

Citations

Keywords

Metrics

More Like This

Abstract:

Stress is a prevalent mental health issue that can lead to severe consequences if not addressed properly. In recent years, electroencephalography (EEG) signals have gained attention for stress detection. However, most existing approaches rely on pre-processed features, which can be time-consuming and may not capture all the relevant information in the EEG signals. In this paper, we proposed a novel deep-learning approach for real-time stress detection using raw EEG signals. Our approach utilizes a long short-term memory (LSTM) network to automatically capture features and classify the stress level. Our method allows for capturing all the relevant information in the EEG signals, without the need for manual feature engineering. We evaluated our approach on the DEAP dataset, which includes EEG signals from 32 subjects under various emotional states. Experimental results demonstrate that our approach achieves state-of-the-art performance in stress detection, with an accuracy of approximately 94%. Our proposed approach has the potential for real-world applications, such as stress management in the workplace and mental health monitoring in clinical settings.

Published in: 2023 3rd International Conference on Intelligent Technologies (CONIT)

Date of Conference: 23-25 June 2023 **DOI:** 10.1109/CONIT59222.2023.10205636

Date Added to IEEE Xplore: 07 August 2023 **Publisher:** IEEE

► ISBN Information: **Conference Location:** Hubli, India

[Sign in to Continue Reading](#)

- Authors ▼
- Figures ▼
- References ▼
- Citations ▼
- Keywords ▼
- Metrics ▼

Need Full-Text
access to IEEE Xplore
for your organization?
CONTACT IEEE TO SUBSCRIBE >



Chapter 10

FPGA-Based Automatic Speech Emotion Recognition Using Deep Learning Algorithm

Rupali Kawade, Triveni Dhamale, Dipali Dhake

Book Editor(s): Anuradha D. Thakare, Sheetal Umesh Bhandari

First published: 10 February 2023 | <https://doi.org/10.1002/9781119857891.ch10> | Citations: 3

PDF TOOLS SHARE

Summary

There is increasing research in the field of speech emotion recognition (SER) due to its applicability in human computer interfaces (HCI). The literature reviewed in this area proposed different systems to recognize the emotional status of person through speech, and their studies focus on use of appropriate databases, selection of suitable features and classifications techniques to improve the recognition accuracy. Researchers have been recently demonstrated deep learning techniques as an alternative to traditional SER techniques that reduces the need of identifying the handcrafted features. The high-dimensional features of proposed deep learning algorithm limit its implementations on the standalone processing boards. This article presents the implementation of deep learning-based SER on multicore programmable PYNQ-ZQ board that gives adaptability to the multidimensional deep features of speech signals. The proposed SER system is successfully implemented on the PYNQ-ZQ FPGA board and it results in an accuracy of 85.33%. It is noted that the FPGA implementation minimizes the delay for the SER compared with conventional central processing unit.

References

Citing Literature



Artificial Intelligence Applications and Reconfigurable Architectures



References



Related



Information

Recommended

[Speech emotion recognition based on genetic algorithm–decision tree fusion of deep and acoustic features](#)

Linhui Sun, Qiu Li, Sheng Fu, Pingan Li

ETRI Journal

[Learning deep features to recognise speech emotion using merged deep CNN](#)

Jianfeng Zhao, Xia Mao, Lijiang Chen

IET Signal Processing

[Optimal feature selection based speech emotion recognition using two-stream deep convolutional neural network](#)

Mustaqeem, Soonil Kwon

International Journal of Intelligent Systems

[A Low-Power Audio Processing Using Machine Learning Module on FPGA and](#)