3.4.4 Details of books and chapters in edited volumes / books per teacher during the year

Sl. No.	Name of the Teacher	Title of the Book published	Title of the Chapter published	Year and month of publication	ISBN of the Book/Conference Proceeding	Affiliating Institute of the teacher at the time of publication	Name of the Publisher	Name of the Department
1	Dr.A.Meenakshi, Dr.R.Ramya, Dr.A.Anandh, Mrs.K.Muthulakshmi	Machine Learning for Bio metrics	Applying machine learning techniques to build a hybrid machine learning model for cancer prediction	**Jun-22**	978-0-323-85209-8	Kamaraj College of Engineering and Technology	Applications of Artificial Intelligence in E-Healthcare Systems	CSE
2	Dr.R.Muthuselvi, Dr.G.Nirmala	Principles and Applications of Socio- Cognitive and Affective Computing	Use of Socio-Cognitive and Affective Computing to Teach Emotions to Autistic Children	**Dec-22**	9781668438435	Kamaraj College of Engineering and Technology	IGI Global	CSE
3	Dr.R.Ramya, Dr.A.Anandh, Mrs.K.Muthulakshmi	Machine Learning for Bio metrics	Gender recognition from facial images using Multichannel Deeplearning Framework	**Jan-22**	978-0-323-85209-8	Kamaraj College of Engineering and Technology	Cognitive Data Science in Sustainable Computing	CSE

4	Dr.P.Praveen Kumar	Handbook of Big Data Analytics: Applications in Ict, Security and Business Analytics	Efficient ciphertext-policy attribute-based signcryption for secure big data storage in cloud	**Sep-21**	9781839530593	Kamaraj College of Engineering and Technology	Publisher: IET Handbook of Big Data Analytics: Applications in Ict, Security and Business Analytics	CSE
5	Dr.R.Ramya, Dr.A.Anandh, Mrs.K.Muthulakshmi, Ms.S.Janani	Block chain security in cloud computing	Blockchain-Powered Healthcare Information Exchange Systems to Support Various Stakeholders	**Aug-21**	978-3-030-70501-5	Kamaraj College of Engineering and Technology	EAI/Springer Innovations in Communication and Computing	CSE
6	Dr. S. Shamim Rishwana	Recent Developments in Nanofibers Research	Application of Metal-Organic Framework as Reactive Filler in Bisphenol-A-Based High-Temperature Thermosets	**Dec-22**	978-1-80356-387-9	Kamaraj College of Engineering and Technology	Intech Open	Chem
7	Dr.P.narayanasamy Mr.P.K.Parrthipan Dr.S.Senthil	Hybrid Natural Fiber Composites	A Review on the Factors Influencing Natural Fiber Composite Materials	**Aug-22**	9780128203866	Kamaraj College of Engineering and Technology	Elsevier	Mechanical

8	Mr.S.Manibalan	Bionanocomposites for Food Packaging Application	Polyglycolic acid-based bionanocomposites for food packaging applications	**Jan-22**	978-032388528-7	Kamaraj College of Engineering and Technology	Elsevier	BT

Applying machine learning techniques to build a hybrid machine learning model for cancer prediction

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Source: Applications of Artificial Intelligence in E-Healthcare Systems,2022

Publication date June 2022

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Abstract

With the arrival of the latest advancements in the area of medicine, massive amounts of information related to cancer are being collected and available on the market to the medical analysis community. However, forecasting disease is one of the foremost, fascinating, and difficult responsibilities of physicians. Machine learning methods are becoming a preferred tool for medical researchers. In our proposed method, a hybrid machine learning model (HMLM) is built using ensemble learning techniques, using stacking of models such as multilayer perceptron (MLP), decision tree (DT), support vector machine (SVM), and logistic regression (LR). Initially, preprocessing is done and then the output is passed to the feature selection method, where each feature is ranked in accordance with the dependent attribute. Once the features are selected, HMLM is used for classification. The output is then validated using a confusion matrix and also by calculating the score of the model. The proposed model performs well with the reduced number of features and gives higher accuracy than existing models.

Chapter Contents:

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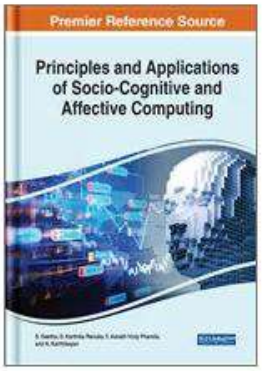

Use of Socio-Cognitive and Affective Computing to Teach Emotions to Autistic Children

R. Muthuselvi (Kamaraj College of Engineering and Technology, India) and G. Nirmala (Kamaraj College of Engineering and Technology, India)

Source Title: Principles and Applications of Socio-Cognitive and Affective Computing
 | Pages: 12

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Abstract

Learning aids in the development of attitude. It encourages the individual to learn new skills. It is critical to master three learning domains: cognitive, affective, and psychomotor. The cognitive computing system instantaneously processes data and gives solutions to questions. Affective computing is the development of tools that can recognise, understand, examine, and replicate human brains. Communication and behaviour are impacted by autism spectrum disorder (ASD), a developmental disease. ASD leads to have difficulty in interacting with society and communicating with society. It states that people with ASD have 1) difficulty in conversation and contact with other people, 2) symptoms that interfere with the person's ability to function normally in the society, and 3) restricted interests and repetitive behaviours. In the chapter, a computer-based model is developed for various emotions, facial expressions, and voice and body language. The aim is to develop a computer-based model that supports the autistic children to understand emotions and express their feelings.

Machine Learning for Biometrics
Concepts, Algorithms and Applications

Cognitive Data Science in Sustainable Computing

2022, Pages 105-128

Chapter 6 - Gender recognition from facial images using multichannel deep learning framework

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Available online 28 January 2022, Version of Record 28 January 2022.

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Abstract

Automated gender recognition is an attractive research area in computer vision. It has many application areas, such as biometric, human-computer interaction, demographic statistics, retail shops, surveillance, etc. It aims to identify gender through the appearance, behavior, and other aspects of a person. Our proposed convolutional neural network (CNN)-based approach does not use raw facial images for learning the features. First, featured images are constructed from raw images to represent a set of salient features. Then, more salient features are extracted using CNN-based networks in which the featured images are given as input. Then, the extracted salient features are fused together and given as input to the classifier, support vector machine, for recognizing the gender. Our proposed novel framework is tested using Adience benchmark dataset and the stated functionality requirements are met. From this work, it is inferred that using a CNN-based approach with featured images as input, effective gender recognition can be done and the learned features are more amenable for effective

Chapter

Efficient ciphertext-policy attribute-based signcryption for secure big data storage in cloud

September 2021
In book: Handbook of Big Data Analytics: Applications in Ict, Security and Business Analytics 2 (2021) (pp.73) · Publisher: IET

Authors:

Praveen Kumar Premkamal
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Abstract

Due to the huge volume and complexity of big data, outsourcing big data to a cloud is the best option for data storage and access, because the cloud has the capabilities of storing and processing of big data. However, data privacy, access control, and authentication are significant concerns for big data because the cloud cannot be fully trusted. Ciphertext-policy attribute-based signcryption (CP-ABSC) has been an effective cryptographic technique to provide privacy, access control, and authenticity in the cloud environment. However, the following two main issues of CP-ABSC that limits CP-ABSC scheme to deploy for big data in the cloud: (1) suffer from higher computation overheads during signcryption and designcryption and (2) CP-ABSC provides unlimited time data access rights as long as attributes satisfy the access policy which restricts to apply for commercial big data applications. This chapter proposes an efficient ciphertext-policy attribute-based signcryption (ECP-ABSC) for big data storage in cloud to address the previous two issues. ECP-ABSC scheme reduces the required number of exponentiation operations during signcryption and outsources the inflated pairing computation during the designcryption process, which, in turn, reduces the computation overhead of data owner and user. Our scheme also provides flexible access control by giving data access rights to unlimited times or a fixed number of times based on the user. This flexible access control feature increases the applicability in commercial applications. Further, we prove the desired security requirements of our scheme that include data confidentiality, signcryptor privacy, and unforgeability in security analysis. The feasibility and practicality of our scheme are provided in performance evaluation.

Blockchain Security in Cloud Computing, pp 189–206

Blockchain-Powered Healthcare Information Exchange Systems to Support Various Stakeholders

R. Ramya, A. Anandh, K. Muthulakshmi, S. Janani & N. Gayathri

Chapter | First Online: 13 August 2021

Part of the EAI/Springer Innovations in Communication and Computing book series (EAISICC)

Abstract

Initially, blockchain technology was emerged for the enhancement of financial transactions, as it is independent of the need to have any third party to verify the transactions. Progressively, it has been slightly modified based on the different application-specific requirements such as data security and privacy. One of the emerging applications of blockchain is E-healthcare that concerns mainly about integrity, authenticity, and consistency of patients' medical records. Due to the evolution of Internet of Things (IoT), a lot of healthcare data is being produced through the use

Chapter

Application of Metal-Organic Framework as Reactive Filler in Bisphenol-A-Based High-Temperature Thermosets

Chinnaswamy Thangavel Vijayakumar,
Saravanamuthu Siva Kaylasa Sundari,
Mahendran Arunjunai Raj
and Syed Mohammed Shamim Rishwana

Abstract

Excellent thermoset monomers, bisphenol-A-based biscyanate ester (BADCy) and bispropargyl ether (BPEBPA), are synthesized and thermally cured to high-temperature thermosetting polymers. The nanoporous aluminum fumarate (Al_FA_A), an interesting Metal-Organic Framework (MOF), is synthesized in an eco-friendly manner and used as a reactive nanoparticle filler. The interaction of fumarate π bonds (*trans* -CH=CH-) in MOF with the reactive end functional groups (-O-C ≡ N) in cyanate ester (CE) and (-CH_2-C ≡ CH) in bispropargyl (BP) ethers is focused in these hybrid nanocomposites. The % decrease in enthalpy of curing in the organic and the inorganic blends (~60% for CE and ~ 10% for BP) indicates the interaction exciting between the MOF and the organic component. The addition of the aluminum fumarate MOF increases the glass transition temperature of the polymers. The amount of heat released for every increase in 1°C during the temperature window of curing ($\Delta H_c/T_E$-T_S) of the neat BADCy resin is approximately 2.4 times higher than the blend (BADCy+Al_FA_A). But BPEBPA shows only a 1% higher temperature curing window compared to its blend with MOF. The metal hotspots present in the hybrid nanocomposites may be the reason for the decrease in the thermal stability, and the % char residue is noted at 700°C. The TG-FTIR studies are done to predict the gaseous products (CO_2) evolved during thermal degradation.

Keywords: biscyanate ester, bispropargyl ether, aluminum fumarate MOF, thermal properties, TG-FTIR

1. Introduction

The cyanate ester (CE) and the acetylene terminated (AT) resins are specialty materials and find applications in several fields. Of which, the bisphenol-A-based

CHAPTER TEN

A review on the factors influencing natural fiber composite materials

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10.1 Introduction

Composite material is a combination of two or more different materials that are chemically, structurally and physically different from each other. Since the composite material is a combination of two materials, the weakness of one material will be compensated by other material. Composite materials consist of two phases namely matrix and reinforcement. Matrix is generally responsible for bonding of reinforcements, whereas the duty of reinforcement is to transfer load. Third phase of composite material is known as fillers which may bring modifications in properties of composite materials. Fillers like rice husk, silica, graphite, and many others are generally used with composite materials [1]. Composite materials are broadly classified as synthetic and natural fiber reinforced composite (NFC) materials. NFCs are being used as a potential replacement for man-made synthetic fibers like aramid, glass, and carbon fiber because of its appreciable properties like low cost, low density, comparable specific tensile properties, nonabrasive to the equipment, nonirritation to the skin, reduced energy consumption, less health risk, renewability, recyclability, and bio-degradability. One of the main disadvantages of traditional fiber reinforced composite materials is its disposal, i.e., incineration. Drawbacks of NFC materials are high water absorption and poor wettability. However, several chemical treatments are available to overcome these drawbacks [2]. NFCs are a combination of polymer reinforced against natural fibers, namely, jute, sisal, banana, coir,

Hybrid Natural Fiber Composites
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Polyglycolic acid-based bionanocomposites for food packaging applications

9

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9.1 Introduction

Nondegradable polymers as food packing have been a threat to sustainable ecosystems. A low-cost better biodegradable polymer with excellent thermal, mechanical, and barrier properties is essential for food packing industries to protect the packed foodstuffs and the environment. Almost 79% of the plastic waste was accumulated in landfills and the incineration of plastics leads to carbon dioxide (CO_2) emissions and global warming (Geyer et al., 2017). Polymers derived from renewable sources and biological systems are considered biodegradable bioplastics. Biodegradable polymers are the subtype of bioplastics. A blend of Starch-based materials and synthetic polymers such as polylactic acids (PLAs), polyhydroxy butyrate-*co*-hydroxy valerate (PHBV), polycaprolactone (PCL), polyhydroxy butyrate (PHB), and polyglycolic acid (PGA) are some important biocomposites have been in practice as nanocomposite packaging materials (Samantaray et al., 2020). Among the above all, PGA and PLA are the most preferred ones in food industries because of their rigidity, thermal stability up to 225°C, and better resistance against oxygen and CO_2. Bioplastic packaging materials based on renewable biomass could be used as a sustainable alternative to petrochemically-originated plastic materials (Qamar et al., 2020). The innovative PGA polymer with better barrier property is made up of glycolic acid, which is obtained from petroleum and natural resources such as sugarcane, sugar beets, pineapple. PGA-based polymers will be degraded within three months, and the high crystallinity, insoluble in most organic solvents and soluble in fluorinated solvents. This solubility behavior helps make durable food packets (Jem & Tan, 2020; Samantaray et al., 2020). Additionally, the PGA-based polymers are nontoxic and also have better resistance than poly phenylene sulfide (PPS) and polyether ketone (PEEK). Biodegradable glycolic acid from ethylene glycol, preferably produced from renewable resources, raises demand for recycled and has been a significant trend in the food industry (Takahashi et al., 2016). In Ireland, Germany, South Africa, and Taiwan, governments have implemented the rule to

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