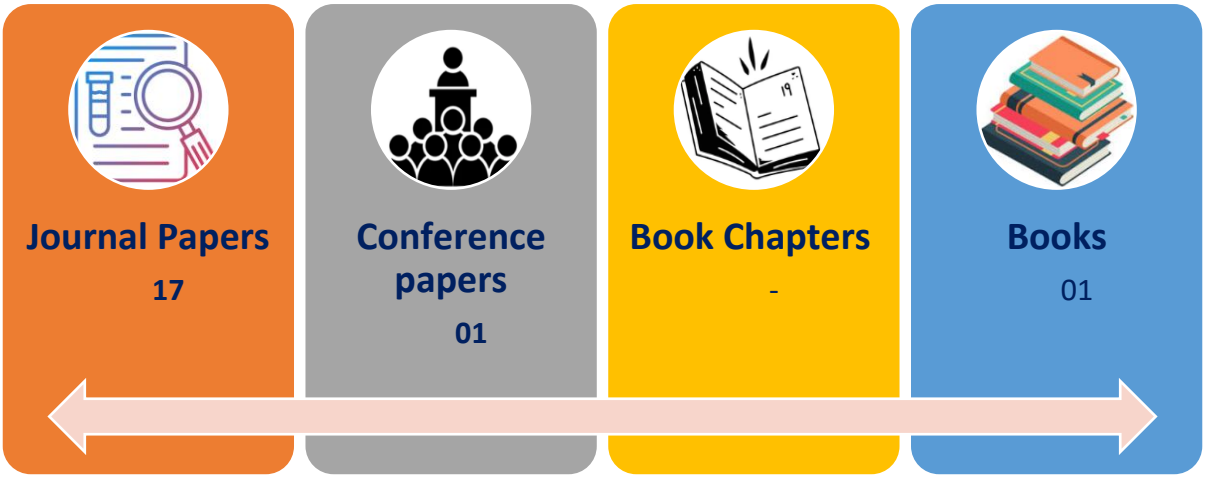
PCET's Pimpri Chinchwad College of Engineering and Research, Ravet, Pune

Publication Booklet

(A.Y. 2023-24)



Department of Electronics and Telecommunication, PCCOER, Ravet, Pune

Index

Summary of Publication

Department-wise Summary of publications (A.Y. 2023-24)

Sr. No.	Department	Publications				
		Journal	Conference	Book Chapter	Books	Total
1	Electronics and Telecommunication	17	1	-	1	19

Summary of Publications

Journal Paper Indexing	
WoS (SCI/ESCI/SCIE)	**03**
Scopus	**14**
UGCCare	**03**
Conference Paper	
National Conference	**-**
International Conference	**1**
Scopus-Indexed Conference	**1**

List of Journal Publications 2023-24

Sr. No.	Paper ID	Department	Title of Article	Author(s)	Journal Name	Volume	Pages	Issue	DOI	Indexing
1.	JP202324_ETC_1	Department of Electronics and Telecommunication Engineering	Speech emotion recognition for human–computer interaction	Thiripurasundari D.;Bhangale K.;Aashritha V.;Mondreti S.;Kothandaraman M.	International Journal of Speech Technology	27	817-830	3	10.1007/s10772-024-10138-0	Scopus
2.	JP202324_ETC_2	Department of Electronics and Telecommunication Engineering	Speech Emotion Recognition Using Generative Adversarial Network and Deep Convolutional Neural Network	Bhangale K.;Kothandaraman M.	Circuits Systems and Signal Processing	43	2341-2384	4	10.1007/s00034-023-02562-5	Scopus
3.	JP202324_ETC_3	Department of Electronics and Telecommunication Engineering	Adam teaching learning optimization enabled LeNet for autism spectrum disorder detection using brain MRI	Dhamale T.D.;Bhandari S.U.	Biomedical Signal Processing and Control	90	-	-	10.1016/j.bspc.2023.105864	Scopus
4.	JP202324_ETC_4	Department of Electronics and Telecommunication Engineering	Dielectric modulated organic thin film transistor trench biosensor for label-free detection: Modeling and simulation analysis	Bhandari S.;Dhamale T.D.;Kawade R.K.;Dhake D.N.;Wadhwa G.	International Journal of Numerical Modelling Electronic Networks Devices and Fields	37	-	2	10.1002/jnm.3186	Scopus
5.	JP202324_ETC_5	Department of Electronics and Telecommunication Engineering	Optimal trained ensemble of classification model for speech emotion recognition: Considering cross-lingual and multilingual scenarios	Kawade R.R.;Jagtap S.K.	Multimedia Tools and Applications	83	54331-54365	18	10.1007/s11042-023-17097-9	Scopus
6.	JP202324_ETC_6	Department of Electronics and Telecommunication Engineering	Implemented OBL-DE assisted Tasmanian devil optimisation for selecting the optimal features using EEG signal for stress detection	Dhake D.N.;Angal Y.S.	International Journal of Ad Hoc and Ubiquitous Computing	47	240-257	4	10.1504/IJAHUC.2024.142712	Scopus
7.	JP202324_ETC_7	Department of Electronics and Telecommunicatio	Smart river cleaning bot	Dr. Dipali Shende	Dogo Rangsang Research Journal	13	148-155		NA	N

		n Engineering								
8.	JP202324_ETC_8	Department of Electronics and Telecommunication Engineering	Performance evaluation and comparative analysis of CrowWhale-energy and trust aware multicast routing algorithm	Shende D.K.;Angal Y.S.	Web Intelligence	21	271-291	3	10.3233/WEB-220063	Scopus
9.	JP202324_ETC_9	Department of Electronics and Telecommunication Engineering	Speech emotion recognition based on multiple acoustic features and deep convolutional neural network	Bhangale, Kishor and Kothandaraman, Mohanaprasad	Electronics	12	839		-	Scopus, WOS
10.	JP202324_ETC_10	Department of Electronics and Telecommunication Engineering	Speech emotion recognition using the novel PEmoNet (Parallel Emotion Network)	Bhangale K.B.;Kothandaraman M.	Applied Acoustics	212	-	-	10.1016/j.apacoust.2023.109613	Scopus
11.	JP202324_ETC_11	Department of Electronics and Telecommunication Engineering	Comprehensive Study of Automatic Speech Emotion Recognition Systems	Kawade R.;Jagtap S.	International Journal on Recent and Innovation Trends in Computing and Communication	11	709-717	9s	10.17762/ijritcc.v11i9s.7743	Scopus
12.	JP202324_ETC_12	Department of Electronics and Telecommunication Engineering	Liver segmentation using marker controlled watershed transform.	KM Napte, A Mahajan	International Journal of Electrical & Computer Engineering	13	1541-1550	2	DOI: 10.11591/ijece.v13i2.pp1541-1549	Scopus
13.	JP202324_ETC_13	Department of Electronics and Telecommunication Engineering	ESP-UNet: Encoder-Decoder Convolutional Neural Network with Edge-Enhanced Features for Liver Segmentation.	K Napte, A Mahajan, S Urooj	Traitement du Signal	40	2275-2281	5	https://doi.org/10.18280/ts.400545	Scopus,WOS
14.	JP202324_ETC_14	Department of Electronics and Telecommunication Engineering	Automatic Liver Cancer Detection Using Deep Convolution Neural Network	KM Napte, A Mahajan, S Urooj	IEEE Access	11	94852 - 94862	11	10.1109/ACCESS.2023.3307640	Scopus, WOS
15.	JP202324_ETC_15	Department of Electronics and Telecommunication Engineering	A Comparative Analysis of EEG-based Stress Detection Utilizing Machine Learning and Deep Learning Classifiers with a Critical Literature Review	Dipali Dhake ., Yogesh Angal .,	11	8s	61-73	61-73	10.17762/ijritcc.v11i8s.7175	N

16.	JP202324_ETC_16	Department of Electronics and Telecommunication Engineering	Semi-supervised gan for medical image segmentation	Adke P.;Adke G.;Patil S.;Bhavsar D.;Mane A.	Arpn Journal of Engineering and Applied Sciences	18	2532-2539	22	10.59018/1123305	Scopus
17.	JP202324_ETC_17	Department of Electronics and Telecommunication Engineering	A Comparative Analysis of FinFET Based SRAM Design	Vijayalaxmi Kumbar and Manisha Waje	International Journal of Electrical and Electronics Research (IJEER)	10	1191-1198	4	https://doi.org/10.37391/IJEER.100468	N

List of Conference Papers 2023-24

Sr. No	Paper ID	Department	Conference Paper Title	Author(s)	Conference Name	Volume	Pages	International / National	DOI	Month and Year	Location	Scopus Indexed
1.	CP202324_ETC_1	Department of Electronics and Telecommunication Engineering	Technologies for Primary Storage Of Onions	S Dixit, S Pulliwar, K Narware, K Napte	2023 World Conference on Communication & Computing (WCONF)	-	-	International	2-s2.0-85160746606	14-16 July 2023	RAIPUR, India	N

List of Books 2023-24

Sr. No.	B ID	Department	Name of the Author	Title of the book/chapters published	National / International	ISBN/ISSN number of the proceeding	Name of the publisher
10	BO202324_ETC_1	Department of Electronics and Telecommunication	Vijayalaxmi Kumbhar, Maithili Andhare	Control Systems	National	ISBN : 978-93-5757-392-4	Scientific International Publishing House (SIPH)

Journal Publication
(A.Y. 2023-24)

Speech emotion recognition for human–computer interaction

| Published: 31 August 2024

| Volume 27, pages 817–830, (2024) Cite this article

D. Thiripurasundari, Kishor Bhangale, V. Aashritha, Sisira Mondreti & Mohanaprasad Kothandaraman

Abstract

Speech emotion recognition (SER) is a vital component of the human–computer interaction system. The traditional Deep learning-based speech SER schemes show poor time-domain representation, class imbalance issues due to uneven samples in the training datasets, less feature distinctiveness, and inferior long-term dependency on global and local attributes of the speech. This article introduces lightweight, long short memory (LSTM) along with multiple acoustic features such as Mel frequency spectrum coefficients (MFCC), chroma,

JP202324_ETC_02

Title of Paper: Speech Emotion Recognition Using Generative Adversarial Network and Deep Convolutional Neural Network

Circuits, Systems, and Signal Processing

Speech Emotion Recognition Using Generative Adversarial Network and Deep Convolutional Neural Network

Authors: Kishor Bhangale, Mohanaprasad Kothandaraman | Authors Info & Claims

Circuits, Systems, and Signal Processing, Volume 43, Issue 4 • Pages 2341 - 2384
https://doi.org/10.1007/s00034-023-02562-5

Published: 16 December 2023 Publication History

Abstract

Speech emotion recognition (SER) has recently increased because of vast innovations in human–computer interaction and affective computing. In recent years, numerous deep learning-based schemes presented for SER have shown significant improvement over the traditional machine learning approaches. Most deep learning-based faced SER systems face challenges due to data imbalance problem that occurs due to unequal samples in the database. The input to two-dimensional CNN uses traditional MFCC for SER. It degrades the quality of deep attributes because of the higher variance, frequency resolution problem and spectral leakage problem of traditional MFCC. This paper proposed the novel Multi-taper Mel Frequency Logarithmic Spectrogram to enrich the Deep Convolutional Neural Network effectiveness for SER. Further, Generative Adversarial Network is used for speech

ScienceDirect

Biomedical Signal Processing and Control
Volume 90, April 2024, 105864

Adam teaching learning optimization enabled LeNet for autism spectrum disorder detection using brain MRI

T.D. Dhamale [a], Sheetal U. Bhandari [a]

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https://doi.org/10.1016/j.bspc.2023.105864
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Highlights

- In pre-processing phase, Region of Interest (ROI) is done and median filter is used.
- Extraction of pivotal region is done employing devised ATLO and output-1 is obtained.
- The extracted features include statistical features as well as texture features.

Abstract

The autism spectrum disorder (ASD) is a complicated, lifetime, neuro-developmental circumstance of highly unknown causes. It is greatly more ordinary than formerly believed, frequency only to mental retardation amongst serious developmental disorders. Even though, a heritable element is demonstrated in the etiology of ASD, reputed risk genes are still to be detected. Therefore, Adam

JP202324_ETC_04

Title of Paper: Dielectric modulated organic thin film transistor trench biosensor for label-free detection: Modeling and simulation analysis

Dielectric modulated organic thin film transistor trench biosensor for label-free detection: Modeling and simulation analysis

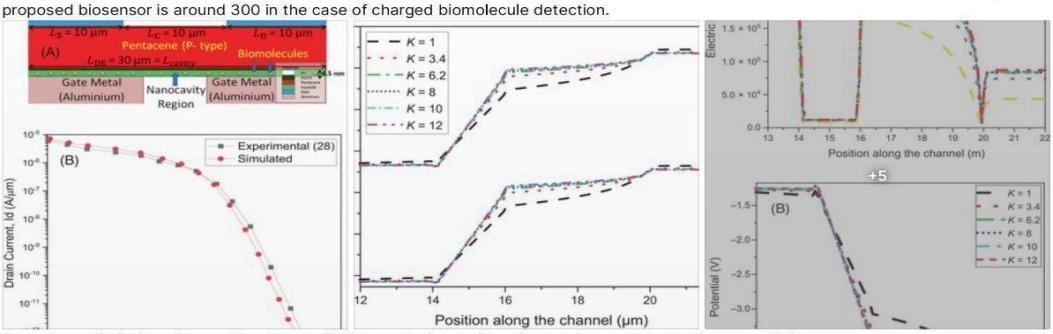
Nov 2023 · International Journal of Numerical … 37(11):n/a-n/a

DOI: 10.1002/jnm.3186

Sheetal Bhandari · Triveni D. Dhamale · Rupali Kawade · Show all 5 authors · Girish Wadhwa

Abstract and figures

In the present paper, a biosensor is proposed with a split gate dielectric modulated bottom gate top contact organic thin-film transistor. A cavity is marked below gate metal for enhancing sensitivity in biomedical applications. The organic thin-film transistors-based biosensors have shown applications over advanced biosensing platforms due to their intrinsic ability to transfer and amplify received biological signals into respective electrical signals. Immobilizing the biomolecules inside the cavity generates changes in surface potential. The analysis is carried out via different performance metrics that directly affect device electrical characteristics such as a change in spacer length applied voltages (VgsV_{gs} and VdsV_{ds}) as well as channel material. After modeling, the device output characteristics are compared corresponding to simulated outcomes that validated our results. The proposed model structure is categorized by dividing it into different sections. Each categorized section's surface potential is further evaluated via 1- and 2-dimensional Poisson's equation. The simulations to recreate biomolecules in terms of dielectric constant and charge density are done in the Silvaco ATLAS tool. The maximum value of sensitivity of proposed biosensor is around 300 in the case of charged biomolecule detection.



JP202324_ETC_05

Title of Paper:Optimal trained ensemble of classification model for speech emotion recognition: Considering cross-lingual and multilingual scenarios.

Optimal trained ensemble of classification model for speech emotion recognition: Considering cross-lingual and multi-lingual scenarios

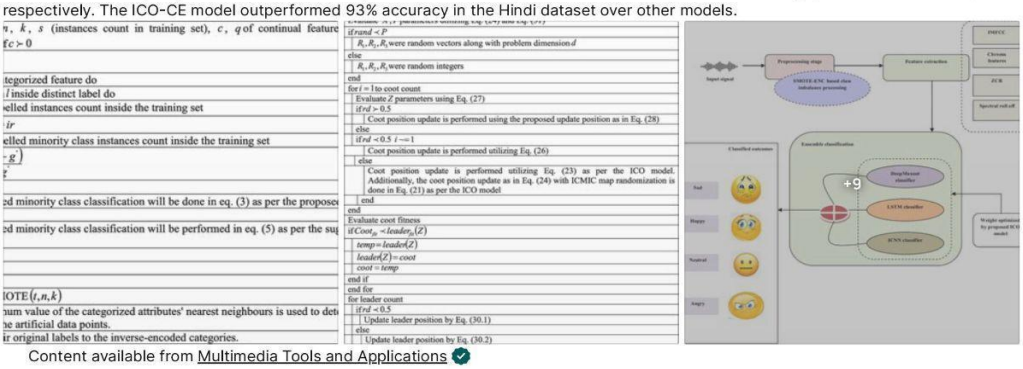
Dec 2023 · Multimedia Tools and Applications 83(18)

DOI: 10.1007/s11042-023-17097-9

Rupali Ramdas Kawade · Sonal K. Jagtap

Abstract and figures

Speech has a significant role in conveying emotional information, and SER has emerged as a crucial component of the human–computer interface that has high real-time and accuracy needs. This paper proposes a novel Improved Coot optimization-based Ensemble Classification (ICO-EC) for SER that follows three stages: preprocessing, feature extraction, and classification. The model starts with the preprocessing step, where the class imbalance problem is resolved using Improved SMOTE-ENC. Subsequently, in the feature extraction stage, IMFCC-based features, Chroma-based features, ZCR-based features, and spectral roll-off-based features are extracted. The last stage is classification; in this, an ensemble classification model is used, which combines the classifiers including Deep Maxout, LSTM and ICNN, respectively. Here, the training process is made optimal via an Improved Coot Optimization (ICO) by tuning the optimal weights. At last, the performances of the developed model are validated with conventional methods with four different databases. Also, the proposed model for cross-lingual provides a better accuracy as 92.76% for Hindi, 92.95% for Kannada, 93.85% for Telugu, and 95.97% for Urdu, respectively. The ICO-CE model outperformed 93% accuracy in the Hindi dataset over other models.



Web Intelligence 21 (2023) 271–291
DOI 10.3233/WEB-220063
IOS Press

Performance evaluation and comparative analysis of CrowWhale-energy and trust aware multicast routing algorithm

Dipali K. Shende [a,*] and Yogesh S. Angal [b]
[a] *Assistant Professor, PCCOER, Ravet Pune, India*
[b] *Professor and HOD(E&TC), Bhivarabai Sawant Institute of Technology and Research, Wagholi Pune, India*

Abstract. Multipath routing helps to establish various quality of service parameters, which is significant in helping multimedia broadcasting in the Internet of Things (IoT). Traditional multicast routing in IoT mainly concentrates on ad hoc sensor networking environments, which are not approachable and vigorous enough for assisting multimedia applications in an IoT environment. For resolving the challenging issues of multicast routing in IoT, CrowWhale-energy and trust-aware multicast routing (CrowWhale-ETR) have been devised. In this research, the routing performance of CrowWhale-ETR is analyzed by comparing it with optimization-based routing, routing protocols, and objective functions. Here, the optimization-based algorithm, namely the Spider Monkey Optimization algorithm (SMO), Whale Optimization Algorithm (WOA), Dolphin Echolocation Optimization (DEO) algorithm, Water Wave Optimization (WWO) algorithm, Crow Search Algorithm (CSA), and, routing protocols, like Ad hoc On-Demand Distance Vector (AODV), CTrust-RPL, Energy-Harvesting-Aware Routing Algorithm (EHARA), light-weight trust-based Quality of Service (QoS) routing, and Energy-awareness Load Balancing-Faster Local Repair (ELB-FLR) and the objective functions, such as energy, distance, delay, trust, link lifetime (LLT) and EDDTL (all objectives) are utilized for comparing the performance of CrowWhale-ETR. In addition, the performance of CrowWhale-ETR is analyzed in terms of delay, detection rate, energy, Packet Delivery Ratio (PDR), and throughput, and it achieved better values of 0.539 s, 0.628, 78.42%, 0.871, and 0.759 using EDDTL as fitness.

Keywords: Spider monkey optimization, dolphin echolocation, water wave optimization, crow search algorithm, whale optimization algorithm

1. Introduction

IoT is a very significant part of our day-to-day life. It is an emerging application in current years in which the devices connected in IoT are linked through the internet to provide convenience and efficiency in industries, human lives, and academia [4,34]. The generation of wireless communication schemes in obedience to complicated approaches for security [12,39]. Moreover, these devices have been broadly utilized in big IoT infrastructures where a huge amount of smart as well as sensing devices are linked to manage and establish communication [18,33]. The linked devices are interconnected with one another for the purpose of broadcasting information, which is highly placed in low-power and lossy networks (LLN) [6,32]. The LLN is a network class in which the devices are linked based on memory, power, and processing, which are attained by low data rates, high loss rates, and instability in

*Corresponding author. E-mail: dkshende10@gmail.com.

JP202324_ETC_09

Title of Paper:Speech emotion recognition based on multiple acoustic features and deep convolutional neural network.

electronics

MDPI

Article

Speech Emotion Recognition Based on Multiple Acoustic Features and Deep Convolutional Neural Network

Kishor Bhangale and Mohanaprasad Kothandaraman *

School of Electronics Engineering (SENSE), Vellore Institute of Technology, Chennai 600127, India
* Correspondence: kmohanaprasad@vit.ac.in

Abstract: Speech emotion recognition (SER) plays a vital role in human–machine interaction. A large number of SER schemes have been anticipated over the last decade. However, the performance of the SER systems is challenging due to the high complexity of the systems, poor feature distinctiveness, and noise. This paper presents the acoustic feature set based on Mel frequency cepstral coefficients (MFCC), linear prediction cepstral coefficients (LPCC), wavelet packet transform (WPT), zero crossing rate (ZCR), spectrum centroid, spectral roll-off, spectral kurtosis, root mean square (RMS), pitch, jitter, and shimmer to improve the feature distinctiveness. Further, a lightweight compact one-dimensional deep convolutional neural network (1-D DCNN) is used to minimize the computational complexity and to represent the long-term dependencies of the speech emotion signal. The overall effectiveness of the proposed SER systems' performance is evaluated on the Berlin Database of Emotional Speech (EMODB) and the Ryerson Audio-Visual Database of Emotional Speech and Song (RAVDESS) datasets. The proposed system gives an overall accuracy of 93.31% and 94.18% for the EMODB and RAVDESS datasets, respectively. The proposed MFCC and 1-D DCNN provide greater accuracy and outpace the traditional SER techniques.

Keywords: affective computing; convolutional neural network; deep learning; MFCC; speech emotion recognition

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Citation: Bhangale, K.; Kothandaraman, M. Speech Emotion Recognition Based on Multiple Acoustic Features and Deep Convolutional Neural Network. *Electronics* **2023**, *12*, 839. https://doi.org/10.3390/electronics12040839

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Received: 4 January 2023
Revised: 27 January 2023
Accepted: 30 January 2023
Published: 7 February 2023

1. Introduction

Speech emotion recognition (SER) deals with the recognition of emotional content in the speech signal irrespective of its semantic content. Humans can naturally perform SER as a part of speech communication; the ability to perform automatic SER using computational strategies is still an enduring topic of research. SER systems are extensively utilized in various applications to understand the emotional status of humans such as call center operators, car drivers, customer care centers, pilots, narcotics analysis, online learning platforms, and many other human–machine interaction system users [1,2].

The generalized SER system encompasses two major phases: training and testing. Machine learning or deep learning techniques were used to learn the classifier based on hand-crafted characteristics of speech emotion signals during the training phase. During the testing step, the real-time samples are compared to the trained model to see if it can distinguish the specific emotion. Data preparation, feature extraction, feature selection, and classification are all important steps in the SER process. To improve raw voice signals, data preparation includes signal normalization, noise reduction, and artifact removal. Using various feature extraction strategies, the feature extraction step aids in capturing the key aspects of a certain emotion. The importance of feature selection in collecting crucial characteristics to reduce the SER system's complexity cannot be overstated. Lastly, different machine learning or deep learning classifiers are employed for SER [3,4].

Speech emotion signal is a continuous time-domain signal that contains emotion as well as information. Speech features can be local or global features depending upon the feature extraction approach. Local features are known as segmental features or short-term

JP202324_ETC_10

Title of Paper:Speech emotion recognition using the novel PEmoNet (Parallel Emotion Network).

ScienceDirect

Applied Acoustics

Volume 212, September 2023, 109613

Speech emotion recognition using the novel PEmoNet (Parallel Emotion Network)

Kishor B. Bhangale [a], Mohanaprasad Kothandaraman [b]

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https://doi.org/10.1016/j.apacoust.2023.109613

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Highlights

- Representation of speech signal using Multitaper Mel Frequency spectrogram (MTMFS), Gammatonegram spectrogram (GS), and Constant Q-Transform (CQT) spectrogram.
- Speech Emotion recognition using proposed PEmoNet architecture.
- Experimental results and discussions for SER for EMODB and RAVDESS dataset.
- The use of MTMFS, Gammatonegram, and CQT spectrogram improves the frequency domain representation of the emotion signal and thus improves SER accuracy.

Abstract

Emotions are very crucial for humans for expressing perception and daily activities such as communication, learning, and decision-making. Human emotion recognition using machines is a

JP202324_ETC_11

Title of Paper: Comprehensive Study of Automatic Speech Emotion Recognition Systems.

Comprehensive Study of Automatic Speech Emotion Recognition Systems

Aug 2023 · International Journal on Recent and... 11(9s):709-717

DOI: 10.17762/ijritcc.v11i9s.7743

Rupali Kawade · Sonal Jagtap

Abstract

Speech emotion recognition (SER) is the technology that recognizes psychological characteristics and feelings from the speech signals through techniques and methodologies. SER is challenging because of more considerable variations in different languages arousal and valence levels. Various technical developments in artificial intelligence and signal processing methods have encouraged and made it possible to interpret emotions.SER plays a vital role in remote communication. This paper offers a recent survey of SER using machine learning (ML) and deep learning (DL)-based techniques. It focuses on the various feature representation and classification techniques used for SER. Further, it describes details about databases and evaluation metrics used for speech emotion recognition.

JP202324_ETC_12
Title of Paper: Liver segmentation using marker controlled watershed transform.

Kiran Malhari Napte, Anurag Mahajan

Abstract

The largest organ in the body is the liver and primarily helps in metabolism and detoxification. Liver segmentation is a crucial step in liver cancer detection in computer vision-based biomedical image analysis. Liver segmentation is a critical task and results in under-segmentation and over-segmentation due to the complex structure of abdominal computed tomography (CT) images, noise, and textural variations over the image. This paper presents liver segmentation in abdominal CT images using marker-based watershed transforms. In the pre-processing stage, a modified double stage gaussian filter (MDSGF) is used to enhance the contrast, and preserve the edge and texture information of liver CT images. Further, marker controlled watershed transform is utilized for the segmentation of liver images from the abdominal CT images. Liver segmentation using suggested MDSGF and marker-based watershed transform help to diminish the under-segmentation and over-segmentation of the liver object. The performance of the proposed system is evaluated on the LiTS dataset based on Dice score (DS), relative volume difference (RVD), volumetric overlapping error (VOE), and Jaccard index (JI). The proposed method gives (Dice score of 0.959, RVD of 0.09, VOE of 0.089, and JI of 0.921).

Keywords

computer tomography; gaussian filtering; image enhancement; liver segmentation; watershed transform;

Full Text:

PDF

DOI: http://doi.org/10.11591/ijece.v13i2.pp1541-1549

International Journal of Electrical and Computer Engineering (IJECE)
p-ISSN 2088-8708, e-ISSN 2722-2578

This journal is published by the Institute of Advanced Engineering and Science (IAES).

JP202324_ETC_13

Title of Paper: ESP-UNet: Encoder-Decoder Convolutional Neural Network with Edge-Enhanced Features for Liver Segmentation.

ESP-UNet: Encoder-Decoder Convolutional Neural Network with Edge-Enhanced Features for Liver Segmentation

Kiran Napte (https://orcid.org/0000-0002-0740-7941) | Anurag Mahajan* (https://orcid.org/0000-0002-2251-522X) | Shabana Urooj (https://orcid.org/0000-0002-1477-8759)

Corresponding Author Email: anurag.mahajan@sitpune.edu.in

Page: 2275-2281 **DOI:** https://doi.org/10.18280/ts.400545

Received: 27 February 2023 **Revised:** 21 July 2023 **Accepted:** 11 August 2023 **Citation**

Available online: 30 October 2023

Abstract:

Precise liver segmentation in Computed Tomography (CT) scans plays a pivotal role in numerous biomedical applications, spanning surgical planning, postoperative assessment, and pathological detection of hepatic diseases. The task, however, is fraught with challenges due to the inherent complexities of liver morphology, including indistinct boundaries, irregular shapes, and complex architecture. Consequences of under-segmentation and over-segmentation of the liver in CT images can lead to inaccurate localizations and diagnoses of liver diseases, underscoring the necessity for accurate segmentation. This study introduces an Encoder-Decoder Convolutional Neural Network, termed ESP-UNet, which is designed to reduce under-segmentation and over-segmentation, thereby enhancing the accuracy of liver

JP202324_ETC_14
Title of Paper: Automatic Liver Cancer Detection Using Deep Convolution Neural Network

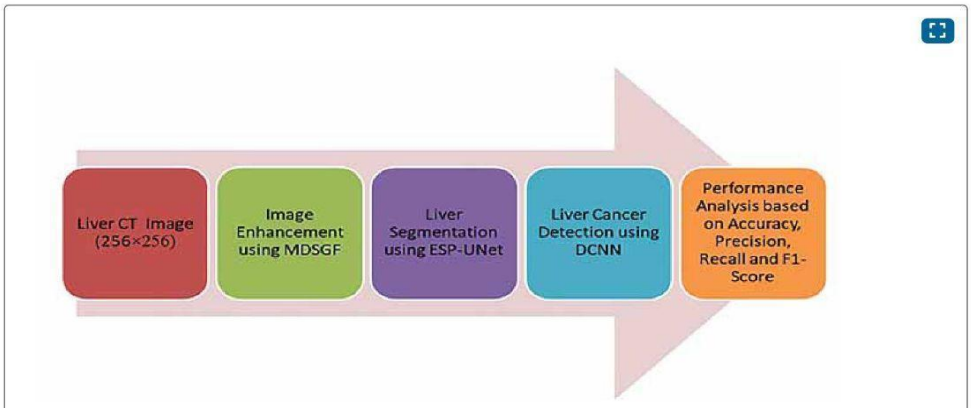
Journals & Magazines > IEEE Access > Volume: 11

Automatic Liver Cancer Detection Using Deep Convolution Neural Network

Publisher: IEEE Cite This PDF

Kiran Malhari Napte ; Anurag Mahajan ; Shabana Urooj All Authors

Abstract:
Automatic liver cancer detection (ALCD) is very crucial in automatic biomedical image analysis and diagnosis as it is the largest organ in the body and plays a significant role in the metabolic process as well as the elimination of toxins. In the last decade, various machine and deep learning schemes have been investigated for automatic ALCD using computed tomography (CT) images. However, ALCD in CT images is challenging because of the noise, intricate structure of abdominal computed tomography (CT) images, and textural changes throughout the CT images making liver segmentation a vital challenge that may result in both under-segmentation (u-seg) and over-segmentation (o-seg) of the organ. This paper presents liver segmentation based on the proposed Edge Strengthening Parallel UNet (ESP-UNet) for liver segmentation to avoid the u-seg and o-seg of the liver in CT images. Further, it offered ALCD based on lightweight sequential Deep Convolution Neural Networks (DCNN). The consequences of ESP-UNet DCNN-based ALCD are evaluated based on accuracy, recall, precision, and F1-score. The suggested approach provides a noteworthy improvement in ALCD over the traditional state of arts.



Automatic Liver Cancer Detection Using Deep Convolution Neural Network.

Published in: IEEE Access (Volume: 11)

Page(s): 94852 - 94862

DOI: 10.1109/ACCESS.2023.3307640

Date of Publication: 22 August 2023

Publisher: IEEE

Electronic ISSN: 2169-3536

Funding Agency:

SECTION I.

JP202324_ETC_15

Title of Paper:A Comparative Analysis of EEG-based Stress Detection Utilizing Machine Learning and Deep Learning Classifiers with a Critical Literature Review.

A Comparative Analysis of EEG-based Stress Detection Utilizing Machine Learning and Deep Learning Classifiers with a Critical Literature Review

Aug 2023 · International Journal on Recent and... 11(8s):61-73

DOI: 10.17762/ijritcc.v11i8s.7175

Dipali Dhake · Yogesh Angal

Abstract

Background: Mental stress is considered to be a major contributor to different psychological and physical diseases. Different socio-economic issues, competition in the workplace and amongst the students, and a high level of expectations are the major causes of stress. This in turn transforms into several diseases and may extend to dangerous stages if not treated properly and timely, causing the situations such as depression, heart attack, and suicide. This stress is considered to be a very serious health abnormality. Stress is to be recognized and managed before it ruins the health of a person. This has motivated the researchers to explore the techniques for stress detection. Advanced machine

JP202324_ETC_16
Title of Paper: SEMI-SUPERVISED GAN FOR MEDICAL IMAGE SEGMENTATION.

VOL. 18, NO. 22, NOVEMBER 2023 ISSN 1819-6608
ARPN Journal of Engineering and Applied Sciences

www.arpnjournals.com

SEMI-SUPERVISED GAN FOR MEDICAL IMAGE SEGMENTATION

Pallavi Adke[1], Gaurav Adke[2], Shweta Patil[1], Darshana Bhavsar[1] and Aishwarya Mane[1]
Department of Electronics and Telecommunications, PCET's Pimpri Chinchwad College of Engineering and Research, Ravet Michelin Tyres, Pune
E-Mail: pallavi.adke@pccoer.in

ABSTRACT

Echocardiography is a popular ultrasound imaging method used for the diagnosis of heart conditions. With the advent of numerous image processing algorithms, echocardiographic image segmentation has become more significant. This is a crucial stage since it offers a framework for evaluating numerous cardiac parameters, including LV volume and heart wall, valve motion, ejection fraction, thickness, etc. All these factors are crucial for determining a heart's health. The task of manual segmentation requires skilled operators and takes a lot of time. By requiring the discriminator network to output class labels, we extend Generative Adversarial Networks to the semi-supervised type. This paper examines image segmentation techniques for echocardiography to find the borders of the left ventricle. In this paper, we introduce a new convolution neural network model for the auto-segmentation of the left ventricle in echo images. The division of a picture into regions is known as image segmentation. Segments, that computer vision can use to automatically understand. This method makes it easier to simultaneously evaluate and diagnose echo pictures. The segmentation of echocardiographic images can be utilized to measure cardiac characteristics like heart wall thickness.

Keywords: echocardiography, image segmentation, semi-supervised GAN, left ventricle, convolutional neural network.

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INTRODUCTION

Using a technique of echocardiographic image segmentation, one can extract numerous different segments drawn from a given image, with each fragment's pixels being identical. These echocardiographic images are obtained by process of echocardiography. Using ultrasonic waves, the technique of echocardiography produces real-time images of the heart's architecture. same features and characteristics. Echocardiographic images are segmented using various techniques to identify the various cardiac structures, such as the right ventricle, left ventricle (LV), right atria, heart walls, left atria, etc. Due to its significance in cardiac diagnostics, LV segmentation is one of the chambers that has been analysed most and is an active topic of research. For LV segmentation, many techniques have been developed. This paper uses a semi-supervised GAN for auto segmentation purpose. In which we can auto-segment echocardiographic images by training the GAN model by supervised as well as unsupervised datasets. Compared to time-consuming subjective manual segmentation, this approach can deliver reliable, trustworthy, and consistent results.

RELATED RESEARCH WORK

Olaf Ranneberger *et al.* [1] build on more sophisticated 'fully convolutional network' architecture ". They change and develop this design to be able to do well with a select few training images and more precise segmentations. The main idea is adding a continuous layer to the regular contract network, where an unsampled operator replaces the task of the pooling operator. Consequently, these layers enhance the output's resolution. Ian J. Goodfellow *et al.* [2] this provides a framework which can provide training algorithms specific to many types of models and the optimization algorithms. This paper examines the unique situation where the discriminative model is also a multi-layer perceptron and the generative model creates samples by running random noise over it. This unique instance is known as an adversarial net. In this situation, only the highly effective backpropagation as well as dropout algorithms can be used to train both these of the models, and only forward propagation can be used to sample from the resulting models. Yuntan *et al.* [3] have employed a framework for adversarial learning for segmentation network semi-supervised training. With consistent outcomes, the model's performance after being trained on only half of the labelled data was comparable to that of the fully supervised trained model. Pallavi Kulkarni, Deepa Madathil [4] discussed nonlinear filters in detail. Section I and Section II discuss diffusion processes and advanced techniques for diffusion processes. Commonly used wavelet denoising methods are discussed in Section III, also various thresholding techniques are discussed in Section IV. Now section V describes filters for fractional arithmetic. Ms. Pallavi Kulkarni and Deepa Madathil [5] discussed the application of image segmentation methods of echocardiography.

Pallavi Kulkarni & Deepa Madathil [6] implemented a new adaptive threshold method for echocardiographic images. A new approach is based on wavelet transformation. On the patient's echocardiographic images, this method's performance is evaluated. Pallavi Kulkarni & Deepa Madathil [7] presents the use of deep learning for fully automated echo LV segmentation. The CNN model used in the current work is developed in relation to the U-NET architecture. This model produces an output image that shows the possibility that each pixel belongs to a specific class. (LV or background). This architecture uses an unsupervised

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Title of Paper: A Comparative Analysis of FinFET Based SRAM Design.

Keywords:
Deep Web, Information extraction, Surface Web, Web mining, Wrapper induction.

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Abstract

With the exponential growth of the internet, an abundance of information has become readily available. Extracting valuable data from the web is crucial for applications such as meta-querying and comparison shopping. However, the heterogeneous nature of web information poses a significant challenge to the extraction process. The web can be classified into the surface or visible web and the deep or invisible web. While conventional search engines can index the surface web, they fall short when it comes to the deep web.

To access the deep web, users must submit queries to web databases, and the results are encapsulated in dynamically generated web pages containing data records. Traditional search engines struggle to index these dynamic pages, necessitating a specialized program for efficient information extraction from the deep web. Web search engines generate result pages based on user queries, making it crucial to automatically extract data from these pages for various applications.

In this context, we propose an innovative data extraction method called Effective Data Extraction using Preprocessing (EDEP). The EDEP approach begins by parsing the input HTML page, constructing a tag tree, and subsequently eliminating irrelevant tags from the tree. Notably, our system efficiently handles scenarios where auxiliary information, such as recommendations or comments, is intermixed between query result records (QRRs), causing them to be non-contiguous. EDEP also effectively manages result pages containing single QRRs.

Through experimental results, it is evident that EDEP outperforms existing data extraction methods, showcasing its efficacy in handling the complexities associated with web data extraction.

Issue

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Conference Publication (A.Y. 2023-24)

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Technologies for Primary Storage Of Onions

Publisher: IEEE Cite This PDF

Shreyas Dixit ; Shravani Pulliwar ; Kritika Narware ; Kiran Napte **All Authors**

1 Cites in Paper

91 Full Text Views

Abstract

Document Sections

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II. Research Background

III. Proposed System

IV. Methods

V. Results and Discussion

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Abstract:
India is the second producer of onions, all over the world. The dry and humid weather in India makes it tough for onions to remain fresh for extended periods of time. Traditional onion heap storage & bamboo pavilions for ventilated onion storage are inadequate to prolong the life of onions in storage. Until the very next harvest, the onions rot in such kinds of storages over the duration of the year. By decomposing over the span of the year, over 40% of all onions which are retained after harvest get lost. In order to meet the strategic integration of onions for the general public, this lessens the onion reserves year round. The rate of onions rises as a result of the supply crisis. A very fundamental food that is needed by the majority of individuals is onions. Onion shortage and rate hike pose significant challenges for the nation's citizens. India is also the world's second-largest exporter of onions. The country's economy may suffer significantly from an onion shortage. This made clear the value of a stable storage solution for onions in order to maximize their shelf life. Onion preservation will lead to far less weight reduction and physiological deterioration, sustaining the crop's availability all year round. By boosting onion export, proper onion storage would both meet the nation's population's basic necessity of food and enhance the nation's economy.The longevity of onions would be lengthened by using this storage solution. To preserve the quality of onions, this system would give them the optimal temperature (25°C–30°C), humidity (65%–70%), and ventilation. Furthermore, it will detect any rotten onions in the storage and notify the user or client so that they can dispose of them and prevent the infection from spreading to other onions.

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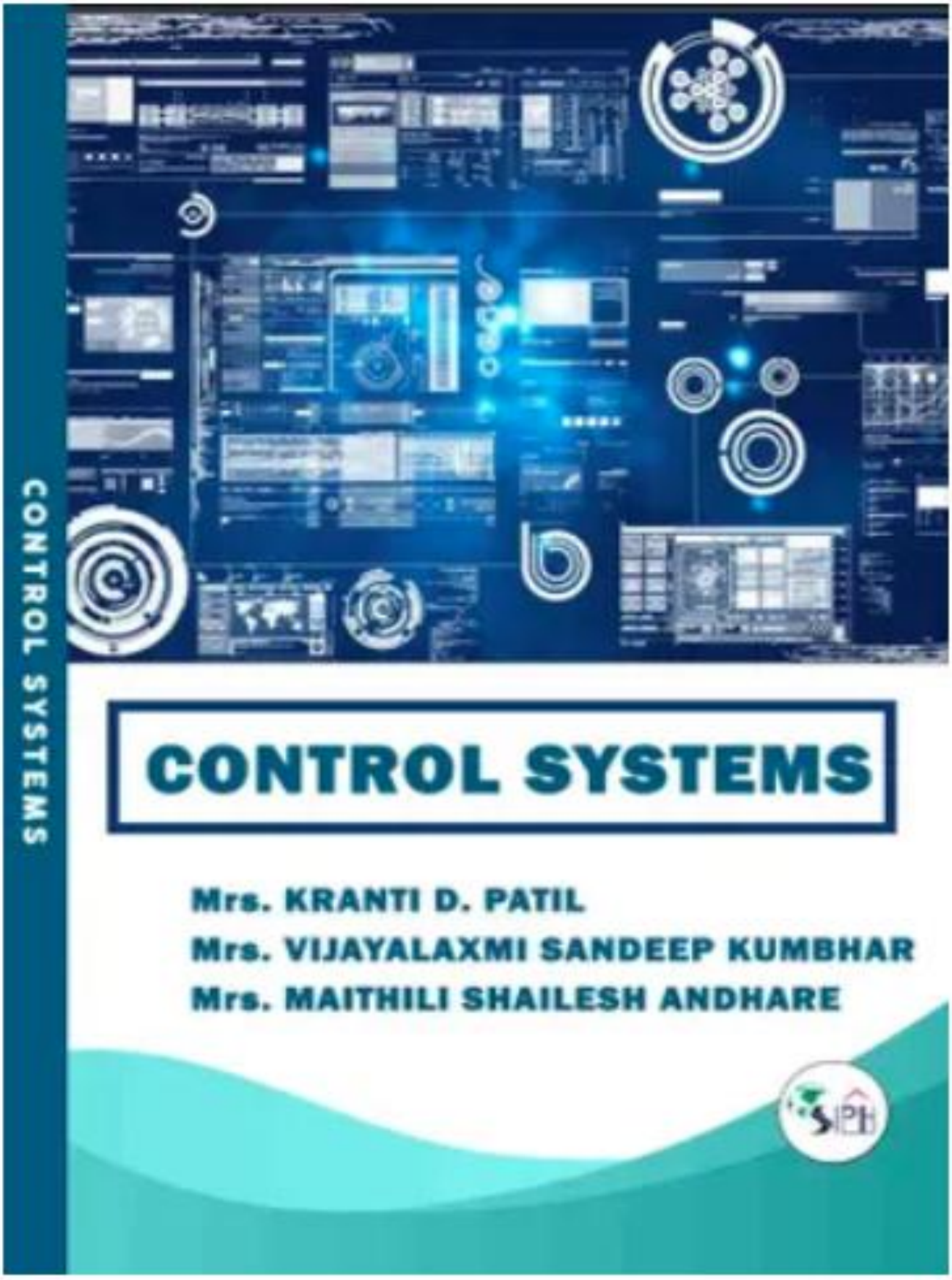
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