



SCHOLARLY PUBLICATIONS

School of Computer Engineering

KIIT Deemed to be University

Journal Name: Archives of Computational Methods in Engineering

IF: 9.7

Title: Machine Learning in Healthcare Analytics: A State-of-the-Art Review

Author: Das S., Nayak S.P., Sahoo B., Nayak S.C.

Details: April 2024

Abstract: The use of machine learning (ML) models have become a crucial factor in the growing field of healthcare, ushering in a new era of medical research and diagnosis. This study rigorously reviews research publications published in reputable journals during the last five years. The pace and dynamic nature of machine learning in the healthcare domains demonstrated by the arduous criteria, which are used to sort through these articles. Disease-centric analysis uncovered a wide range of deep learning and machine learning models which are designed to address particular medical problems. Convolutional neural networks (CNNs), one of the most complex deep learning architectures, coexist with more conventional statistical models like logistic regression and support vector machines. CNNs are particularly prominent when it comes to disorders that need picture processing, which highlights the significant influence of deep learning in deciphering complex medical patterns. The popularity of ensemble methods, such as Random Forest, Gradient Boosting, and AdaBoost, indicates that their ability to combine predictive capability and strengthen model resilience is well acknowledged. Hybrid techniques, which integrate the advantages of many models, provide novel approaches to tackle distinct healthcare problems. This research also sheds light on a nuanced approach for model selection, wherein deep learning models performs well with huge datasets and image analysis, while statistical and ensemble models provides better results with numerical and categorical data. The adaptability needed in healthcare analytics is shown by hybrid models, which frequently combine standard models for classification with deep learning for feature extraction. The present review can endow problems related to ML in healthcare domain, possible solutions, potential directions and some knowledge to the researchers working in this field.



URL: <https://link.springer.com/article/10.1007/s11831-024-10098-3>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Journal of Network and Computer Applications

IF: 7.7

Title: CRAMP: Clustering-based RANs association and MEC placement for delay-sensitive applications

Author: Dash S., Khan A.U., Kar B., Swain S.K., Kuswiradyo P., Tadele S.B., Wakgra F.G.

Details: Volume 227, July 2024, Article No. 103893

Abstract: With advancements in networking technology and ubiquitous computing, there has been a significant increase in the number of edge devices and delay-sensitive applications. To facilitate efficient processing, mobile edge computing (MEC) technology provides resources through MEC servers, which are deployed at the radio access networks (RANs) of 5G networks. However, these MEC servers possess a limited amount of resources, making their effective management of these resources a critical challenge. This is due to the uneven distribution of resource utilization, where some resources become over utilized while others remain underutilized. Addressing the issue above while simultaneously satisfying user requirements for delay-sensitive applications poses a significant challenge at the edge. In this paper, we propose a clustering-based efficient RANs association and MEC server placement model to tackle this challenge. Our primary objective is to minimize MEC server deployment costs while ensuring that the delays of these applications are effectively managed. We propose a greedy algorithm called the clustering-based radio access networks association and mobile edge computing placement (CRAMP) algorithm, which determines the optimal location of MEC servers to associate with RANs. Simulation results demonstrate that our proposed algorithm outperforms existing approaches regarding cost efficiency and delay management.



URL: <https://www.sciencedirect.com/science/article/pii/S1084804524000705>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Information Systems Frontiers

IF: 6.9

Title: Cognitive Chatbot for Personalised Contextual Customer Service: Behind the Scene and beyond the Hype

Author: Behera R.K., Bala P.K., Ray A.

Details: Volume 26, pages 899–919, July 2024.

Abstract: With the proliferation of the use of chatbots across industries, business-to-business (B2B) businesses have started using cognitive chatbots for improved customer service which signifies our research. By extending the Technology Acceptance Model and Information Systems Success Model, this study examines personalised contextual customer service using cognitive chatbot. A quantitative research method is applied to the primary data collected from 300 respondents of B2B businesses. The study contributes to the limited research on chatbots and suggests improvement in customer service. The findings provide evidence of high value by customers, particularly while checking for real-time information on reliability and accessibility of products/services. The automated answers to repetitive questions on the recurrent issues create a seamless experience for the customers. This research makes significant theoretical contributions by integrating two models into a simplified model in chatbot literature and manifest that trust affects the willingness to use the cognitive chatbot which drives automation.



URL: <https://link.springer.com/article/10.1007/s10796-021-10168-y>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: IEEE Open Journal of the Communications Society

IF: 6.3

Title: Non-Fungible Tokens (NFTs) - Survey of Current Applications, Evolution, and Future Directions

Author: Razi Q., Devrani A., Abhyankar H., Chalapathi G.S.S., Hassija V., Guizani M.

Details: Volume 5, Pages 2765 – 2791, 2024.

Abstract: Non-fungible tokens (NFTs) have become an exciting technology that provides a fresh perspective on asset ownership, provenance, and value exchange. NFTs, a blockchain-based technology, are distinct and indivisible cryptographic tokens used to confirm and record the ownership of digital and physical assets in an immutable and transparent way. The fundamental block of NFT is a smart contract built on a blockchain network. This contract contains specific information about the asset it represents, such as its unique identifier, metadata, and ownership details. The information is kept private and tamper-proof due to the decentralized and distributed structure of the blockchain, boosting faith in the token's authenticity. The NFT is gaining popularity, but it is still in the developing stage. There is a need for a comprehensive survey to guide future research and development in NFTs. Thus, this paper presents the technical components of NFTs, their features, and the minting process. Further, this survey paper describes different token standards for NFTs. It presents various applications of NFTs in healthcare, supply chain, gaming, identity verification, agriculture, intellectual property, smart cities, charity and donation, and education. The article also emphasizes the significant difficulties faced currently in implementing NFT technology from the viewpoints of ownership, governance, and property rights, as well as security, privacy, and environmental effects. This work also elucidates the future directions to overcome the challenges in adopting NFTs in various applications.



URL: <https://ieeexplore.ieee.org/document/10363651>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Information Technology and Tourism

IF: 6.3

Title: Reaching new heights: investigating adoption factors shaping the moon landing of metaverse tourism

Author: Behera R.K., Bala P.K., Rana N.P.

Details: April 2024

Abstract: With the advancement of technology, the metaverse, as the future of the Internet, has gained popularity. As a result, numerous opportunities have been created, and the tourism industry is eager to take advantage of them. While it is critical to understand how the metaverse can influence tourism, tourists also need to be aware of its benefits. Therefore, this study is undertaken to empirically investigate the factors influencing the adoption of the metaverse due to its perceived benefits. To operationalise the constructs, qualitative methodology was performed. Subsequently, the source data were collected from 315 tourists, and the analysis was performed using quantitative methodology. The findings reveal that by virtually visiting hotels and other resources before making a reservation, the metaverse offers new sources of travel inspiration. The booking process is made more enjoyable and engaging by the metaverse. Metaverse-enabled enhanced travel inspiration and booking experiences lead to an increase in booking volume.



URL: <https://link.springer.com/article/10.1007/s40558-023-00274-9>





SCHOLARLY PUBLICATIONS

School of Computer Engineering

KIIT Deemed to be University

Journal Name: Biomedical Signal Processing and Control

IF: 4.9

Title: Classification of non-small cell lung cancer types using sparse deep neural network features

Author: Swain A.K., Swetapadma A., Rout J.K., Balabantaray B.K.

Details: Volume 87, Part A, January 2024, Article No. 105485.

Abstract: Most of the non-small cell lung cancer is clinically examined using CT/PET images. But an accurate diagnosis by the radiologist is difficult while classifying the type of non-small cell cancer, which may lead to misdiagnosis. Hence, a method is required to accurately identify different types of non-small cell lung cancers, such as adeno-carcinoma and squamous cell carcinoma for providing proper treatment to patients. One of the practical and feasible solution is deep learning based method that has the ability to adapt and learn. However, most of the deep learning methods have complexity issues. Hence, some optimization is required to make the networks less complex. The objective of the work is to use less complex methods for classifying the non-small cell lung cancer. In this work, dense neural network (VGG-16 and Resnet-50) that has complex structures and sparse neural networks (inception v3) that are less complex are used. Deep learning methods are employed to obtain features from CT images and accurately classify non-small cell lung cancer. To evaluate the method, 60 adenocarcinoma patients and 60 squamous cell carcinoma patients are considered. The sensitivity, specificity, and accuracy of the Inception v3 network are found to be 96.66 %, 99.12 % and 98.29 % respectively. Observations indicate that the inception v3 model outperforms VGG-16 and ResNet-50. Also, the inception v3 network that is a sparse neural network has less computational overhead as compared to the other two networks. Sparse deep learning techniques may help radiologists accurately classify non-small cell lung cancer using CT images.



URL: <https://www.sciencedirect.com/science/article/pii/S1746809423009187>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: IEEE Transactions on Computational Social Systems

IF: 4.5

Title: Captionomaly: A Deep Learning Toolbox for Anomaly Captioning in Social Surveillance Systems

Author: Goyal A., Mandal M., Hassija V., Aloqaily M., Chamola V.

Details: Volume 11, Issue 1, Pages 207 – 215, February 2024.

Abstract: Real-time video stream monitoring is gaining huge attention lately with an effort to fully automate this process. On the other hand, reporting can be a tedious task, requiring manual inspection of several hours of daily clippings. Errors are likely to occur because of the repetitive nature of the task causing mental strain on operators. There is a need for an automated system that is capable of real-time video stream monitoring in social systems and reporting them. In this article, we provide a tool aiming to automate the process of anomaly detection and reporting. We combine anomaly detection and video captioning models to create a pipeline for anomaly reporting in descriptive form. A new set of labels by creating descriptive captions for the videos collected from the UCF-Crime (University of Central Florida-Crime) dataset has been formulated. The anomaly detection model is trained on the UCF-Crime, and the captioning model is trained with the newly created labeled set UCF-Crime video description (UCFC-VD). The tool will be used for performing the combined task of anomaly detection and captioning. Automated anomaly captioning would be useful in the efficient reporting of video surveillance data in different social scenarios. Several testing and evaluation techniques were performed. Source code and dataset: <https://github.com/Adit31/Captionomaly-Deep-Learning-Toolbox-for-Anomaly-Captioning>



URL: <https://ieeexplore.ieee.org/document/10021309>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Computer Networks

IF: 4.4

Title: PQCLP: Parameterized quantum circuit based link prediction in dynamic networks

Author: Singh N., Kumar M., Biswas B.

Details: Volume 241, March 2024, Article No.110210.

Abstract: Link prediction has been challenging, especially when the network is dynamic and complex. The most effective classical method for performing this task involved using machine learning algorithms with features taken from topological network indices. Even while these traditional ML algorithms perform better, they still require a lot of processing resources as the size and number of features in the network increase. This is the ideal situation where quantum computing may fit, as it provides impressive predictions and speedup arising out of quantum phenomena like superposition, entanglement, parallelization, and high dimensional space. Additionally, relatively little research has been done to examine the full potential of quantum computation for link prediction. A few of the earlier attempts are limited to projecting the features to quantum space and then using quantum-projected kernels with classical ML techniques or using hybrid classifiers by incorporating quantum enhancement in traditional random walks. We propose Parameterized Quantum Circuit based Link Prediction (PQCLP) model where we have used quantum circuits not only for projecting the classical data but also for training and optimization in quantum space using Variational Circuits Aka Ansatz which is a parameterized circuit. Here we employ two quantum methods namely Variational Quantum Classifier (VQC) and Quantum Neural Network Classifier (QNN) having classical equivalence with Support Vector Machines and Neural Networks respectively. We present here a detailed comparison of these models with their classical counterparts, within different feature categories and test ratios, and finally with a few state-of-the-art methods using several performance evaluation metrics.



URL: <https://www.sciencedirect.com/science/article/pii/S1389128624000422>





SCHOLARLY PUBLICATIONS

School of Computer Engineering

KIIT Deemed to be University

Journal Name: IEEE Transactions on Consumer Electronics

IF: 4.3

Title: A Blended Deep Learning Intrusion Detection Framework for Consumable Edge-Centric IoMT Industry

Author: Alzubi J.A., Alzubi O.A., Qiqieh I., Singh A.

Details: Volume 70, Issue 1, Pages 2049 - 2057, February 2024.

Abstract: The demand for medical sensors in the Smart Healthcare System (SHS) creates an intelligent Internet of Medical Things (IoMT) system. This system plays an important role in detecting the vital parameters of the human body. However, security and privacy issues in terms of network vulnerability have arisen due to the transmission of data and lack of control over the data. The Intrusion Detection System (IDS) is one of the security solutions to identify various threats and vulnerabilities in the consumable edge-centric IoMT industry. Several IDS techniques have been developed in previous years. However, a real-time and highly accurate attack detection system in the edge-centric IoMT industry is needed. This paper proposes a blended deep learning framework that leverages the strengths and capabilities of different deep learning architectures. The proposed model combined Convolutional Neural Network (CNN) and Long Short-Term Memory (LSTM) to recognize the latest intruders accurately and defend the healthcare data. The major outcome of the proposed framework is to detect different attacks during data transmission at the edge of the network with high accuracy and efficiency. The proposed model was analyzed on the CSE-CIC-IDS 2018 systematic dataset containing two distinct classes of profiles. The experimental results demonstrate that the proposed framework's accuracy is higher than the existing approach.



URL: <https://ieeexplore.ieee.org/document/10382176>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: IEEE Transactions on Consumer Electronics

IF: 4.3

Title: Advanced Learning for Phishing URLs Detection to Secure Consumer-Centric Applications

Author: Roy P.K., Kumar A., Singh A.

Details: 2024.

Abstract: This research aims to develop a machine learning-based phishing attack detection framework. Phishing attacks have become one of the most prevalent cybersecurity threats, potentially compromising sensitive information such as login credentials, financial details, and personal data. A machine learning (ML)-based approach for phishing URL detection can help improve the effectiveness and efficiency of phishing detection. The healthcare industry received multiple attacks recently, including phishing attacks. There may be multiple reasons behind the attacks, including outdated resources and weak security mechanisms. The proposed ML-based approach trained on a large dataset to learn the characteristics that distinguish Phishing and Non-phishing URLs to prevent the healthcare industry from phishing attacks, The features were taken from the URLs and provided to the model for training. By detecting phishing URLs in real time, individuals and organizations can take proactive measures to protect themselves from the damaging effects of phishing attacks. The proposed ML-based model detected the phishing URL with 99.00% accuracy, indicating that most attacks were detected.



URL: <https://ieeexplore.ieee.org/document/10537998>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: IEEE Transactions on Consumer Electronics

IF: 4.3

Title: Forecasting Bitcoin Prices Using Deep Learning for Consumer-Centric Industrial Applications

Author: Roy P.K., Kumar A., Singh A., Sangaiah A.K.

Details: Volume 70, Issue 1, Pages 1351 - 1358, 2024.

Abstract: As cryptocurrencies become more popular as investment vehicles, bitcoin draws interest from businesses, consumers, and computer scientists all across the world. Bitcoin is a computer file stored in digital wallet applications where each transaction is secured using strong cryptographic algorithms. It was challenging to forecast the future price of bitcoin due to its nonlinearity and extreme volatility. Several recent classic parametric models have been found with limited accuracy. To address the limitations and fill the existing research gaps, there is a need for a good prediction model which will provide the desired accuracy in the case of uncertainty and dynamism. This research suggested a deep learning-based framework for predicting and forecasting Bitcoin price. The research will be helpful for worldwide consumers and industries to take their decision on whether to invest or not. The research utilizes Yahoo! finance dataset for the period of 01-03-2016 to 26-02-2021 having 1828 samples. The experimental outcomes of the proposed Long Short-Term Memory (LSTM) model outperformed similar deep learning models by securing minimum loss and confirming that it can be used for future price prediction of the cryptocurrencies, which is helpful for the buyer to take their decision.



URL: <https://ieeexplore.ieee.org/document/10269098>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Cognitive Computation

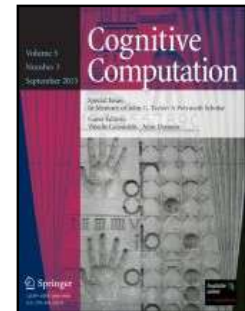
IF: 4.3

Title: Interpreting Black-Box Models: A Review on Explainable Artificial Intelligence

Author: Hassija V., Chamola V., Mahapatra A., Singal A., Goel D., Huang K., Scardapane S., Spinelli I., Mahmud M., Hussain A.

Details: Volume 16, Issue 1, Pages 45 – 74, January 2024.

Abstract: Recent years have seen a tremendous growth in Artificial Intelligence (AI)-based methodological development in a broad range of domains. In this rapidly evolving field, large numbers of methods are being reported using machine learning (ML) and Deep Learning (DL) models. Majority of these models are inherently complex and lacks explanations of the decision making process causing these models to be termed as 'Black-Box'. One of the major bottlenecks to adopt such models in mission-critical application domains, such as banking, e-commerce, healthcare, and public services and safety, is the difficulty in interpreting them. Due to the rapid proliferation of these AI models, explaining their learning and decision making process are getting harder which require transparency and easy predictability. Aiming to collate the current state-of-the-art in interpreting the black-box models, this study provides a comprehensive analysis of the explainable AI (XAI) models. To reduce false negative and false positive outcomes of these back-box models, finding flaws in them is still difficult and inefficient. In this paper, the development of XAI is reviewed meticulously through careful selection and analysis of the current state-of-the-art of XAI research. It also provides a comprehensive and in-depth evaluation of the XAI frameworks and their efficacy to serve as a starting point of XAI for applied and theoretical researchers. Towards the end, it highlights emerging and critical issues pertaining to XAI research to showcase major, model-specific trends for better explanation, enhanced transparency, and improved prediction accuracy.



URL: <https://link.springer.com/article/10.1007/s12559-023-10179-8>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: IEEE Transactions on Consumer Electronics

IF: 4.3

Title: Sustainable Fog-Assisted Intelligent Monitoring Framework for Consumer Electronics in Industry 5.0 Applications

Author: Tripathy S.S., Bebortta S., Gadekallu T.R.

Details: Volume 70, Issue 1, Pages 1501 – 1510, 2024.

Abstract: The fifth era of the industry (Industry 5.0) has been marked by the reformation witnessed in consumer electronics sector by bringing forth technology that could enhance efficiency, connectivity, and user experience. Industry 5.0 makes it possible to create intelligent consumer electronics products that can interact, analyse data, and instantly adjust to user preferences. Fog processing further enhances Industry 5.0 by bringing processing power closer to end-user devices at the network's edge. Traditional machine learning techniques are unsuitable for manufacturing use cases which demand high degree of interoperability and heterogeneity due to the unavailability of private data, which requires decentralized learning solutions. To address this, we designed a monitoring framework that uses deep reinforcement learning to predict the effect of mobile computing resources in manufacturing systems and detect disruptions in real time. Our framework is deployed at the Fog computing level and includes a dynamic rescheduling module that sustainably optimizes task assignment, improves execution accuracy, reduces delay, and maximizes the resource utilization. Numerical results demonstrate the efficiency of our scheme in managing task rescheduling and real-time disruption detection, depicting the sustainable utilization of available resources over the considered benchmark algorithms.



URL: <https://ieeexplore.ieee.org/document/10320383>





SCHOLARLY PUBLICATIONS

School of Computer Engineering

KIIT Deemed to be University

Journal Name: IEEE Transactions on Consumer Electronics

IF: 4.3

Title: Toward Multi-Modal Deep Learning-Assisted Task Offloading for Consumer Electronic Devices Over an IoT-Fog Architecture

Author: Tripathy S.S., Bebortta S., Haque M.I.U., Zhu Y., Gadekallu T.R.

Details: Volume 70, Issue 1, Pages 1656 - 1663, February 2024.

Abstract: Internet of Things (IoT) devices along with associated software have proliferated at an unprecedented pace, presenting the challenge of high energy use combined with latency during complex, time-sensitive transactions. Fog computing, i.e., a distributed computing paradigm, may be a potential remedy. However, despite these efforts, it is highly strenuous to regulate service latency and energy efficiency within the fog computing layer for IoT centered consumer electronics. In our research, we propose an algorithm called Dynamic Deep Reinforcement learning-based Task Offloading (DDTO). Therefore, in multi-modal IoT-Fog systems, the intelligent distribution of fog computing resources by DDTO is considered on the basis of resources constraints and the timeliness of completion of tasks. We use a log-normal distribution to describe delay and energy consumption so as to make up for varying modalities. Besides, a task prioritization problem, which is described as an integer programming problem, that minimizes service latency and energy consumption in fog servers is further described. DDTO yields better performance than a conventional Q-learning with respect to long-term expected rewards since it uses task priority weights derived from statistical latency and energy data. Experimental results demonstrate the benefits of DDTO on reducing service latency and consumption of energy, when compared to benchmark strategies, discussing issues with multiple modalities within IoT-Fog systems.



URL: <https://ieeexplore.ieee.org/document/10438859>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Marketing Intelligence and Planning

IF: 3.6

Title: Transforming customer engagement with artificial intelligence E-marketing: an E-retailer perspective in the era of retail 4.0

Author: Behera R.K., Bala P.K., Rana N.P., Algharabat R.S., Kumar K.

Details: May 2024.

Abstract: Purpose: With the advancement of digital transformation, it is important for e-retailers to use artificial intelligence (AI) for customer engagement (CE), as CE enables e-retail brands to succeed. Essentially, AI e-marketing (AIeMktg) is the use of AI technological approaches in e-marketing by blending customer data, and Retail 4.0 is the digitisation of the physical shopping experience. Therefore, in the era of Retail 4.0, this study investigates the factors influencing the use of AIeMktg for transforming CE. Design/methodology/approach: The primary data were collected from 305 e-retailer customers, and the analysis was performed using a quantitative methodology. Findings: The results reveal that AIeMktg has tremendous applications in Retail 4.0 for CE. First, it enables marketers to swiftly and responsibly use data to anticipate and predict customer demands and to provide relevant personalised messages and offers with location-based e-marketing. Second, through a continuous feedback loop, AIeMktg improves offerings by analysing and incorporating insights from a 360-degree view of CE. Originality/value: The main contribution of this study is to provide theoretical underpinnings of CE, AIeMktg, factors influencing the use of AIeMktg, and customer commitment in the era of Retail 4.0. Subsequently, it builds and validates structural relationships among such theoretical underpinning variables in transforming CE with AIeMktg, which is important for customers to expect a different type of shopping experience across digital channels.



URL: <https://www.emerald.com/insight/content/doi/10.1108/MIP-04-2023-0145/full/html>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Marketing Intelligence and Planning

IF: 3.6

Title: Empowering co-creation of services with artificial intelligence: an empirical analysis to examine adoption intention

Author: Behera R.K., Bala P.K., Rana N.P., Irani Z.

Details: May 2024.

Abstract: Purpose: Co-creation of services (CCOS) is a collaborative strategy that emphasises customer involvement and their expertise to increase the value of the service experience. In the service ecosystem, artificial intelligence (AI) plays a key role in value co-creation. Therefore, this study is undertaken to empirically uncover how AI can empower CCOS. Design/methodology/approach: The source data were collected from 305 service provider respondents and quantitative methodology was applied for data analysis. Findings: New service development augmented with AI provides tangible value to service providers while also providing intangible value to supportive customers. With AI, service providers adapt to new innovations and enrich additional information, which eventually outperforms human-created services. Research limitations/implications: AI adoption for CCOS empowerment in service businesses brings “service-market fit”, which represents the significant benefits wherein customers contribute to creativity, intuition, and contextual awareness of services, and AI contributes to large-scale service-related analysis by handling volumes of data, service personalisation, and more time to focus on challenging problems of the market. Originality/value: This study presents theoretical concepts on AI-empowered CCOS, AI technological innovativeness, customer participation in human-AI interaction, AI-powered customer expertise, and perceived benefits in CCOS, and subsequently discusses the CCOS empowerment framework. Then, it proposes a novel conceptual model based on the theoretical concepts and empirically measures and validates the intention to adopt AI for CCOS empowerment. Overall, the study contributes to novel insight on empowering service co-creation with AI.



URL: <https://www.emerald.com/insight/content/doi/10.1108/MIP-08-2023-0412/full/html>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Frontiers of Computer Science

IF: 3.4

Title: DNACDS: Cloud IoE big data security and accessing scheme based on DNA cryptography

Author: Singh A., Kumar A., Namasudra S.

Details: Volume 18, Issue 1, February 2024, Article Number 181801.

Abstract: The Internet of Everything (IoE) based cloud computing is one of the most prominent areas in the digital big data world. This approach allows efficient infrastructure to store and access big real-time data and smart IoE services from the cloud. The IoE-based cloud computing services are located at remote locations without the control of the data owner. The data owners mostly depend on the untrusted Cloud Service Provider (CSP) and do not know the implemented security capabilities. The lack of knowledge about security capabilities and control over data raises several security issues. Deoxyribonucleic Acid (DNA) computing is a biological concept that can improve the security of IoE big data. The IoE big data security scheme consists of the Station-to-Station Key Agreement Protocol (StS KAP) and Feistel cipher algorithms. This paper proposed a DNA-based cryptographic scheme and access control model (DNACDS) to solve IoE big data security and access issues. The experimental results illustrated that DNACDS performs better than other DNA-based security schemes. The theoretical security analysis of the DNACDS shows better resistance capabilities.



URL: <https://link.springer.com/article/10.1007/s11704-022-2193-3>





SCHOLARLY PUBLICATIONS

School of Computer Engineering

KIIT Deemed to be University

Journal Name: Frontiers in Physiology

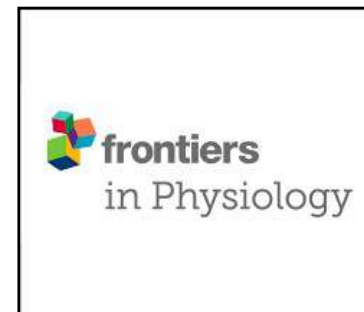
IF: 3.2

Title: BT-CNN: a balanced binary tree architecture for classification of brain tumour using MRI imaging

Author: Chauhan S., Cheruku R., Reddy Edla D., Kampa L., Nayak S.R., Giri J., Mallik S., Aluvala S., Boddu V., Qin H.

Details: Volume 15, Article number 1349111, 2024.

Abstract: Deep learning is a very important technique in clinical diagnosis and therapy in the present world. Convolutional Neural Network (CNN) is a recent development in deep learning that is used in computer vision. Our medical investigation focuses on the identification of brain tumour. To improve the brain tumour classification performance a Balanced binary Tree CNN (BT-CNN) which is framed in a binary tree-like structure is proposed. It has a two distinct modules-the convolution and the depthwise separable convolution group. The usage of convolution group achieves lower time and higher memory, while the opposite is true for the depthwise separable convolution group. This balanced binary tree inspired CNN balances both the groups to achieve maximum performance in terms of time and space. The proposed model along with state-of-the-art models like CNN-KNN and models proposed by Musallam et al., Saikat et al., and Amin et al. are experimented on public datasets. Before we feed the data into model the images are pre-processed using CLAHE, denoising, cropping, and scaling. The pre-processed dataset is partitioned into training and testing datasets as per 5 fold cross validation. The proposed model is trained and compared its performance with state-of-the-art models like CNN-KNN and models proposed by Musallam et al., Saikat et al., and Amin et al. The proposed model reported average training accuracy of 99.61% compared to other models. The proposed model achieved 96.06% test accuracy where as other models achieved 68.86%, 85.8%, 86.88%, and 90.41% respectively. Further, the proposed model obtained lowest standard deviation on training and test accuracies across all folds, making it invariable to dataset.



URL: <https://www.frontiersin.org/journals/physiology/articles/10.3389/fphys.2024.1349111/full>





SCHOLARLY PUBLICATIONS School of Computer Engineering KIIT Deemed to be University

Journal Name: Soft Computing

IF: 3.1

Title: Intelligent fault diagnostic system for rotating machinery based on IoT with cloud computing and artificial intelligence techniques: a review

Author: Maurya M., Panigrahi I., Dash D., Malla C.

Details: Volume 28, Issue 1, Pages 477 – 494, January 2024.

Abstract: The important part of mechanical equipment is rotating machinery, used mostly in industrial machinery. Rolling element bearings are the utmost dominant part in rotating machinery, so even small defects in these components could result in catastrophic system failure and enormous financial losses. Hence, it is crucial to create consistent and affordable condition monitoring and fault diagnosis systems that estimate severity level and failure modes and to create an appropriate maintenance strategy. The studies reveal that the fault diagnostic system focuses on single fault diagnosis of the shaft-bearing system. However, in real scenarios, the occurrence of a single fault is very unlikely. Thus, multifault diagnosis of the shaft-bearing system is of greater significance. This paper aims at steadily and broadly summarizing the development of the intelligent multifault diagnostic and condition monitoring systems. In addition, there is a rapid development of application of Internet of things, cloud computing and artificial intelligence techniques for fault diagnosis. In this paper, we summarize the study of various fault diagnostic system built on the architecture and application of these cutting-edge technologies for predictive maintenance of mechanical equipment.



URL: <https://link.springer.com/article/10.1007/s00500-023-08255-0>

