

International Conference on Computational Intelligence & Sustainable Development

18 & 19 AUGUST, 2023

Conference Proceedings



In Association with



Department of Computer Science & Engineering
Faculty of Engineering & Technology
CHAITANYA(DEEMED TO BE UNIVERSITY)

Warangal, Telangana
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INTERNATIONAL CONFERENCE
ON
COMPUTATIONAL INTELLIGENCE AND SUSTAINABLE
DEVELOPMENT
AUGUST 18 – 19, 2023



In Association with



Organized By

Department of Computer Science and Engineering

Faculty of Engineering and Technology,

CHAITANYA (Deemed to be University)

Hanamkonda, Telangana – 506001

www.chaitanya.edu.in



Dr. Ch. V. PURUSHOTHAM REDDY

Founder & Chancellor

Chaitanya (Deemed to be University)

Kishanpura, Hanamkonda, Warangal

MESSAGE

Chaitanya Institutions have made steady and phenomenal progress in imparting quality education with several awards and accolades for the last thirty-one years. Our vision is to take Chaitanya Deemed University (CDU) to greater heights with good digital governance and sound academic standards. Eventually, we want to make CDU a Center of Academic Excellence with creativity, productivity and accountability for knowledge society.

We have instituted the Chaitanyam to encourage high impact factor papers with original ideas and patent holders, and to promote serious and sustained academic work. We hope these awards will create healthy competition promoting serious and sustained academic work on our campus. Earn-While-You-Learn Program is our latest initiative. Interested PG first year students can register to work in the Softpath Company established at our university. Aspiring students can email their bio-data to placements@cdu.ac.in.

Faculty-wise research journals are planned under the guidance of our Vice-Chancellor. Current English Review (CER), Journal of Bioscientia, Cosmopolitan Journal of Innovations in Engineering and Technology, the latest issue of Prakarsha, Journal of Management and Research were brought out. Journal of Pharmacy and Drug Research is in the pipeline.

We have beyond classroom solutions. We want to go for futuristic solutions to facilitate our students to access our content anytime, anywhere, improve satisfaction and personalized learning outcomes, and give them the opportunity to learn with others. There is commendable participation of our students in extracurricular activities.

We impart quality education by reviewing the impact of the existing programs and their relevance, restructuring of a few courses, consolidation of existing teaching programs, strengthening the learning process, strict adherence to the academic schedule, researching monitoring and assistance, encouraging national and international seminars, webinars, workshops, refresher courses, exhibitions, placement sessions, etc. Our pedagogy calls for hands-on experience, extensive laboratory and workshop exposure to link students to real world problems and situations. Students become industry-ready with good life and employability skills.

We have so far conducted 22 national and international webinars/ seminars on various topics. In addition to these, 60 standard online quizzes were conducted, and a hundred video lessons for YouTube Channel covering all branches were made available. All our 297 research scholars of two

batches are enthusiastic to pursue their research seriously from the date of joining their research program due to our good research facilities, weekly / fortnightly Regular Review Meetings (RRMs) and monthly and yearly reports by the scholars. The snapshots of RRM's have to be uploaded to the Chaitanya Research Group as a proof. Within ten months of joining the Ph.D program, our 139 research scholars of the first batch published 54 Research Papers in refereed journals during 2020-21.

Chaitanya has created a benchmark in Upgradation of Knowledge Through Interaction (UKTI) sessions to update the skills of teachers of various subjects. We have so far conducted 45 sessions and are now producing video lessons, making them available online for the benefit of all. To update the skills of teachers of various subjects, a daily interactive session was launched on April 27, 2020. All senior teachers have conducted the sessions with impressive PPTs. The Faculty Induction Program (Guru Dakshata) is done at the beginning of academic year. FDPs and Workshops are conducted to update their skills. We have initiated these UKTI sessions for the staff through Whatsapp for focus, clarity and readability. These sessions have exposed the teachers to the use of ICT and online teaching tools for better instruction.

Our university has developed adequate infrastructural facilities for the already existing and newly introduced academic programs. Our laboratories are very well equipped and not short of anything. The teachers are at liberty to go in for any equipment that is useful for their laboratories. The University is equipped with HPLC, IPR Spectrophotometer, U.V. Spectrophotometer, PCR, Fermenter, Gel documentation system etc. The purpose of these instruments is to familiarize the students with the latest equipment so that they are not at sea when they encounter such instruments in industries or research institutions later.

Our university has been rated as one of the most sought-after colleges for the students of this region with the result that there has been considerable pressure on student admissions for all the courses. In view of the large number of academic programs, courses and course combinations and ever-increasing intake, the college has to live up to the expectations of the parents. A lot of emphasis has been placed on teaching, learning and evaluation.

I congratulate the Department of Computer Science on conducting an International Conference on Computational Intelligence and Sustainable development (ICCISD). I wish them all the best.

Dr Ch. V. Purushotham Reddy

Chancellor



Prof. G. DAMODAR
Vice-Chancellor
Chaitanya (Deemed to be University)
Kishanpura, Hanamkonda, Warangal

MESSAGE

Pleased to know that the Department of Computer Science is conducting an International Conference on “Computational Intelligence and Sustainable development (ICCISD)” for two days on April 22 and 23, 2022, for the second time covering AI, IoT, ML and its Applications, Soft Computing, Image Processing, NLP, Deep Learning, Speech Recognition, Big Data, Bioinformatics, Block Chain, Wireless and Wired Networks, Grid Computing, Cloud Computing, Quantum Computing, Mobile and Ubiquitous Computing, Global Navigation Satellite Systems, etc.

Ever since we got deemed to be university status in November 2019, we have been striving hard to take Chaitanya to greater heights. Our healthy practices so far include Academic Interphase Programs with TCS and IBM, good practices appreciated by AICTE, At-Home-Exam™ announcing the results on time, Best Paper and Patent Publication Awards, Beyond Classroom Solutions, unique Chaitanya App, Chaitanya At-Home-Library, Community Service and Rural Based Projects, Free-ships worth 1.52 crores last year, Implementation of some provisions of NEP 2020, Internationalisation of Higher Education, six Inventions and Innovations including the battery-operated car, the introduction of latest courses including Agriculture, Life Skills, DBT Skill Vigyan Program, NCC as a General Generic Elective, Interactive Sessions as Deeksharambh, Regular Research Review Meetings with Ph.D. scholars, State-of-Art Labs, Study Tours of Ek Bharat Shreshtha Bharath, Sustainable Campus as SATAT, UKTI Sessions under Guru Dakshta, making video lessons available on YouTube, conducting online quizzes, Earn-While-You-Learn Schemes, University Social Responsibility Initiatives, encouraging patents, a proposal for Atal Chaitanya Incubation and Innovation Center, and BIRAC under Bio-Nest in collaboration with University of Hyderabad.

We have initiated a positive action to encourage research in post graduate courses. Project work is now included as a part of curriculum. Sectoral specializations like Tourism and Hospitality, Health Care Management, HRM, Finance, Marketing, ED for MBA, Net Programming, Multimedia Applications, Cloud Computing for MCA as In-house Projects were introduced. Efforts are being made to have a much more and rigorous University–Industry nexus so that the batches of students get industrial experience along with academic programs by conducting meetings with the

entrepreneurs in the region to impress upon the need to support the students' training programs in their establishments so that they and others can employ them after completion of their courses.

We have introduced Open electives like Food Technology, Nanotechnology, Biosafety, IPR, Fundamentals of Electronics, E-commerce, and Computer Applications. These courses can be taken up by all the students of post-graduation to have an insight of the different fields which might help them in enriching their career prospects. We started offering B.Sc. Nursing from the current academic year.

We are committed and dedicated to our vision and mission and constantly evolve ourselves to the future needs and impart education that makes the world a better place to live in. The pillar of our strength is innovative teaching and learning experiences offered by experienced faculty backed with high quality resources. We offer academic ambience, fruitful interaction and friendly support with excellent placements making life a celebration for every student. Our syllabus is skill-based and industry focused with contemporary curriculum, choice-based credit system (CBCS) and continuous assessment and grading pattern (CAGP). Social outreach programs, eco-friendly environment, diversified student community, education scholarships for deserving and meritorious students, internal quality assurance, enriching projects and internships, corporate linkages, global alumni network, learning management system, highly accomplished faculty members and levitating research culture are some of our salient features.

We always remember our core vision of empowering our future generations to be morally, ethically and intellectually strong with LOCF and following some provisions of National Education Policy 2020. To be with our university is an exciting and rewarding experience with opportunities for nurturing abilities, challenging cognizance and gaining competence.

I hope that this two-day Conference will motivate the staff, delegates, research scholars, industrialists and students to deliberate upon the significant advances in the field of computer science and engineering. I wish the conference all success.

Prof G. Damodar

Vice-Chancellor



Prof. G. Shankar Lingam
Dean, Faculty of Engineering, and Technology
Chaitanya (Deemed to be University)
Kishanpura, Hanamkonda, Warangal

MESSAGE

It is with great pride, enthusiasm, and anticipation that I invite you to read the conference proceedings of the International Conference on Computational Intelligence and Sustainable Development - 2023 — “a new kind of research”.

An enormous amount of work has gone into the development of this conference Proceedings, and I believe you will see that effort reflected in this edition and in the impact, it will have on the field.

It’s a cliché but a useful one in this case: We are a work in progress actively seeking ideas from campus and community in terms of structure, goals, and vision. We remain open to where we are going and how we will get there.

As we look at ICCISD-2023, it is important to keep in mind that it represents the collective thinking of a group of innovative individuals with whom I am privileged to work. First, we want ICCISD to be the premiere academic research in Computer Science and Engineering. We want it to look different, to be different, to be one journal that, will be as dynamic as the work going on in our disciplines, a rarity in academic publishing. Second, we want it to be a vehicle for a new type of conversation about engineering and Technology and its place in the academic review, tenure, promotion, and reward process. Third, we want ICCISD to lead the way in defining scholarship in the academy, scholarship in which faculty, students, and community members participate from idea to presentation through distribution.

ICCISD intends to be a leader in facilitating a new kind of discussion in the field of Computer Science and Engineering which is transformative and that it is time for transformation in academia, ICCISD will be at the forefront in strengthening relationships between communities and institutions of higher learning.

Dr. G. Shankar Lingam
Conference Chair

Brief Note on Conference

The Department of Computer Science & Engineering was established in 2010 to meet the demand for well qualified computer professionals. The Department offers B. Tech (Computer Science & Engineering) from 2010 onwards with an intake of 120, M. Tech. (Computer Science & Engineering) from 2013 onwards with an intake of 24 and Ph. D. (Computer Science & Engineering) from 2021 onwards.

The department of Computer Science and Engineering, Faculty of Engineering, Chaitanya Deemed to be University organized a second international conference at our university during August 18 – 19, 2023. In this conference, Academicians / Industrialist / Research Scholars are contributed in the form of articles that illustrate research results, projects, surveying works and industrial experiences that describe significant advances in the field of Computer Science and Engineering.

As the today's global economic environment is undergoing transformation so managing change is vital to ensure sustainable growth. Innovation and emerging opportunities have become one of the key strategic tasks. This conference helped us to renew key challenges and opportunities in today's dynamic world and improved the research and theory building in every area by facilitating the exchange of knowledge, ideas, latest trends, developments, and contemporary challenges.

The aim of this conference has achieved by providing a platform for researchers, practitioners in sharing their ideas and to discuss current issues dealing with changing economic and competitive environment and to also get acquainted with latest developments and trends. We received the original research papers in the areas of Big Data, Block Chain, Bioinformatics, Deep Learning, Image Processing/Pattern Recognition, Internet of Things, Machine Learning & Applications, Soft Computing and Neural Networks. We received total 86 papers from the researchers who are contributing their services in top educational institutions and shortlisted 27 papers based on the peer review process and comments from the reviewers. The shortlisted and registered papers are allowed to present their work in the conference. We thank the management, Chancellor, Vice- Chancellor, Registrar, OSD, Deans, Departments and researchers who involved directly and indirectly in making this conference success. – *Thank you*

Chief Patrons:

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Prof. M. Ravinder, Registrar, CDU

Prof. K. Veera Venkataiah, OSD, CDU

Prof. Cristopher, Dean, R & D, CDU

Conference Chair:

Prof. G. Shankar Lingam, Dean, Faculty of Engineering and Technology, CDU

Conference Co-Chair

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India*

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Prof. N. Satheesh Kumar, Dept of CSE, CDU

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Speaker 2: Dr. Mesfin Abebe, ASTU

Invited Speaker1: Dr. Permandla, IIT Guwahati

Invited Speaker2: Dr. Ketema Adhere

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AUTOMATIC CLASSIFICATION OF KIDNEY AILMENTS FROM CT SCANS USING CONVOLUTIONAL NEURAL NETWORKS

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Abstract

Kidney ailments have been one of the most common ailments faced by the human population worldwide. The severity of this ailment is such that patients often suffer from acute pain and have to get themselves admitted to hospitals for treatment. In order to diagnose the disease, a variety of imaging techniques are used. The most common being CT-Scans of the Axial and Coronal planes of the affected area. Considering the lack of specialist staff who can fully interpret these images, a computer aided diagnosis system proves to be useful to accompany the clinicians with their diagnosis. The following approach makes use of Deep learning techniques to develop an automated model to classify kidney ailments namely cysts, tumors and stones from normal images. The research proposes CNN model, namely EfficientNetB3 that has been trained on CT scan image dataset collected from numerous hospitals in Dhaka, Bangladesh. After appropriate fine-tuning and optimization, the proposed CNN architecture yielded an accuracy of 99.46% on the test dataset and 99.57% while training for the classification of kidney diseases into cysts, tumors and stones.

Keywords—Kidney Diseases, Deep learning, Convolutional Neural Networks, Computer Aided Diagnosis, Computed Tomography, Multiclass Classification

Review Of Approaches Towards Building AI Based Career Recommender & Guidance Systems

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Abstract

With the growth of the Internet, consumers now have access to an enormous amount of material, which must be structured to prevent information overload. Students feel overwhelmed and find it difficult to pick the right career for themselves. There are multiple factors influencing career decisions which include; personality, aptitude, academic accomplishments, and academic and personal settings. Most students are unable to network with professionals in their ideal fields as a result of this mismatch. Based on the above facts and pain points, a systematic assessment of AI-based career recommendation and guidance system techniques has been presented in detail while also discussing bias in AI system. Our study shows that AI-based Data Mining & ML is the optimal method for career prediction for students and early professionals.

Keywords—Artificial Intelligence, Machine Learning, Recommendation Systems, Expert Systems, Fuzzy Logic, Reinforcement Learning

Technological, Social and Economic perception and impact of students on e-Learning in selected institutions of Uttar Dinajpur District, West Bengal, India

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Abstract:

Learning is very important for any student. Learning using electronic devices and various technologies is a new dimension for the students. A student also learns through e-Learning based online mode beside the on campus based face to face mode. The students faced many benefits and challenges in using Digital technology based learning. The Teaching – Learning process become more attractive with the use of technology in Teaching – Learning process. The learners get more interest to learning new concepts. The technologies help the learners to build a clear concept on any topic. The students are from different background and their economic conditions are also different. So the aim of the paper is to analyze the Technological, Social and Economic perception of students on e-Learning. This paper is about e-Learning with special focus on impact and perception among the students of Uttar Dinajpur District, West Bengal, India. Primary sources have been used to collect the data to analyze in this paper. To collect the data convenience sampling technique has been used to select the institutions. Different categories of institutions have been selected to collect the data. The students of Post-Graduation and Under-Graduation from Raiganj University, Raiganj B.Ed College from Baba Saheb Ambedkar Education University, Raiganj Surendranath Mahavidyalaya from University of Gour Banga, Raiganj Government Medical College and Hospital from The West Bengal University of Health Sciences have been selected to collect the data. The paper highlights the Technological, Social and Economic perception of students on e-Learning of the Uttar Dinajpur District, West Bengal, India.

Keywords

e-Learning, Perception study, Online Education, technological support, Social and Economic perception

Soft Set Based Classification on Breast Cancer Data

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Abstract—

The most essential strategy in data mining is the classification, which solves decision-making difficulties in the knowledge discovery process. There are numerous issues with large data classification. Now a day's it is necessary to classify medical data in order to diagnose various diseases based on certain characteristics or features. Many theories, such as fuzzy set, rough set, and soft set theory, are useful in classifying large amounts of medical data. The literature review in this work demonstrates the various classification approaches based on Soft Set, Fuzzy Soft Set, and Rough Set. This study focuses on an only soft set theory, which is a new theory of parameter reduction for big data, and proposes a new soft computing approach. Soft set theory is also used to classify the data which uses reduced parameter to classify the data in efficient way. Soft set based classification methods are used to classify medical data termed a bijective soft set classification. This algorithm works by reducing extraneous data by constructing a bijective soft set, then uses operations like AND and Restricted AND to generate rules for classification, resulting in a precise decision. The result demonstrates how bijective soft set classification produces more accurate results than existing algorithms that employs on various validation criteria.

Keywords—

Soft set theory, Soft Computing, Classification, Bijective soft set, fuzzy set, rough set, big data analysis, etc.

Exploring the Landscape of Sentiment-analysis and Opinion-mining: A Comprehensive Review

Dr. T. Shekar Reddy¹, T. Sunil Kumar², Dr. T. Shyam Prasad³

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Abstract—

The objective of the research article is to provide insights into the field of sentiment-analysis and opinion-mining (SA/OM) and highlight its significance in understanding and analyzing sentiments expressed in text. The research utilizes natural-language-processing (NLP) techniques, text-analysis, and computational-linguistics to analyze public sentiment on a wide range of subjects. Various techniques including supervised and unsupervised machine learning methods, lexical-based approaches, and deep learning approaches are employed for sentiment-analysis and opinion-mining. These techniques are used to discover, extract, and categorize viewpoints and opinions from large-volumes of textual data. The results demonstrate the practical applications of sentiment-analysis and opinion-mining. These techniques enable the identification of overall attitudes or sentiments conveyed by text and assist in tasks such as customer sentiment-analysis and public opinion-analysis. The research highlights the importance of sentiment classification in assigning sentiment labels to text and the role of opinion-mining in extracting opinions associated with entities, products, or services. Automated opinion-mining methods are essential for sentiment-analysis in web-based settings, allowing for the extraction of valuable information from comments and opinions. The research concludes that sentiment-analysis and opinion-mining play crucial role in understanding and analyzing sentiments expressed in text. They provide valuable insights into customer sentiment and feedback on products and services. The use of NLP-techniques, machine learning methods, and deep-learning approaches enhances the accuracy and efficiency of sentiment-analysis and opinion-mining. The overview emphasizes the significance of sentiment-analysis and opinion-mining in extracting and analyzing opinions from textual data, contributing to the field of SA/OM.

Double Token Weighted Clustering Model for Online Product Recommender System Using Machine Learning Technique

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Abstract

Machine learning techniques have sparked a surge of interest in the field of recommender systems. Because there are so many direct and indirect variables that can be utilised to estimate user preference, scalable and reliable algorithms are required, as well as a system that is highly available and scalable is very much essential. People are more open-minded in this age of advanced technology, and they rely heavily on current applications for purchasing accessories, viewing movies, and other items linked to their daily necessities. Due to the ever-increasing demand for online shopping and movie viewing, businesses are turning to machine learning-based technology to assist them find the actual targeted product with less effort than traditional advertising tactics. Content-based filtering systems known as recommender systems (RS) are often linked with a range of personal and professional applications. By suggesting items from the app database that correspond to the user's preferences and prior behaviours, these systems serve as a bridge between various content providers, such as social networking platforms, e-commerce sites, streaming services, and app users. Such customised solutions are especially useful when the user is unsure what they are looking for. The method of clustering involves dividing a population or collection of data points into several groups such that measured values within a group are more similar to one another than data points within other groups. In other words, the objective is to identify groups of individuals with similar traits and place them in clusters that are connected to a specific product. This research proposes a Double Token Weighted Clustering Model (DTWCM) for analysing and clustering relevant product recommendations from numerous web recommendations and rapidly and qualitatively suggesting the best product to users. When the suggested model is compared to the conventional Adaptive Weights Clustering model, the findings show that the suggested model is more accurate as well as scalable.

Keywords:

Recommender System, Product Recommendation, Weighted Clustering.

Coot-Sine Cosine Algorithm with Mutual Information for Financial Distress Prediction

Eega Varnika¹, Dr.G.Madhavi²

Research Scholar, Dept. of Computer Science, Chaitanya Deemed to Be University, Warangal, Telangana, India¹

Assistant Professor, Dept. of Computer Science, Chaitanya Deemed to Be University, Warangal, Telangana, India²

Abstract:

Financial distress prediction is an important task in finance, and machine learning models have shown promising results. However, the performance of machine learning models depends heavily on the optimization algorithm used to train the model. In this paper, we propose a new optimization algorithm named Coot-Sine Cosine Algorithm (Coot-SCA) with mutual information for financial distress prediction. The proposed algorithm aims to minimize over-fitting problems and speed up the training process. The Coot-SCA algorithm is evaluated on a real-world financial distress dataset, and its performance is compared with several state-of-the-art optimization algorithms, including Particle Swarm Optimization, Genetic Algorithm, and Differential Evolution. The results show that the proposed Coot-SCA algorithm outperforms the existing optimization algorithms in terms of accuracy, precision, recall, and F1-score.

Keywords:

Financial distress prediction, Coot-Sine Cosine algorithm, Mutual information, Machine learning, Feature

Non-Linear Time Series Data to Linear Time Series Data Comparison

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Abstract—

There are various innovative techniques leads to exponential growth in almost all areas ranging from small scale industries to business tycoons in Time Series Classification. Preprocessing of data is very critical step for performing transforming and then mining and obtaining knowledge from such data. The process of performing time series prediction is very significant as most of the models assume existence of nonlinear data which does not change based on the time impact statistically in real-time datasets that are that are generated with streams of data. This paper provides at most solution for converting non linear data to linear data using logarithmic approach over time series data and the efficiency of our approach illustrates the conversion process using COVID19 India dataset.

Index Terms— Time Series, Linear, Non linear, COVID, logarithm

Digital Healthcare Information Infrastructure in India: Initiatives & Emergence for a Good Governance—A Policy Framework

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Abstract

Digital Technologies are become most important and valuable in designing and developing the proper and sophisticated healthcare systems. Today humans are highly associated with the digital technologies and Computing. Worldwide people and other stakeholders are well connected due to various developments in communication and technology part. Today organizations and institutions are engaged with the more technologies and healthcare and medical sector is not an exemption of this. Governments of different countries are involved and taking initiatives in promotion of IT and Computing in healthcare and medical systems. Different technologies and sub fields of Computing results advanced, intelligent and smarter healthcare services. The Digital healthcare helps in promotion of proper and advanced wellbeing for everyone, everywhere, at all ages. To reach the target of healthcare infrastructure advanced today national, state or regional Digital Health initiatives been implemented with proper strategies on financial, organizational, human and technological resources. In India too various initiatives are taken in Healthcare Systems from the context of technologies and computing. Here in this paper aspects of technologies, computing in Healthcare are depicted including existing, current and future digital healthcare informatics scenario with adopted, possible strategies etc.

Keywords

Digital Healthcare, Health Informatics, IT in Healthcare, Digital Medical Informatics, Digitalization, Digital India, Policies

Emergence of Information Technology and Computing in Small and Medium Enterprises with Potentialities of Academic and Research Programs—Context of Developing Countries emphasizing India

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Abstract

Small and Medium Enterprises are increasing day by day and such organizations play a leading role in developing and upgrading economic systems. In Short Small and Medium sized Enterprises are called SMEs. Normally such establishments are non subsidiary and independent in nature. The definition of SMEs is varies from country to country, according to the experts it is normally deemed that the organizations having 250 employees treated as SMEs. Initially only Computer Software considered as valuable in SMEs and gradually other technologies leading in the development of the SMEs such as Cloud Computing, Big Data, Internet of Things, Artificial Intelligence, Robotics etc. The human resources for the engagement in the SMEs is limited as of now, and there are potentialities in introducing new age SMEs educational programs emphasizing Information Technology and Computing. In India Small and Medium Enterprises are increasing gradually and it has amazing impactful role in enhancing knowledge economy. This paper is a review work with extension to the policies and framework regarding educational and training programs in SMEs in Indian and developing countries context.

Keywords

Small and Medium Enterprises, SMEs, Information Technology, ICTs, Knowledge Economy, Business Development, Academic Programs

An In-depth Investigation of Image Edge Detection Techniques

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Abstract —

Efficiently interpreting the content of images and extracting meaningful information from them are key objectives in image processing. Image interpretation researchers have devoted significant attention to extracting edge information, which is crucial for understanding the outlines and features of objects within an image. Edge detection algorithms play a central role in image analysis and processing. This paper investigates several edge detection techniques, including Prewitt, Sobel, Canny, Roberts, and Laplacian of Gaussian, in the context of real-world challenges posed by noise, including the Salt & Pepper effect, Gaussian effect, and Speckle effect. Additionally, the study evaluates the performance of Generative Adversarial Network (GAN)-based edge detection and compares it with these traditional methods.

Experimental results demonstrate that the Canny edge detector outperforms the others in traditional methods, particularly under the presence of noise. Simultaneously, the GAN-based approach showcases promising advancements in edge detection, underscoring its potential for enhancing image interpretation. The implementations of traditional techniques are carried out using Python, while GAN-based experiments are performed using the TensorFlow framework. This study contributes to the broader understanding of image analysis techniques, presenting a dual examination of both classical and modern methods for extracting edge information from images, including the innovative utilization of GANs.

Keywords:

Image segmentation, Edge detection, Prewitt, Sobel, Laplacian of Gaussian, Canny, Roberts, PSNR, SNR, GAN (General Adversarial Network), Salt & Pepper Effect, Gaussian Effect, Speckle Effect

Enhancing Student Sentiment Analysis through Cross-Validated Deep Learning Models

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Abstract—

Sentiment Analysis (SA) is a class of data mining algorithms that extracts latent representations of emotion from textual corpora. Student feedback is essential for assessing teachers' effectiveness and evaluating the quality of their instruction. We used 3000 post-graduate students' feedback from various colleges as datasets for our study. We need to collect both student and instructor evaluations at the postgraduate level in order to ensure the standard of instruction and classify with machine learning and deep learning-based analysis model to improve the learning experience. In this study, CountVectorizer (CV) and Term Frequency-Inverse Document Frequency (TF-IDF) models are employed for feature extraction and classification models Logistic Regression, Keras Sequential Deep Learning, and GloVe word embedding with CNN Algorithms are used to analyze our model. The results show that GloVe word embedding with the CNN model is the best model with the highest accuracy, precision and f1-score.

Keywords—

Sentiment Analysis, Machine Learning, CNN, Logistic Regression

COMPUTATIONAL INTELLIGENCE IN SUSTAINABLE AGRICULTURE.

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Abstract

To meet the future demand of food there is an every need to increase food production by using Hi-Tech farming methods and alternative technologies. Computational Intelligence is one of such method and it is a subset of Artificial Intelligence based on hard computing techniques and soft computing methods which enables to many situations. It uses machine learning, languages C++ and Python, both used together in agriculture, and decision free algorithms. In computational agriculture farmers, breeders, agronomists and scientists will learn on new types of hard ware, soft ware and sensors to collect and analyze the information about the complexity of the plant world. Machine learning Algorithm has gained popularity in crop production, yield prediction and forecasting. Machine learning is an application part of AI that enables a system to learn from examples a experience without explicit programmes. Some automation methods are presented to meet the future requirements. AI has become one of the most important technology agriculture, playing a crucial role and transforming the agricultural industry. Few advanced gadgets/ instruments working on computational intelligence and their role in development and progress agricultural science have been analysis. At present, the overall agricultural mechanization level of the country is 47% which is comparatively lower than that all Chaina (60%) and Brazil (75%). Farm mechanization in India plays a key role in improving agricultural production, productivity and efficiency, panel reported that the current use leads to saving in seed (15-20%) , fertilizer (15-20%), improvement in germination (7-25%) saving in time (20-30%), in weed (20-40%) and in labour (20-30%) besides increase in cropping intensity (5-20%) and increase in crop yield (13-23%).. Case studies in rice, pigeon pea, chickpea crops, drone technology, robotics, IoT autonomous vehicles in agriculture, there use in fast and precise completion of different operations and increased yields, role of sustainable agriculture have been discussed in this paper.

Evaluation of recommendation system by metric confusion matrix and event processing technique on temporal data with extent applications of recommendation system.

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Abstract - Recommendation systems assist users and creators of various computer and software systems in performing tasks such as approximate computing, information extraction, and information overload. Mobiles, multimedia handheld devices, phones and technical enhancements have made it easier to use RSs in day-to-day life. For example, RSs recommend a path to drivers, travellers, or people serving farmers with their work. As an effect, RSs have been revealed to be fruitful in many diverse frameworks, and their practice is increasing day by day, they have recently gained popularity and attracted a wide range of application scenarios, from source code manipulation to system analysis and design. Since there is a broad range of application domains, several methods and metrics have been used to assess them. This paper surveys various evaluation metrics and measures, as well as some performances criteria for evaluating recommendation systems using confusion matrix.

Keyword-

Recommender system (RS), Temporal Data, Event processing, Confusion matrix.

Improving Character Recognition in Scenery Images Using a Multilevel Convolutional Neural Network with Attention Mechanisms

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ABSTRACT

This proposes a new approach to recognize characters in scenery images using a multilevel convolutional neural network (CNN). The proposed method comprises two main stages: detection and recognition. In the detection stage, a sliding window is used to extract the character candidate regions from the scenery image, and a multilevel CNN is employed to detect the character regions from the candidate regions. In the recognition stage, the character regions are recognized using another multilevel CNN that extracts the features from the character regions and classifies them into their corresponding characters. The experimental results show that the proposed method outperforms the state-of-the-art methods in terms of recognition accuracy, especially for the images with complex backgrounds and low-quality characters. All these features are passed through soft max function which calculates the probabilities of each output class and returns the maximum value of probability of output class. A flatten layer is then used to reduce the output class to single dimensional array. Two datasets are used to recognize the characters in scenery images using various models.

Key words:

Convolutional Neural Network, Multi-Scale, features, Multilevel fusion, soft max, dense, Character Recognition, activation, scenery images.

View Invariant Human Gait Recognition from 3d Skeleton Body Postures

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Abstract

RGB-D data based Human Gait Recognition (HGR) has gained great research interest in recent years. Compared to the RGB based Gait sequences, the RGB-D based Gait sequences are more advantageous. However, they are susceptible to several issues like Gaits with similar movement, view point variations and different types of noises. To cope up with these problems, this paper modeled a new Gait descriptor called as View Invariant Skeleton Gait Descriptor (VISGD) and trained to the HGR system. VISGD considers the Skeleton joints in the Cartesian coordinate system as input and transform them into a view invariant transform such that the cross-view Gait recognition is accomplished effectively. Further, we employ a standard AlexNet architecture for the purpose of feature extraction followed by classification. Simulation experiments on the standard OUMLPV dataset explore the effectiveness in the recognition of Gaits under multiple views.

Keywords- *Skeleton, Viewpoints, Human Gait Recognition, Deep learning, Accuracy.*

Innovative Approaches and Multi-modal Deep Learning Frameworks for Predicting Renal Complications on the Internet of Medical Things Platform: A Comprehensive Review

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Abstract

Due to the global shortage of nephrologists, an AI-based system that is suitable on the Internet of medical things for complete auto-diagnosing framework kidney illnesses has been proposed in this paper by doing a complete literature review on the existing techniques and models to address this pressing public health issue of renal failure. Cysts, tumors, and kidney stones are the three types of kidney disease. Patients may not survive if they aren't recognized with the condition early on, and the number of individuals who have it is rising quickly. Transplantation or dialysis may be required otherwise. Clinical data and imaging data are used as inputs for the prediction. The clinical data includes features such as age, blood pressure, pus cells, bacteria, RBC count, BUN, and urea in the blood are all part of the clinical data. The second sort of input is visual; specifically, we take into account abdominal CT and MRI scans. As healthcare diagnostics advance at a rapid pace, more is being asked of doctors in terms of their ability to manage and integrate the diverse data sets that arise in the course of daily practice. Radiological, pathological, and photographic images, as well as other forms of imaging and non-imaging data (such as clinical and genetic information), are all used in the context of a patient's individual diagnosis and treatment plan. However, such decision-making methods are often qualitative decision-making are often qualitative and prone to wide inter-subject variance. Increasing attention has been paid to how to extract and combine multi-modal information subject of how to extract and combine multi-modal information to order to give more objective, quantitative computer-aided clinical decision-making. In this paper, we observe some previous works and propose a model that introduces a new Deep learning model for this domain.

Keywords— Internet of Medical Things, CT, MRI, Radiological, pathological

Review of various data driven models-based anomaly detection technique for Internet of Vehicle

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Abstract

The development of the Internet of Things (IoT) and artificial intelligence (AI) have created the possibility for an intelligent transportation system (ITS), which has led to the combination of IoT with ITS, known as the Internet of Vehicles (IoV). Automated driving and sufficient mobility may be attained when modern communication technologies (5G) are integrated with intelligent vehicles. IoV faces security issues in the following five (5) domains: data security, V2X communication security, service platform security, ICV security, and intelligent device security. Numerous AI models have been created to reduce the impact of infiltration risks on ICVs. The need to integrate confidence, transparency, and repeatability into the creation of AI for the security of ICV and to provide a safe ITS, on the other hand, has led to an increase in explainable AI (XAI). Therefore, the scope of this review covered the XAI models employed in ICV intrusion detection systems (IDSs), their taxonomies, and available research concerns. The study's findings demonstrate that, despite its relatively recent application to ICV, XAI is a potential research area for those looking to increase the network effect of ICVs. The paper also demonstrates that XAI's greater transparency will help it gain acceptance in the vehicle industry.

Keywords: IoT, IoV, Smart Vehicle, Data driven models, AI, anomaly detection.

Optimising Neural Networks for Embedded Systems

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Abstract:

Deep mastering has dramatically multiplied the kingdom of the artwork in Speech, Vision and lots of different areas. It's miles being implemented in a maximum of the fields from bio-scientific to robotics. And these kinds of deep mastering fashions to carry out inference wishes a lot of assets like big computation strength for the reason that tool has to carry out shooting information pre-method it then feeds to a neural community which has to carry out a big wide variety of floating factor operations various from 3000 floating factor operations to billions of floating factor operations relying on the complexity of the neural community. Deploying this sort of machine with the deep neural community in the cloud is pretty confined as greater latency is brought when you consider that there's a spherical ride to a server, privateness dangers because the information wishes to depart the tool, connectivity because the information wants to be despatched to a server, strength intake as community connections are strength hungry. All those troubles can be conquered with the aid of deploying the deep mastering version withinside the facet gadgets like microcontrollers, cellular gadgets. We obtain this with the aid of quantizing the educated neural community which reduces the scale in addition to the growth rate on the identical time, the overall performance isn't compensated.

Keywords

Deep learning, Quantization, Microcontroller, Neural Networks, TensorFlow Lite, Embedded System, ARM Processor, Artificial Intelligence

Modified CLAHE method for Natural Image Enhancement with Improved Efficiency

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Abstract-

The Contrast Limited Adaptive Histogram Equalization (CLAHE) is a popular image enhancement technology that improves the visibility of details in an image. It works by dividing the image into smaller regions and then equalizing the histogram of each region separately. However, traditional CLAHE methods rely on histogram computation, which can be computationally expensive and require a significant amount of memory. To address this issue, an alternative approach to the CLAHE method has been proposed, which uses an energy curve instead of a histogram. The energy curve approach involves computing the cumulative distribution of pixel intensities within each region of the image and contextual information of pixels, which is then used to modify the intensity values of the pixels. This approach can lead to significant improvements in efficiency and memory usage compared to the traditional CLAHE method. The energy curve-based CLAHE method has shown promising results in various image enhancement applications, including medical image processing, surveillance, and remote sensing. The method has been found to be particularly useful in scenarios where real-time processing is required or where large images need to be processed efficiently. In conclusion, the energy curve-based CLAHE method is a promising alternative to traditional histogram-based methods. Its improved efficiency and memory usage make it a suitable option for real-time processing and large image datasets. Its potential for improving the visibility of details in images makes it a valuable tool in various image enhancement applications.

Research Survey on 5G Networks Using IOT

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Abstract:

The existing 4G networks have been widely used in the Internet of Things (IoT) and are continuously evolving to match the needs of future Internet of Things (IoT) applications. The 5G networks are expected to massively expand today's IoT that can boost cellular operations, IoT security, and network challenges and drive the Internet future to the edge. The existing IoT solutions are facing a number of challenges such as a large number of connections of nodes, security, and new standards. This study reviews the general background of the internet of things, technologies and features of 5th generation network, global regulatory practices and challenges for the internet of things and Bhutan Power Corporation's digital strategy for a smart grid system

Keywords:

Internet of Things (IoT), networks

Improving Web Traffic Management using Cloud Computing

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Abstract –

This research paper focuses on the utilization of cloud computing to enhance web traffic management. With the rapid growth of internet usage and the increasing demand for data-intensive applications, traditional web infrastructure faces challenges in effectively handling the scale and variability of incoming traffic. Cloud computing offers scalable and flexible resources that can address these challenges and optimize web traffic management. This paper discusses the benefits, techniques, and considerations associated with leveraging cloud computing for web traffic management. It also presents real-world case studies to illustrate the practical implementation and impact of cloud-based traffic management solutions.

Keywords:

Cloud Computing, Web Traffic Management, Load Balancers, Content Delivery Networks, Application Delivery Controllers, Machine Learning, Hybrid Cloud.

Privacy-Preserving Techniques for Secure Cloud Computing

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Abstract –

Cloud computing has become an essential part of modern business operations, providing scalable and cost effective storage, computation, and software services. However, the use of cloud computing introduces new challenges related to privacy and security, as sensitive data is often stored and processed outside the control of the data owner. In this research paper, we investigate privacy preserving techniques that can enhance the security of cloud computing. We start with a comprehensive review of the literature to find current privacy-preserving methods used in cloud computing and the privacy and security challenges they address. We then evaluate the effectiveness of existing privacy preserving techniques in protecting sensitive data in the cloud through a series of experiments. Finally, we develop new privacy-preserving techniques that can improve cloud computing security and assess its effectiveness and effectiveness in protecting sensitive data in the cloud.

Forecasting sudden spikes and drops using Ensemble techniques in Machine Learning

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Abstract—

Forecasting sales and production are critical aspects of business planning, helping businesses to make informed decisions regarding inventory management, resource allocation, and financial planning. One of the challenges for any business is accurately predicting demand and supply during festival seasons which involves a sudden increase in sales before the festival and a decrease after the festival. This sharp increase and decrease can have significant implications for business operations and profitability. Traditional forecasting methods often struggle to capture non-linear patterns and sudden changes in the data. To address this challenge, this paper proposes leveraging the complementary strengths of two popular forecasting algorithms, Prophet, and Holt-Winters algorithms, and combining them using a neural network-based weighted averaging technique, this enhances the accuracy, reliability, and robustness of the forecasting process. The proposed ensemble technique involves training Prophet and Holt-Winters models separately on historical data. The output of each model is then fed into a neural network to adaptively assign higher weights to the algorithm that performs better in capturing sudden spikes and falls.

Keywords—

sales forecasting, machine-learning, ARIMA, SARIMA, prophet, neural prophet, light GBM regression, HoltWinter, neural networks, ensemble models, time series.

Forecasting workforce demand for a shift using core ensemble of multi Machine Learning

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Abstract—

A detailed forecasting design of the call center workforce planning to the granular level of hourly, where the machine learning methods are evaluated and applied by their quality and the theory by its applicability. Accurate forecasting of workforce demand for shifts, it is crucial for effective resource allocation and operational planning in a variety of industries. Traditional methods of demand forecasting often rely on manual analysis, historical data, and subjective judgments, which can be time-consuming, error-prone, and limited in their ability to adapt to changing conditions. In recent years, machine learning techniques have emerged as powerful tools for predicting workforce demand, leveraging the vast amounts of data available from various sources. This paper introduces a novel approach to forecasting workforce demand for shifts using machine learning algorithms at daily level and an hourly level. The proposed methodology leverages historical hourly data, external factors, and contextual information to build robust predictive models with optimization methods. By combining the strengths of both approaches, The objective is to provide organizations with an accurate and timely estimation of the number of employees required during specific hours of a shift , enabling them to optimize scheduling and staffing decisions at a granular level in making informed decisions regarding their workforce planning strategies.

Keywords—

Forecasting, machine learning, Optimization, Shift forecast, Fbprophet, ARIMAX, SARIMA, ARIMA, Forecast with optimization, multi-level forecasting, Daily forecast, Intraday forecast

PALM VEIN RECOGNITION USING NETWORKING

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ABSTRACT At present, palm vein identification is considered an exciting topic. Moreover, it was identified based on biometric of this palm as well as vein patterns, which were utilized for authentication and identification purposes. Veins having exclusive patterns were made through Near-infrared Light (NIR), and the NIR Techniques having a higher rate of wavelength was around 760 nm-820 nm which was penetrating the skin in the depth was about 5mm. Subsequently, the veins were carrying the de oxygenated blood, those blood was absorbed through the NIR Light. Thus the skin, as well as the tissues, were affected by the infection due to the high wavelength of light; this was the major reason for the veins appearing dark in the network. Moreover, the vein network was captured with the help of an infrared-sensitive camera; the working function of the infrared-sensitive camera was if the image was captured once, then they were preprocessed to remove the noise, and then feature extraction was done to extract the best features and the noiseless better features were used in the image recognition scheme. Here, the feature extraction process of the vein was happening based on the network segmentation. To generate the ground truth, a map of the extracted features among the image segmentation were used. However, the feature maps were utilized for the templates in the neural networks to recognize the process.

Keywords: *Palm recognition, Near Infrared Light, Neural Networks*

Study and Analysis of Performance in Microstrip Antennas using Artificial Intelligence

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Abstract:

In the modern era of wireless communication there is a need for an antenna with reduced size, higher

bandwidth (to support high data rate), fewer losses and ability to operate at high frequency. The microstrip antenna is

one of the most favorable candidates in this context and is compatible with today's wireless scenario because of their smaller size, ability to operating at high frequency, and ease of installation. The microstrip antenna is used in mobiles, satellite communication devices, radars etc. Because of the versatility of the microstrip patch, a lot of research work

have been done and is going on today. There are different kinds of neural techniques that can be used based on the application. The most commonly used neural techniques are feed forward with back propagation algorithm, which operates on the gradient descent method, and the RBF (radial basis function) NN, which work based on the principle of span between the input and the weight vector. These two techniques are widely used and accepted in the application of the neural network in the field of antenna. The size of the antenna plays a central part in today's wireless scenario because of less space availability and the portability issue. In this paper, we have made a study and

survey on microstrip patch antenna designs parameters using artificial neural network.

Keywords: Microstrip, ANN, Gradient Descent, MoM, Levenberg-Marquardt Back propagation.

Soil Conditions an Effective Model Predicts Plant Diseases

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Abstract

Plant diseases can cause significant economic losses for farmers and threaten global food security. Traditional approaches for managing plant diseases, such as using chemical pesticides and fungicides, are often expensive, environmentally harmful, and unsustainable. Leveraging the efficiency of soil conditions to predict plant diseases offers a promising alternative to traditional approaches. In this study, we developed a machine learning-based approach to predict the likelihood and severity of plant diseases based on soil conditions. Soil samples were collected from agricultural fields with healthy and diseased plants, and analyzed for various soil properties, including pH, texture, and nutrient availability, as well as microbial communities. A machine learning model was developed using the soil and disease data, and the model's effectiveness was evaluated in a field trial. The results showed that the machine learning-based approach had high accuracy in predicting disease outbreaks based on soil conditions. This research provides valuable insights into the relationship between soil conditions and plant diseases and offers a sustainable and cost-effective approach for managing plant diseases.

Key words: *Plant Diseases, Healthy, Diseased Plants, Soil Properties, pH*

Low contrast Color Image enhancement via Median-Mean Based Sub-Image-Clipped Histogram Equalization

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Abstracts

This research article aims to propose a novel image enhancement technique based on Median-Mean Based Sub-Image-Clipped Histogram Equalization (MMSICHE) for improving the visual quality of low-contrast natural color images. The proposed MMSICHE algorithm operates on the input image by dividing it into sub-images and then performs histogram equalization on each of them. This paper presents a robust contrast enhancement algorithm based on MMSICHE. The proposed algorithm undergoes three steps: (i) The Median and Mean brightness values of the image are calculated. (ii) The histogram is clipped using a plateau limit set as the median of the occupied intensity. (iii) The clipped histogram is first bisected based on median intensity and then further divided into four sub-images based on individual mean intensity, subsequently performing histogram equalization for each sub-image. To evaluate the performance of the proposed algorithm, we compare it with state-of-the-art image enhancement techniques using various quality metrics such as peak signal-to-noise ratio (PSNR), structural similarity index (SSIM), and visual assessment. The experimental results demonstrate that the proposed MMSICHE algorithm outperforms existing methods in terms of enhancing the contrast and preserving the details of low-contrast gray images. The proposed algorithm is also computationally efficient and can be easily implemented on different platforms. This method avoids excessive enhancement and produces images with natural enhancement. The simulation results show that the MMSICHE method outperforms other HE methods in terms of various image quality measures, i.e. average luminance, average information content (entropy), absolute mean brightness error (AMBE), and background gray level. MMSICHE algorithm offers an effective and efficient way to enhance the contrast and improve the visual quality of low-contrast gray images, making it a valuable tool for various applications in medical imaging, remote sensing, and other fields where enhancing the contrast of low-light images is critical.

CNN AND RF BASED EARLY DETECTION OF BRAIN STROKE USING BIO-ELECTRICAL SIGNALS

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ABSTRACT:

The brain is a vital component of the body that is in control of involuntary and voluntary movements such as walking, memory, and vision. Nowadays, some of the most prevalent brain disorders include Alzheimer's disease, brain tumors, and epilepsy (paralysis or stroke). As a result, stroke has become a significant global health concern, with high rates of mortality and disability. Importantly, approximately two-thirds of all strokes occur in developing countries, highlighting the significant burden of this condition in these regions. Therefore, emphasizing the timely detection and appropriate treatment of brain tumors is crucial. Given the high potential for mortality or severe disability associated with stroke disease, prioritizing active primary prevention and early identification of prognostic symptoms is of paramount importance. Ischemic stroke and hemorrhagic stroke are the two primary classifications for stroke diseases. Each type calls for specific emergency treatments, such as the administration of thrombolytics or coagulants, tailored to their respective underlying mechanisms. However, to effectively manage stroke, it is crucial to promptly identify the precursor symptoms in real-time, as they can vary among individuals. Timely professional treatment within the appropriate treatment window is essential and should be provided by a medical institution. In contrast, prior research has primarily centered around the formulation of acute treatment strategies or clinical guidelines subsequent to the occurrence of a stroke, rather than giving sufficient attention to the early identification of prognostic symptoms. Specifically, recent research has extensively utilized image analysis techniques, such as computed tomography (CT) or magnetic resonance imaging (MRI), as a primary approach for detecting and predicting prognostic symptoms in stroke patients.

Traditional methodologies not only encounter difficulties in achieving early real-time diagnosis but also exhibit limitations in terms of prolonged testing duration and high testing costs. In this study, we introduce a novel system that employs machine learning techniques to predict and semantically interpret prognostic symptoms of stroke. Our approach utilizes real-time measurement of multi-modal bio-signals, namely electrocardiogram (ECG) and photoplethysmography (PPG), with a specific focus on the elderly population.

To facilitate real-time prediction of stroke disease during walking, we have developed a stroke disease prediction system that incorporates a hybrid ensemble architecture. This architecture synergistically combines Convolutional Neural Network (CNN) and Random Forest (RF) models, enabling accurate and timely prognostication of stroke disease. The suggested method prioritises the convenience of use of bio-signal sensors for the elderly by collecting bio-signals from three electrodes placed on the index finger. These signals include ECG and PPG, and they are obtained while the participants walk. The CNN-RF model delivers satisfactory prediction accuracy when using raw ECG and PPG data. F1-Score, Sensitivity, Specificity, and Accuracy were the performance parameters used to evaluate the model's performance.

KEYWORDS: Electrocardiogram (ECG), Photo plethysmography (PPG), stroke disease analysis, Convolutional Neural Network (CNN), Random Forest(RF).

A self-adaptive environment for decentralized automation using IoT

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Abstract

Self-adaptive algorithms in IoT systems are becoming increasingly important as the IoT market continues to grow. Self-adaptive systems can perform selfconfiguration, self-optimization, self-healing, and selfprotection, and can adapt to changing conditions in the environment without human intervention. Self-adaptive IoT systems are critical for achieving service levels and securing the uninterrupted flow of business-critical data, with an emphasis on the speed of making the new business. A self-adaptive environment for decentralized automation using IoT refers to a system that can automatically adjust and optimize itself based on changing conditions and requirements. In such an environment, IoT devices work together autonomously to achieve a common goal, while also being able to adapt to the changing needs of the system. A standardized Python code for a self-adaptive system with decentralized automation using IoT is discussed.

Keywords- Self-adaptive environment, Decentralized automation, MAPE-K loop, IoT

Fake News Prediction of Text and Image with Report Generation using ML

Abstract

In this paper, we use machine learning, namely an artificial neural network to determine what the chances that Facebook friend request is authentic are or not. We also outline the classes and libraries involved. Furthermore, we discuss the sigmoid function and how the weights are determined and used. Finally, we consider the parameters of the social network page which are utmost important in the provided solution.

Keywords: Deep Learning, Computer Vision, Viola Jones, VGG19, Privacy-Protection, online social network (OSN), Online Social Network(OSN); Artificial Intelligence(AI); Social Media

Resource Management in 5G Mobile Networks: Survey and Challenges

Abstract:

With the rapid growth of network traffic, a large number of connected devices, and higher application services, the traditional network is facing several challenges. In addition to improving the current network architecture and hardware specifications, effective resource management means the development trend of 5G. Although many existing potential technologies have been proposed to solve the some of 5G challenges, such as multiple input multiple-output (MIMO), software-defined networking (SDN), network functions virtualization (NFV), edge computing, millimeter-wave, etc., research studies in 5G continue to enrich its function and move toward B5G mobile networks. In this paper, focusing on the resource allocation issues of 5G core networks and radio access networks, we address the latest technological developments and discuss the current challenges for resource management in 5G.

Keywords: Cloud Computing, Edge Computing, Network Slicing, Resource Management, 5G, 5G RAN Techniques

Enhancing Breast Cancer Prediction and Diagnosis with CNN-Based Approach

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Abstract

Breast cancer remains a leading cause of mortality in women globally, necessitating accurate and early prediction and diagnosis methods. In this research, we adopt a Convolutional Neural Network (CNN)-based approach and compare it with traditional machine learning classifiers, including Support Vector Machine (SVM), Random Forest, Logistic Regression, Decision Tree (C4.5), and K-Nearest Neighbours (KNN), using the Breast Cancer Wisconsin Diagnostic dataset. The main objective is to assess the performance of the CNN model in predicting and diagnosing breast cancer, in comparison to traditional classifiers, based on key metrics such as accuracy, precision, and confusion matrices. The experiments are carried out in the Anaconda environment using Python programming. The results demonstrate the effectiveness of the CNN-based approach, showcasing its potential to outperform traditional classifiers. The successful implementation of CNN in breast cancer prediction and diagnosis could lead to significant advancements in treatment planning and improved patient outcomes

Design of Application using Artificial Neural Network - VLSI Using Integral Stochastic Computations

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Abstract:

Efficient machine learning techniques that need substantial equipment and power usage in their computation phase are computational models. Stochastic computation has indeed been added and the solution is a compromise between the ability of the project and information systems and organizations to introduce computational models. Technical specifications and energy costs are greatly diminished in Stochastic Computing by marginally compromising the precision of inference and calculation pace. However, Sc Neural Network models' efficiency has also been greatly enhanced with recent advances in SC technologies, making it equivalent to standard relational structures and fewer equipment types. Developers start with both the layout of a rudimentary SC nerve cell throughout this essay and instead study different kinds of SC machine learning, including word embedding, reinforcement learning, convolutionary genetic algorithms, and reinforcement learning. Consequently, rapid developments in SC architectures that further enhance machine learning's device speed and reliability are addressed. Both for practice and prediction methods, the generalized statement, and simplicity of SC Machine Learning are demonstrated. After this, concerning conditional alternatives, the strengths and drawbacks of SC Machine learning are addressed.

Keywords: *Deep neural network, SC, VLSI, FPGA, Computing*

IOT Based Weed Detection in Smart Farming for Plant Growth

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Abstract:

Nowadays farming methods use herbicides to goal undesired weeds on farms. But, utilizing these herbicides, that have severe toxicity, can have injurious belongings even after a sole scene of swallow. This herbicide influences respiring area sensitivity, eye, and skin sensitivity, and causes asthma-connected questions. Novel and active approaches utilizing the Internet of Things (IoT) have happened projected for expanding grass discovery models. To defeat the human attack on-field and embellish the preparation model by considering subject-familiarize dossier stocked at the attendant. The discriminating herbicide will avail in a solid decrease in the exercise of portion herbicide, afterward advancing health management. To realize this task, real-period machines that can exactly discover plants and with categorize ruling class into crops and weeds by applying the explicit prepared model. By rescuing and packing the facts asserted connected to the internet of Things (IoT) that maybe achieve by grass discovery machines in real- period. This paper reviews grass discovery for discriminating herbicides utilizing miscellaneous approaches for correct and exact grass discovery in gardening. In the end, this paper supplies a projected construction for the Internet of Things (IoT) located smartweed discovery.

Ground work for firms using machine learning

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Abstract

Machine learning techniques are used to discover the hidden patterns from the application centric data analysis. Using these techniques various applications can be designed which can be used for supporting different business sectors. These patterns can be used by business administrators and managers to develop sustainable, growing and consistent the global business challenges. In this regard, the employment of ML techniques in business data analysis can become a fruitful tool that may assist and help to new start-ups businesses and entrepreneurs, to sustain and grow with time. Therefore, in this paper, we are conducting a review on existing machine learning techniques that are recently alms to understand the need of start-ups, trends of business and may provide recommendations to plan their future strategies to compete with the business problems on other hand based on the observations we have proposed our future road map to design and develop an intellectual framework to support Start-up India-based entrepreneurs.

Keywords—Machine learning, recommendation system, business data analytics, algorithm design, support system, handholding of startups.

PREDICTING THE SMALL COMPANY GROWTH WITH PYTHON CODE

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ABSTRACT

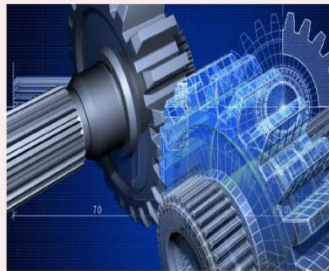
Predicting a smallcap company growth is possible in now a days. It is possible by using the python code. In Python code we are using the machine learning and data science techniques. These technologies are helps to predict the data and analyze the data.

To forecast the growth of a company we must use the python code and some technologies. The data science can helps us to create the dataset and machine learning helps us to predict the data. We predict the data after testing data. These steps are helps to execute the code perfectly like test, train and predict the data.

Keywords: *smallcap, prediction, regression algorithm, machine learning, google colab.*

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