ALLIANCE UNIVERSITY
CENTER for ACADEMIC RESEARCH

RESEARCH PUBLICATIONS

FEBRUARY 2024

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FEBRUARY 2024

" Research is creating new knowledge. "

Neil Armstrong

" If we knew what we were doing, it wouldn't be called research, would it? "

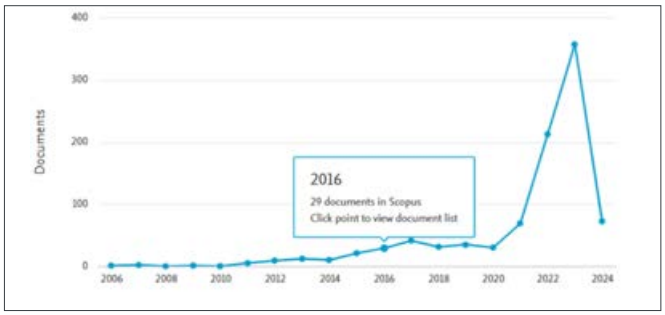
Albert Einstein

" Research is formalized curiosity. It is poking and prying with a purpose. "

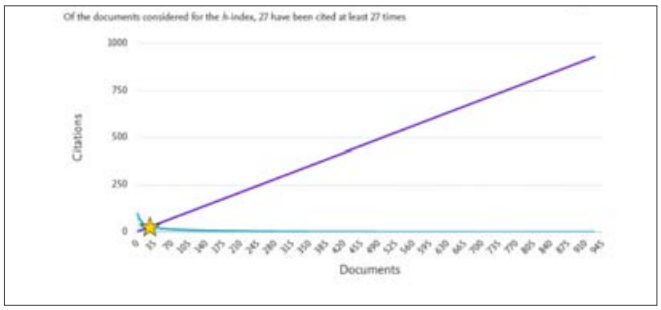
Zora Neale Hurston

939 document results

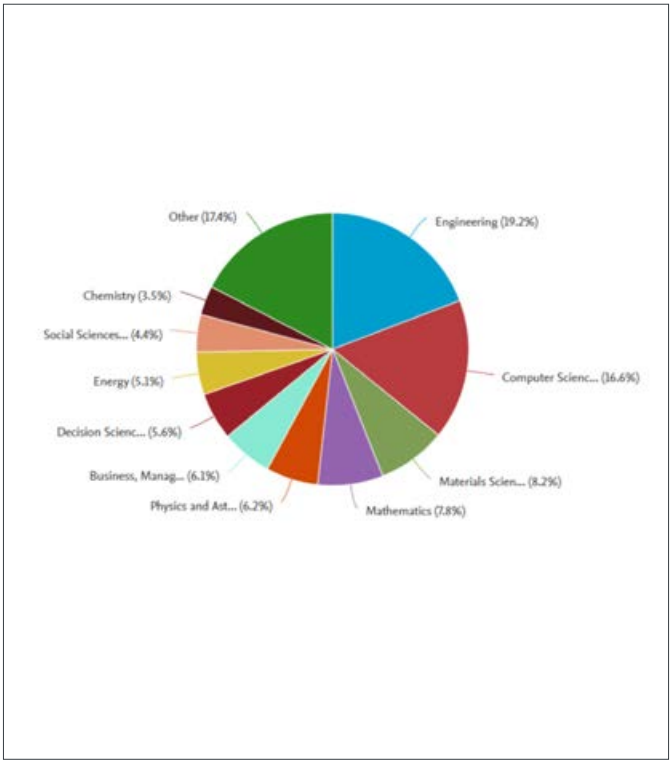
Documents by year



These documents *h*-index



Documents by subject area

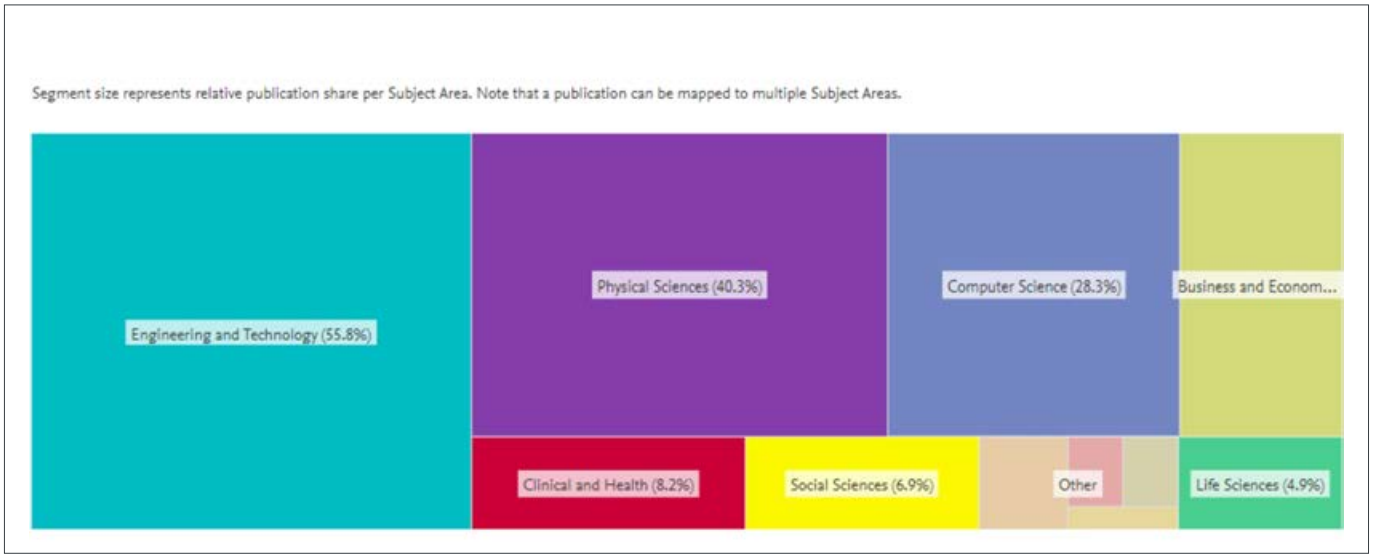


Summary

799	352	2,611	3.3	1.30
Scholarly Output	Authors	Citation Count	Citations per Publication	Field-Weighted Citation Impact

25.3%
All Open Access

Publication share by Subject Area



Performance indicators

Outputs in Top Citation Percentiles ⓘ

+ Add to Reporting

Publications in top 10% most cited worldwide

Show as field-weighted

Alliance University:
12.9%
India:
9.7%

Publications in Top Journal Percentiles ⓘ

+ Add to Reporting

Publications in top 10% journals

by CiteScore Percentile

Alliance University:
15.4%
India:
14.9%

International Collaboration ⓘ

Publications co-authored with Institutions in other countries/regions

Alliance University:
34.4%
India:
21.3%

Academic-Corporate Collaboration ⓘ

Publications with both academic and corporate affiliations

Alliance University:
0.8%
India:
1.2%

Geographical Collaboration

Metric		Scholarly Output	Citations	Citations per Publication	Field-Weighted Citation Impact
International collaboration	34.4%	275	1,458	5.3	2.12
Only national collaboration	46.1%	368	903	2.5	0.94
Only institutional collaboration	10.6%	85	122	1.4	0.87
Single authorship (no collaboration)	8.9%	71	128	1.8	0.54

Academic-corporate Collaboration

Academic-corporate collaboration by Alliance University in the selected year range.

Metric		Scholarly Output	Citations	Citations per Publication	Field-Weighted Citation Impact
Academic-corporate collaboration	0.8%	6	10	1.7	0.33
No academic-corporate collaboration	99.2%	793	2,601	3.3	1.31

SDG contributions

GOAL 1
NO POVERTY
9 documents

GOAL 2
ZERO HUNGER
9 documents

GOAL 3
GOOD HEALTH AND WELL-BEING
65 documents

GOAL 4
QUALITY EDUCATION
11 documents

GOAL 5
GENDER EQUALITY
8 documents

GOAL 6
CLEAN WATER AND SANITATION
22 documents

GOAL 7
AFFORDABLE AND CLEAN ENERGY
65 documents

GOAL 8
DECENT WORK AND ECONOMIC GROWTH
34 documents

GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE
65 documents

GOAL 10
REDUCED INEQUALITIES
16 documents

GOAL 11
SUSTAINABLE CITIES AND COMMUNITIES
17 documents

GOAL 12
RESPONSIBLE CONSUMPTION AND PRODUCTION
31 documents

GOAL 13
CLIMATE ACTION
23 documents

GOAL 14
LIFE BELOW WATER
4 documents

GOAL 15
LIFE ON LAND
1 document

GOAL 16
PEACE, JUSTICE AND STRONG INSTITUTIONS
14 documents

GOAL 17
PARTNERSHIPS FOR THE GOALS
112 documents

ABOUT ALLIANCE UNIVERSITY

Alliance University is a Private University established in Karnataka State by Act No.34 of year 2010 and is jointly recognized by the University Grants Commission (UGC), New Delhi, Bar Council of India (BCI) and the All-India Council for Technical Education (AICTE), New Delhi. Since its inception in 2010, Alliance University has been a forerunner in higher education, calling out to the new generation of scholars, engineers, scientists, artists, people in business, social reformers helping to shape and transform societies and communities through and beyond, around the world. Alliance University with a vibrant and picturesque campus in Bengaluru, one of the fastest growing cities in India, offers more than 20 undergraduate and postgraduate majors to approximately 7000 students of diverse backgrounds. Currently, that trailblazing spirit makes Alliance University, one of the most sought-after universities in the world, featuring top-ranked academic programmes such as Alliance School of Business, Alliance College of Engineering and Design, Alliance School of Law, and Alliance Ascent College, and newly commenced Alliance School of Liberal Arts.

Alliance University is a leader in global education, with world-class infrastructure, state of the art laboratories, international visiting faculty, exchange programmes with leading universities in the US, UK, and European Union, and linkages with Research Labs across the world. Education at Alliance University is designed to inspire our students to become critical thinkers and to lead and change the world.

Quartile – Q2 | **Percentile** – 93rd | **Impact Factor** – 8.3 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

NONLINEAR STABILITY OF CURVED MULTIPHASE COMPOSITE PANELS: INFLUENCE OF AGGLOMERATION IN RANDOMLY DISTRIBUTED CARBON NANOTUBES WITH NONUNIFORM IN-PLANE LOADS.

Chakraborty, S., Naskar, S., Dey, T., Kumar, R., Mukhopadhyay, T. *Journal of Aerospace Engineering 37(3),04024015*

Dr.Sumeet Chakraborty
Assistant Professor,
Alliance College of Engineering and Design,
Alliance University, Bangalore, INDIA

Abstract

The nonlinear stability characteristics of doubly curved panels made of three-phase composites with randomly dispersed carbon nanotubes [randomly dispersed carbon nanotube reinforced fiber composites (RD-CNTRFC)] subjected to practically relevant nonuniform in-plane loads are investigated in this study. Carbon nanotubes (CNTs), when mixed with resin polymer, may give rise to bundles, termed as agglomerations, which can have a profound impact on the effective material properties. There exists a strong rationale to investigate the influence of such agglomeration on the nonlinear equilibrium path of panels, which can subsequently be included in the structural stability design process to enhance operational safety. A multistage, bottom-up numerical framework is developed here to probe the nonlinear stability characteristics. The effective material properties of RD-CNTRFC panels are determined using the Eshelby–Mori–Tanaka approach and the Chamis method of homogenization. By considering von Kármán nonlinearity and Reddy's higher-order shear deformation theory, strain–displacement relations are established for the nonlinear stability analysis. The governing partial differential equations are simplified into nonlinear algebraic relations using Galerkin's method. Subsequently, by reducing the stiffness matrix neglecting the nonlinear terms and solving the Eigenvalue problem, we obtain critical load and nonlinear stability path of shell panels based on the arc-length approach. In the present study, various shell geometries such as cylindrical, elliptical, spherical, and hyperbolic shapes are modeled along with the flat plate-like geometry to investigate the nonlinear equilibrium paths, wherein a geometry-dependent programmable softening and hardening behavior emerges.

Author keywords- Doubly curved shells; Postbuckling analysis of composites; Programmable softening and hardening behavior; Randomly distributed carbon nanotubes (CNTs); Three-phase composites

Quartile – Q1 | **Percentile** – 58th | **Impact Factor** – 12.5 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

TECHNO-HUMANE FUTURES IN THE GLOBAL SOUTH: LESSONS FROM PROFESSOR SHONKU

Das, A., Ray, S. *Technovation 132,102987*

Dr. Arindam Das
Program Director,
MA Creative Writing and Ph.D. Liberal Arts
Department of Language & Literature
Alliance University, Bangalore, INDIA

Abstract

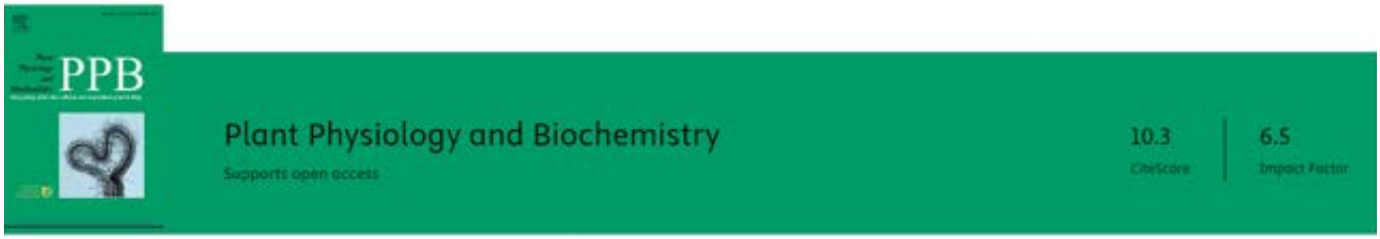
The Global South sci-fi explore and define ethical frameworks that can impact future AI agenda. The Global North technological and posthuman designs may learn from the Global South indegenous ethics-knowledge systems. Futuristic world AI/technology may seek creative inspiration from the sci-fi of the Global South.

Quartile – Q1 | **Percentile** – 58th | **Impact Factor** – 6.5 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

SILICON, A QUASI-ESSENTIAL ELEMENT: AVAILABILITY IN SOIL, FERTILIZER REGIME, OPTIMUM DOSAGE, AND UPTAKE IN PLANTS

Thakral, V., Raturi, G., Sudhakaran, S., (...), Sonah, H., Deshmukh, R. *Plant Physiology and Biochemistry 208,108459*

Dr. Shivaraj S.M.
Assistant Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA



Abstract

The essentiality of silicon (Si) has always been a matter of debate as it is not considered crucial for the lifecycles of most plants. But beneficial effects of endogenous Si and its supplementation have been observed in many plants. Silicon plays a pivotal role in alleviating the biotic and abiotic stress in plants by acting as a physical barrier as well as affecting molecular pathways involved in stress tolerance, thus widely considered as "quasi-essential". In soil, most of Si is found in complex forms as mineral silicates which is not available for plant uptake. Monosilicic acid [Si(OH)4] is the only plant-available form of silicon (PAS) present in the soil. The ability of a plant to uptake Si is positively correlated with the PAS concentration of the soil. Since many cultivated soils often lack a sufficient amount of PAS, it has become common practice to supplement Si through the use of Si-based fertilizers in various crop cultivation systems. This review outlines the use of natural and chemical sources of Si as fertilizer, different regimes of Si fertilization, and conclude by identifying the optimum concentration of Si required to observe the beneficial effects in plants. Also, the different mathematical models defining the mineral dynamics for Si uptake at whole plant scale considering various natural factors like plant morphology, mineral distribution, and transporter expression have been discussed. Information provided here will further help in increasing understanding of Si role and thereby facilitate efficient exploration of the element as a fertilizer in crop production.

Quartile – Q1 | **Percentile** – 86th | **Impact Factor** – 6.5 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

MEDICAL ULTRASOUND IMAGE SEGMENTATION USING MULTI-RESIDUAL U-NET ARCHITECTURE

Shereena, V.B., Raju, G. *Multimedia Tools and Applications 83(9), pp. 27067-27088*

Abstract

Advances in medical imaging modalities facilitate the early and accurate detection of tumors of various types. A preferred imaging modality for diagnosis and identification of tumors is the B-mode ultrasound imaging, but due to the noise and artifacts present, correct interpretation of lesions region becomes a difficult task for an inexperienced radiologist. In this context, an efficient and reliable computer-aided segmentation system is preferred for extracting regions of interest. Recently, conventional methods of segmentation have been replaced by deep learning methods. In this article, a novel Multi-Residual U-Net model is proposed for the segmentation of ultrasound medical images. This architecture adopts residual blocks to improve the performance of deep convolutional networks and a loss function that addresses the class imbalance issue. To improve the quality and reduce Speckle noise, input images are pre-processed using an optimized Non-Local Means filter. Three benchmark B-mode Ultrasound image datasets of 200 Breast lesion images, 504 Skeletal images, and 647 Breast Lesion images are used for experimentation. Experimental results demonstrate that the proposed model performs more accurate segmentation in comparison to the five deep models chosen for the study. © The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2023.

Author keywords- Convolutional Neural Networks; Multi-Residual U-Net; Non-Local Means; Ultrasound image Segmentation

Quartile – Q2 | **Percentile** – 86th | **Impact Factor** – 6.5 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

HIGH-SPEED LOW POWER ENERGY EFFICIENT 1- TRIT MULTIPLIER WITH LESS NUMBER OF CNTFETS

Musala, S., Gajula, R.M., Reddy, S.V.R.S., Reddy, P.P. *Multimedia Tools and Applications 83(8), pp. 23297-23309*

Ramana Murthy Gajula
Professor
Department of ECE, ACED
Alliance University, Bangalore, INDIA

Abstract

Ternary logic has an advantage over conventional binary logic since it uses less power and promises to take up less space on chips and in interconnects. When ternary logic is used to design multiplier circuits, they exhibit good efficiency. A device known as a carbon nanotube field-effect transistor (CNTFET) offers more benefits than a MOSFET, including low off-current characteristics like low power and good performance. In this paper, a new 1-trit multiplier design is suggested along with a comparison of four 1-trit multiplier ideas based on CNTFETs. Power, latency, PDP, and the number of transistors is compared. Power, speed, and PDP are all improved by the suggested 1-trit multiplier. There are fewer transistors required. The Cadence Virtuoso Tool simulates each of these circuits using CNTFET 32 nm technology. © The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2023.

Author keywords- CNTFETS; Hybrid design; Ternary decoder; Ternary multiplexer

Quartile – Q1 | **Percentile** – 99th | **Impact Factor** – 11.1 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

EXTRACTION, CHARACTERIZATION, AND LIFE CYCLE ASSESSMENT OF NANOSILICA FROM MILLET HUSK: A SUSTAINABLE ALTERNATIVE WITH LOW ENVIRONMENTAL IMPACT

Dominic C D, M., Rosa, D.D.S., Barbosa, R.F.D.S., Jyotishkumar Parameswaranpillai, Shelke, A., Pasc, A. *Journal of Cleaner Production 442,140924*

Dr. Jyotishkumar Parameswaranpillai
Associate Professor, Department of Sciences,
Alliance University, Bangalore, INDIA

Abstract

Eco-friendly approaches for silica production are highly researched to respond increasing industrial demand for bio-nanofillers. Herein, nanosilica of 10–20 nm with mesoporosity was obtained through a mild oxalic acid pre-treatment of millet husk, followed by calcination at 700 °C for 2 h. Compared with commercial precipitated silica (CS) and millet husk ash (MHA) directly obtained by calcination of the husk, the pre-treated silica (MHS) had higher purity, revealed using EDX spectroscopy. Moreover, FTIR and 29Si NMR showed a higher condensation degree in MHS with 73% of Q4 siloxane bonds vs 4% in MHA. The release of the metal and organic impurities from the husk also allows to reduce the crystallinity of MHS, and to increase the specific surface area from 82 m2/g in MHA to 238 m2/g in MHS. The type II N2 adsorption-desorption isotherms of MHA and MHS indicate aggregates of non-porous silica particles. MHS also demonstrated remarkable thermal resilience. According to the LCA analysis, MHS has a 40% lower impact on global warming, a 38% lower impact on human carcinogenic toxicity, and a 38% lower impact on terrestrial acidification compared to rice husk nanosilica. This research thus addresses sustainability challenges by repurposing millet husks, which are readily available due to continuous millet cultivation, particularly in India. By reducing the ecological impact of husk disposal through burning, this study offers an economically viable technology for high-purity silica production, aligning with global efforts to combat climate change and promote sustainable practices. © 2024 Elsevier Ltd

Author keywords- Life cycle assessment; Millet husk; Nanosilica; Oxalic acid

Quartile – Q3 | **Percentile** – 64th | **Impact Factor** – 3.0 | SDG 07 AFFORDABLE AND CLEAN ENERGY

BAYESIAN PROBABILISTIC MODELING IN ROBOSOCCER ENVIRONMENT FOR ROBOT PATH PLANNING

Steffi, D., Mehta, S., Venkatesh, K.A. *Bulletin of Electrical Engineering and Informatics 13(1), pp. 465-472Shelke, A., Pasc, A. Journal of Cleaner Production 442,140924*

Dr. K A Venkatesh
Professor & Registrar (Examination & Evaluation)
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

iaes Bulletin of Electrical Engineering and Informatics
http://beei.org | ISSN 2089-3191, e-ISSN 2302-9285
3.0 Q3 SJR 2022 0.299 SNIP 2022 0.639

Abstract

The main goal of a route planning approach is to find a trajectory that safely transports the robot from one site to the next. Furthermore, it should provide an energy-efficient path so the computer can calculate it rapidly. This study develops a path-planning system for robots to approach the ball without collision. The Bayesian optimization algorithm (BOA) is used to identify the shortest path between the robot and the ball. BOA employs a probabilistic model to seek the optimum of an uncertain objective function efficiently. The performance of the BOA-based path planning system is compared to other optimization algorithms such as genetic algorithm, ant colony optimization, and firefly algorithm. BOA's acquisition functions such as expected improvement, probability of improvement (PI), and upper confidence bound, are investigated. The exact locations of the robots and the ball are fed into optimization problems to discover the optimum path. The results reveal that the BOA system outperforms other systems in terms of computational time for planning the optimum path in dynamic situations and BOA-PI is the fastest algorithm.

Author keywords- Bayesian optimization algorithm; Dynamic environments; Optimization algorithms; Path planning; Robotics

Quartile – SCOPUS | **Percentile** – 58th | **Impact Factor** – 3.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

WEAR AND HARDNESS CHARACTERIZATION OF HOT FORGED TUNGSTEN CARBIDE REINFORCED ALUMINIUM 6061 COMPOSITE MATERIALS

Schiopu, A.-G., Girish, B.M., Satish, B.M., Shubha, S. *Engineering, Technology and Applied Science Research 14(1), pp. 12688-12693*

Dr. Girish B. M.
Professor & HOD - Mechanical Engineering
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

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Vol. 14 No. 1 (2024): February, 2024

Abstract

The current study intends to examine how forging under hot conditions affects wear characteristics of tungsten carbide (WC) particles reinforced aluminum alloy 6061 composites. The reduction ratios of 20%, 40%, and 60% were employed during forging, and the percentages of reinforcement used were 0, 2, 4, and 6 (weight fractions). The investigation clearly showed that the forged composites had a substantially lower wear rate than the unforged composites. It was discovered that the wear behavior of the composite improved due to the higher content of WC particles present in the matrix. Enhanced wear rate was observed as the weight and sliding distance increased.

Author keywords- aluminum alloy; composites; hardness; hot forging; tungsten carbide; wear

Quartile – 12 | **Percentile** – 79th | **Impact Factor** – 4.6 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

GAUSSIAN ADAPTED MARKOV MODEL WITH OVERHAULED FLUCTUATION ANALYSIS-BASED BIG DATA STREAMING MODEL IN CLOUD

Ananthi, M., Gopal, A., Ramalakshmi, K., Kumar, P.M. *Big Data 12(1), pp. 1-18*

Dr. K. Ramalakshmi
Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

Big Data

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Abstract

An accurate resource usage prediction in the big data streaming applications still remains as one of the complex processes. In the existing works, various resource scaling techniques are developed for forecasting the resource usage in the big data streaming systems. However, the baseline streaming mechanisms limit with the issues of inefficient resource scaling, inaccurate forecasting, high latency, and running time. Therefore, the proposed work motivates to develop a new framework, named as Gaussian adapted Markov model (GAMM)—overhauled fluctuation analysis (OFA), for an efficient big data streaming in the cloud systems. The purpose of this work is to efficiently manage the time-bounded big data streaming applications with reduced error rate. In this study, the gating strategy is also used to extract the set of features for obtaining nonlinear distribution of data and fat convergence solution, used to perform the fluctuation analysis. Moreover, the layered architecture is developed for simplifying the process of resource forecasting in the streaming applications. During experimentation, the results of the proposed stream model GAMM-OFA are validated and compared by using different measures.

Quartile – Q1 | **Percentile** – 58th | **Impact Factor** – 3.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

CARBON-BASED TWO-DIMENSIONAL (2D) MATERIALS: A NEXT GENERATION BIOCIDAL AGENT

Talreja, N., Chuahan, D., Ashfaq, M. *Materials Advances 5(4), pp. 1454-1461*

Dr. Neetu Talreja
Assistant Professor, Department of Sciences,
Alliance University, Bangalore, INDIA

From the journal:
Materials Advances

Abstract

Two-dimensional materials (2D-Ms) such as graphene, carbon nitride (C3N4), and MXene have attracted significant attention due to their excellent physico-chemical properties, including high surface area-to-volume ratio, biocompatibility, mechanical strength, high conductivity, etc. There has been growing interest in utilizing 2D-Ms for antibacterial applications including photo-antibacterial activity. The rise of antibiotic-resistant bacteria has made new antibiotic materials imperative, and 2D-Ms have shown promise in this area. One of the main advantages of 2D-Ms for antibacterial applications is their high surface area-to-volume ratio, which increases contact between the material and bacteria, leading to more effective antibacterial properties. Additionally, some carbon-based 2D-Ms (CB-2D-Ms) have been shown to have intrinsic antibacterial properties, such as graphene and its derivatives, g-C3N4, MXene, etc., as backbone carbon provides mechanical support, which can be further enhanced by functionalization with biocidal agents (metals/metal oxides, surface functional groups, and polymers). This mini-review highlights the latest developments in CB-2D-Ms, such as graphene and its derivatives, C3N4, MXenes, etc., as antibiotic materials to control bacterial infection. Herein, we correlate the exclusive range of 2D properties of CB-2D-Ms with their antimicrobial actions. Lastly, challenges and future perspectives in this area of CB-2D-Ms are also described.

Quartile – Q2 | **Percentile** – 58th | **Impact Factor** – 3.0 | SDG 03 GOOD HEALTH AND WELL-BEING

IMPRESSIVE PREDICTIVE MODEL FOR BREAST CANCER BASED ON MACHINE LEARNING

Selvaraj, S., Thangavel, S., Prabhakaran, M., Sathish, *T. EAI Endorsed Transactions on Pervasive Health and Technology 10*

Mr. Prabhakaran M.
Assistant Professor & ERP Coordinator (FE&T)
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

Abstract

INTRODUCTION: Breast cancer is a major health concern for women all over the world. OBJECTIVES: In order to reduce mortality rates and provide the most effective treatment, Histopathology image prognosis is essential. When a pathologist examines a biopsy specimen under a microscope, they are engaging in histopathology. The pathologist looks for the picture, determines its type, labels it, and assigns a grade. METHODS: Tissue architecture, cell distribution, and cellular form all play a role in determining whether a histopathological scan is benign or malignant. Manual picture classification is the slowest and most error-prone method. Automated diagnosis based on machine learning is necessary for early and precise diagnosis, but this challenge has prevented it from being addressed thus far. In this study, we apply curvelet transform to a picture that has been segmented using k-means clustering to isolate individual cell nuclei. RESULTS: We analysed data from the Wisconsin Diagnosis Breast Cancer database for this article in the context of similar studies in the literature. CONCLUSION: It is demonstrated that compared to another machine learning algorithm, the IICA-ANN IICA-KNN and IICA-SVM-KNN method using the logistic algorithm achieves 98.04% accuracy. © 2024 S. Selvaraj et al.

Author keywords- Breast Cancer; Classification; Human intelligence; MRI image; Segmentation

Quartile – Q2 | **Percentile** – 58th | **Impact Factor** – 3.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

DETECTION OF LUNG AND COLON CANCER USING AVERAGE AND WEIGHTED AVERAGE ENSEMBLE MODELS

Gunasekaran, H., Deepa Kanmani, S., Ebenezer, S., Blessing, W., Ramalakshmi, K.
EAI Endorsed Transactions on Pervasive Health and Technology 10

Dr. K. Ramalakshmi
Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

Abstract

INTRODUCTION: Cancer is a life-threatening condition triggered by metabolic irregularities or the convergence of hereditary disorders. Cancerous cells in lung and colon leads more death rate count in the human race today. The histological diagnosis of malignant cancers is critical in establishing the most appropriate treatment for patients. Detecting cancer in its early stages, before it has a chance to advance within the body, greatly reduces the risk of death in both cases. OBJECTIVES: In order to examine a larger patient group more efficiently and quickly, researchers can utilize different methods of machine learning approach and different models of deep learning used to speed up the detection of cancer. METHODS: In this work, we provide a new ensemble transfer learning model for the rapid detection of lung and colon cancer. By ingtegrating various models of transfer learning approach and combining these methods in an ensemble, we aim to enhance the overall performance of the diagnosis process. RESULTS: The outcomes of this research indicate that our suggested approach performs better than current models, making it a valuable tool for clinics to support medical personnel in more efficiently detecting lung and colon cancer. CONCLUSION: The average ensemble is able to reach an accuracy of 98.66%, while the weighted-average ensemble with an accuracy of 99.80%, which is good with analysis of existing approaches.

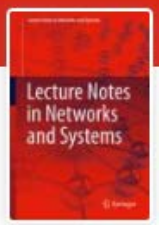
Author keywords- Average Ensemble; Ensemble Models; Lung and Colon Cancer; Transfer Learning approach; Weighted average ensemble method

Quartile – Q4 | **Percentile** – 58th | **Impact Factor** – 0.1 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

PREVENTION AND MITIGATION OF INTRUSION USING AN EFFICIENT ENSEMBLE CLASSIFICATION IN FOG COMPUTING

Paul, P.M., Shekhar, R., Jingle, I.D.J., Jingle, I.B.J. *Lecture Notes in Networks and Systems 898, pp. 173-181*

Dr. P. Mano Paul
Associate Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA



Book series
Lecture Notes in Networks and Systems

Abstract

Cloud services in fog network is a platform that inherits software services to a network to handle cloud-specific problems. A significant component of the security paradigm that supports service quality is represented by intrusion detection systems (IDSs). This work develops an optimization environment to mitigate intrusion using RSLO classifier on a cloud-based fog networks. Here, a three-layer approach namely the cloud, end point, and fog layers is used as a trio to carry out all of the processing. In the cloud layer, three layers of processing are required for handling the dataset metrics which are data transformation metrics, feature selection metrics, and classification processes. With log transformation, data is transformed using KS correlation-based filter which is used to choose a feature. The classification using an ensemble methodology of RideNN classifiers which is a Rider Sea Lion Optimization (RSLO), a created classifier, is used to tune the ensemble classifier. Physical work is carried out at another layer called an end point layer. A trained ensemble classifier is used for intrusion detection in the fog layer. A greater precision, recall, and F-measure were obtained with an accuracy approximately 95%, with all benefits of the suggested RSLO-based ensemble strategy. © The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2024.

Author keywords- Cloud computing; Ensemble classifier; Fog computing; Intrusion

Quartile – Q1 | **Percentile** – 58th | **Impact Factor** – 4.3 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

SECURE ARTIFICIAL INTELLIGENCE FOR PRECISE VEHICLE BEHAVIOR PREDICTION IN 6G CONSUMER ELECTRONICS

Haider, S.A., Ramesh, J.V.N., Raina, V., (...), Patni, J.C., Singh, P.P. *IEEE Transactions on Consumer Electronics pp. 1-1*

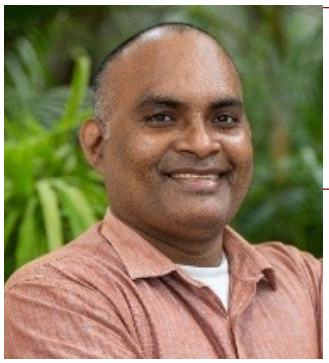
Dr. Jagdish Chandra Patni
Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

Abstract

In the context of Secure Artificial Intelligence for 6G Consumer Electronics, accurately predicting vehicle behavior in dynamic traffic scenarios is a significant challenge in intelligent transportation. To avoid sending all raw data to a centralized cloud server, this study presents an artificial intelligence (AI) based distributed machine learning framework (AICEML) that can run on local edge devices. This method protects user privacy while minimizing transmission and processing delays. Accurate predictions are maintained despite the presence of many cars because to AICEML's use of the model on edge devices, which incorporates edge-enhanced attention and graph convolutional neural network features to swiftly collect and transmit vehicle interaction information. Each edge device can adapt its neural network type and scale based on its computing capabilities, accommodating various application scenarios. Experimental results using the NGGSIM dataset demonstrate AICEML's superiority, achieving precision, recall, and F1 scores of 0.9391, 0.9557, and 0.9473, respectively. With a 1-second prediction horizon, it maintains 91.21% accuracy and low time complexity even as the number of vehicles increases. This framework holds promise for enhancing intelligent transportation systems in the 6G era while prioritizing security and efficiency. IEEE

Author keywords- 6G Consumer Electronics; Behavioral sciences; Communication Efficiency; Computational modeling; Data models; Edge Computing; Hidden Markov models; Neural networks; Secure Artificial Intelligence; Servers; Training; Vehicle Behavior Prediction

Quartile – Q4 | **Percentile** – 22nd | **Impact Factor** – 1.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES



CALCULATING GLOBAL MINIMUM POINTS TO BINARY POLYNOMIAL OPTIMIZATION PROBLEM: OPTIMIZING THE OPTIMAL PMU LOCALIZATION PROBLEM AS A CASE-STUDY

Theodorakatos, N.P., Moschoudis, A.P., Babu, R. *Journal of Physics: Conference Series 2701(1),012001*

Dr. Rohit Babu
Assistant Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

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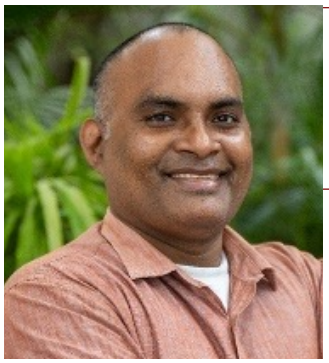
Abstract

State estimation (SE) is an algorithmic function of an energy management system (EMS). SE provides an actual-time monitoring and control of modern electrical power grids. State Estimation can be worked with sufficiency using Phasor Measurement Units optimally placed within a power grid. This paper concerns the implementation of proper algorithms embedded in optimization solvers to the optimal PMU localization problem solving globally. The optimization model is formulated as a 0 - 1 nonlinear minimization problem. The problem is transformed to a polyhedron using linearization methods and B&B tree. In this model, we use a linear cost function under polynomial constraints and binary restrictions on the design variables in a symbolic format. This mathematical model is programmed in the YALMIP environment which is fully compatible with MATLAB. The 0 - 1 Nonlinear Programming (NLP) model is suitable for getting concisely global optimal solutions. The optimal solution is given by a wrapped optimization engine including a local optimizer routine performing together with a mixed-Integer-Linear Programming routine. The solution is achieved within a zero-gap precisely encountered during the iterative process. This tolerance criterion is a necessity for a successful implementation of the B&B tree because it ensures global optimality with an acceptance relative gap. The minimization model is implemented in a YALMIP code fully compatible with MATLAB in two stages. Initially, an objective function with one term is minimized to discover a number of sensors for wide-area monitoring, control and state estimator applications. Then, an extra product is considered in the objective to suffice maximum reliability for observing the network buses. The numerical minimization models are applied to standard power networks in the direction to be solved globally.

Quartile – Q4 | **Percentile** – 22nd | **Impact Factor** – 1.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES



AN INCOMPLETE OBSERVABILITY-CONSTRAINED PMU ALLOCATION PROBLEM BY USING MATHEMATICAL AND EVOLUTIONARY ALGORITHMS

Theodorakatos, N.P., Babu, R., Moschoudis, A.P. *Journal of Physics: Conference Series 2701(1),012013*

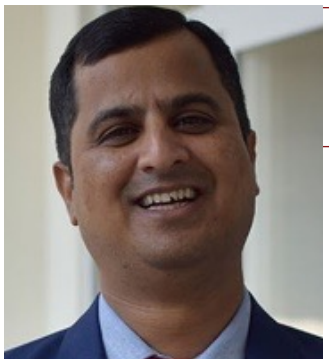
Dr. Rohit Babu
Assistant Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

ISSN: 1742-6596

Abstract

The purpose of this paper is to introduce several optimization algorithms that can be used to address optimization models in the power network, where the level of observability may be either complete or incomplete. These algorithms include discrete, continuous and metaheuristic methods. Initially, the optimization problem is approached by implementing a zero-one mixed integer linear program solved by several methods, including branch and bound revised simplex and primal dual-simplex in combination with interior point algorithms. To solve the problem of depth-one-unobservability (DoOU), a nonlinear program is proposed using Sequential Quadratic Programming (SQP), Interior-Point methods (IPMs) or YALMIP\s branch-and-bound algorithm. Additionally, the paper proposes the use of metaheuristic algorithms, such as Genetic Algorithms (GAs) and Binary Particle Swarm Optimization (BPSO), to solve optimization problems under incomplete observability. The proposed algorithms are tested using simulations on IEEE standard systems to illustrate their efficiency and reliability in solving the optimization problem under partial observability. Overall, the paper concludes that these algorithms can efficiently lead to the optimum point in a reasonable runtime. Hence, this work examines the problem of putting a restricted PMUs number to make the DoOU and to give a feedback to the state estimation routine accuracy.

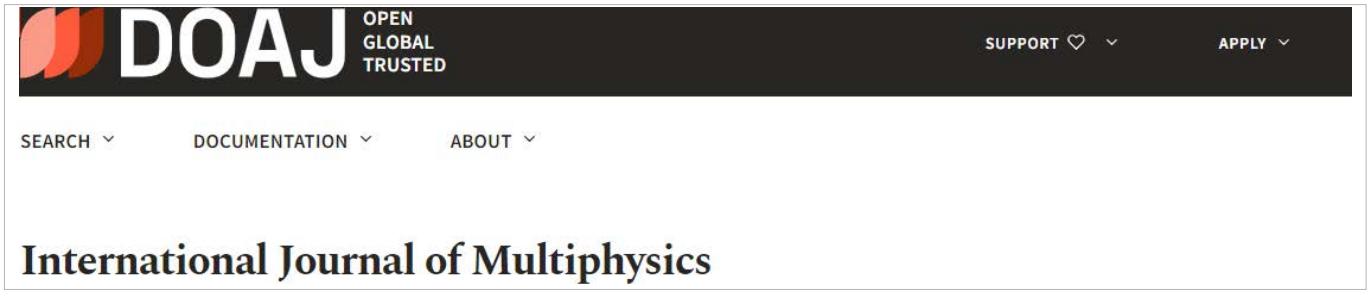
Quartile – Q3 | **Percentile** – 31st | **Impact Factor** – 1.3 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES



PLASMA-BASED SURFACE MODIFICATION APPLICATIONS OF BIOMATERIALS - A REVIEW

Deepak, G.D., Atul, Anne, G. *International Journal of Multiphysics 18(1), pp. 47-66*

Dr. Atul
Assistant Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA



Abstract

Plasma-surface modification method (PSMM) is an efficient and inexpensive surface processing method for various materials and has generated great interest in the field of biomedical engineering. This paper focuses on the numerous conventional plasma methods and experimental approaches applied to materials research for suitable biomedical applications, including plasma deposition, laser plasma deposition, plasma sputtering and etching, plasma polymerization, plasma spraying, plasma implantation, and so on. The distinctive benefit of plasma modification is its biocompatibility and surface properties can be enhanced on a selective basis while the bulk characteristics of the materials stay unaltered. Existing materials can hence be used and the requirement for new materials may be circumvented thereby reducing the time for the development of novel and efficient biomedical devices.

Quartile – Q3 | **Percentile** – 31st | **Impact Factor** – 3.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

OPTIMISING WASTE COLLECTION AND RECYCLING IN URBAN AREAS WITH VANET

Rajagopal, R., Gandh, M.A., Selvam, N., (...), Mishra, N., Rajaram, A. *Journal of Environmental Protection and Ecology 25(1), pp. 115-122*

Dr. R. Rajagopal
Associate Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

Journal of Environmental Protection and Ecology

International Journal edited by the Balkan Environmental Association (B.E.N.A.) for rapid scientific and other information, covering all aspects of the problems of sustainable development and ecology.

Abstract

In urban environments, the rising challenges of conventional waste management systems necessitate innovative solutions to optimise efficiency and sustainability. The innovative Smart Waste Collection System proposed in this research makes use of Vehicular Ad-Hoc Networks (VANET) technology. The system integrates intelligently designed smart waste bins and vehicles with a centralised control system to enhance the entire waste management lifecycle. The smart waste bins are equipped with ultrasonic and RFID sensors for real-time monitoring of fill levels and waste types. These bins communicate seamlessly with waste collection vehicles via VANET, ensuring swift and efficient data exchange. The waste collection vehicles, equipped with GPS and VANET connectivity, continuously transmit real-time information to the centralised control system. The system architecture encompasses roadside units, dedicated VANET communication protocols, and robust security measures to facilitate reliable and secure communication. At the core of the system is a centralised control system comprising a high-performance server infrastructure, an optimised database for data storage and retrieval, and a sophisticated route optimisation algorithm. The algorithm factors in dynamic variables such as fill levels, traffic conditions, and proximity to recycling facilities to optimise waste collection routes in real-time. A user-friendly interface provides stakeholders with the tools needed for monitoring, reporting, and system management. This research envisions a transformative shift towards a more sustainable and efficient waste management paradigm, capitalising on the power of VANET technology. The proposed Smart Waste Collection System not only promises to reduce operational inefficiencies but also aims to contribute to environmental conservation by promoting optimal waste disposal practices and fostering a circular economy. The study includes a comprehensive methodology for

the implementation and evaluation of the proposed system, incorporating simulations and case studies to validate its effectiveness in diverse urban settings.

Author keywords- data-driven decision-making; real-time monitoring; route optimisation; smart waste management; urban sustainability; VANET

Quartile – Q1 | **Percentile** – 95th | **Impact Factor** – 6.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

CARGO CULTISM AND THE WHITENESS SYNDROME: FAKE INTERNATIONALIZATION OF PRIVATE UNIVERSITIES OF INDIA

Dey, S., Chakraborty, A. *Journal of Applied Learning and Teaching 7(1)*

Dr. Sayan Dey
Assistant Professor
Department of Language & Literature
Alliance University, Bangalore, INDIA

Abstract

One of the many visions of the National Education Policy 2020 (NEP, 2020), is to make efforts to internationalize the higher education system of the country. The purpose of internationalization is to make sure that like the universities from Europe, the US, Australia and other white-centric geopolitical locations of the world, the universities in India can attain global distinctions in terms of rankings, publications, curriculums and pedagogies. However, the execution process is plagued with flawed, superficial and grossly researched policies. To explain further, the initiatives for internationalizing the higher education systems are being undertaken at a rapid pace and in uncritical ways. For example, the focus of internationalization is centered on private universities, with not much focus on government-run institutions. In the name of student and faculty exchange programs, the universities in India are being flooded with white academicians whose physical visibility matters more than scholarliness. Their visibility on the university campuses is regarded as a potential marketing tool to initiate various forms of degree programs and motivate students to pay enormous amounts of registration fees. This opinion piece discusses how the project of internationalization of universities in India is engulfed with the phenomena of cargo cultism and whiteness syndrome. The arguments have been supported with personal conversations with two research participants from two private universities that are based in Noida and Hyderabad. Besides personal conversations, the arguments have also been supported by informal conversations with friends and colleagues and by analyzing photos, videos, and writings that are posted on social media by the university as markers of appreciation and success.

Author keywords- Cargo cultism; internationalization; National Education Policy 2020 (NEP, 2020); privatization; whiteness syndrome

Quartile – Q2 | **Percentile** – 60th | **Impact Factor** – 1.0 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

FRUGALITY, ALTRUISM, AND CONSCIOUSNESS FOR SUSTAINABLE CONSUMPTION AMONGST ADULTS IN INDIA

Babu, K., Agarwal, M., Aimen, I., (...), Burman, N., Savla, *H. Studies in Systems, Decision and Control 515, pp. 301-312*

Dr. Kiran Babu N C
Associate Professor
Alliance School of Liberal Arts and Humanities
Alliance University, Bangalore, INDIA

Abstract

This research investigates the associations between Frugality, Altruism, and Consciousness for Sustainable Consumption among Indian adults. 332 participants responded to the self-report questionnaires - Frugal Behaviour Scale, Adapted Self Report Altruism Scale and Consciousness for Sustainable Consumption Scale. Employing quantitative analyses, the study shows significant relationships between these factors. Frugality has a positive relationship with consciousness of sustainable consumption, especially in its economic dimension, which reveals the role of financial considerations in shaping responsible consumption behaviour. Although altruism predicts frugality, it does not directly correlate with sustainable behaviour, highlighting the multidimensional nature of conscious and sustainable consumption. In particular, the effects of sustainability differ across different dimensions of sustainable consumption, which emphasizes the complexity of consumption behaviour. Overall, these findings add to the existing literature, focus on a wider population, and provide insight into the nuanced interactions of factors that promote sustainable consumption behaviour.

Author keywords- Altruism; Consciousness for Sustainable Consumption; Frugality; Sustainable Behaviour

Quartile – Q4 | **Percentile** – 17th | **Impact Factor** – 0.6 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

PROPOSED MODEL FOR DETECTION OF PNEUMONIA USING DEEP LEARNING

Rai, B.K., Srivastava, A.K., Sharma, S., *Kamboj, S. Lecture Notes in Electrical Engineering 1096, pp. 563-573*

Dr. Anoop Kumar Srivastava
Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA

Abstract

Accurate detection of Pneumonia is highly challenging. Pneumonia is first diagnosed by a doctor through the x-ray, but it can be time taking and can have a lot of investments. We used a Deep Learning algorithm to solve this problem. This paper presents a proposed model called Totally Automated Pneumonia Discovery (TAPD) Model for detection of Pneumonia using Deep Learning. We developed an algorithm which utilizes Convolution Neural Network (CNN) and with the help of some other layers we made a custom Deep Learning Model. Deep Learning algorithms are widely used in analyzing medical images and CNN has become very useful for disease classification. We have used a dataset containing images and created an algorithm which can detect whether a person is suffering from Pneumonia or not? Unlike other methods, our model handles the problem of overfitting with ease and also eliminates the problem of vanishing and exploring gradients. Our model is less complex and has less complexity. Our model is developed on the Flask framework which is totally based on Python and also our model has provided a user interface to test. Accuracy of the model is great as compared to the other models. © The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2024.

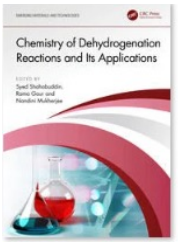
Author keywords- Convolution neural network; Deep learning; Flask framework; Python; Seaborn

Quartile – SCOPUS | **Percentile** – 97th | **Impact Factor** – | SDG

DEHYDROGENATION REACTIONS OF HYDROCARBONS: ALKANE, ALKENES AROMATIC HYDROCARBONS

Pathak, C., Bahadur, V. *Chemistry of Dehydrogenation Reactions and Its Applications* pp. 87-100

Dr. Chandni Pathak
Assistant Professor,
Department of Sciences ,
Alliance University, Bangalore, INDIA



Book

Chemistry of Dehydrogenation Reactions and Its Applications

Edited By Syed Shahabuddin, Rama Gaur, Nandini Mukherjee

Edition 1st Edition

Abstract

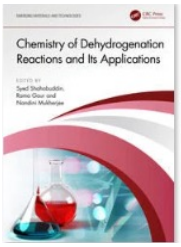
Dehydrogenation reactions are of great importance and provide a wide range of synthetic utility. These reactions are generally defined as the removal of one or more pairs of hydrogen atoms from the parent molecule to obtain an unsaturated bond or bonds. Dehydrogenation reactions play a critical role in producing olefins from saturated hydrocarbons through the refinery cracking process. A large volume of olefin derivatives and butadiene derivatives that are essential as feedstock for the organic chemicals industry are produced through this process from appropriate hydrocarbon feedstock. Therefore, the selective conversion of linear alkanes to α-olefins under mild conditions is a highly desirable transformation. The dehydrogenation of hydrocarbons is a thermodynamically uphill process; thus, it requires a suitable catalyst that can act as a sacrificial hydrogen acceptor so that the reaction can proceed smoothly. In this chapter, we give insight into the development of different processes and catalysts that are involved in the dehydrogenation of alkanes, alkenes, and aromatic hydrocarbons. We start with an ephemeral overview, proceed to the fundamentals, factors, and challenges to accomplish better catalytic efficacy, and follow by discussing synthetic routes including specific optimization methods of different catalysts. In conclusion, researchers have overcome some contemporary challenges to provide a better process for the dehydrogenation of hydrocarbons.

Quartile – SCOPUS | **Percentile** – 97th | **Impact Factor** – | SDG

DEHYDROGENATION REACTION OF ALIPHATIC AND AROMATIC ALCOHOLS (BOOK CHAPTER)

Bahadur, V., Pathak, C. *Chemistry of Dehydrogenation Reactions and Its Applications pp. 67-86*

Dr. Vijay Bahadur
Assistant Professor,
Department of Sciences ,
Alliance University, Bangalore, INDIA



Book

Chemistry of Dehydrogenation Reactions and Its Applications

Edited By Syed Shahabuddin, Rama Gaur, Nandini Mukherjee

Edition 1st Edition

Abstract

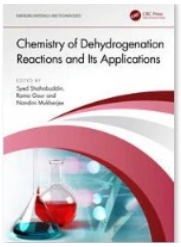
Dehydrogenation is the process of converting saturated hydrocarbon into unsaturated hydrocarbon by the removal of hydrogen. It is a type of elimination reaction. The most important application of the dehydrogenation reaction is in the refinery cracking process. Aliphatic and aromatic alcohols have tremendous applications in the beverage and chemical industries for products such as food and beverages, paint solvents, shellac, varnishes, cement, dye, perfumes, hand sanitizer, and drug preparation because they are inert in nature. They can also be transformed into valuable carbonyl compounds by using strong oxidants. Currently, alcohol can also be used as an alternate fuel for non-renewable energy in motor vehicles as green energy. The dehydrogenation product of aliphatic alcohol depends on the type of alcohol, that is, primary, secondary, and tertiary alcohols. High temperature and low pressure always favour dehydrogenation reactions of alcohols due to their endothermic nature. In this chapter, we discuss the dehydrogenation of aliphatic and aromatic alcohols. This chapter provides an overview of conventional work on the recent progress in this productive area of research, which includes homogeneous and heterogeneous catalytic dehydrogenation, green and atom-economic alternatives, acceptorless dehydrogenation, and the use of visible light irradiation for the dehydrogenation of alcohols. We also discuss the mechanisms in the advanced and recent progress in the dehydrogenation of aliphatic and aromatic alcohols. © 2024 selection and editorial matter, Syed Shahabuddin, Rama Gaur and Nandini Mukherjee; individual chapters, the contributors.

Quartile – SCOPUS | **Percentile** – 97th | **Impact Factor** – | SDG

DEHYDROGENATION REACTIONS AND INSPIRATIONS FROM NATURE FOR THE SYNTHESIS OF BUILDING BLOCKS LEADING TO VALUED PHARMACEUTICAL COMPOUNDS (BOOK CHAPTER)

Bhansali, P.R., Praneeth, V.K.K., Viola, R.E. *Chemistry of Dehydrogenation Reactions and Its Applications pp. 151-172*

Dr. Pravin Rameshwarji Bhansali
Professor,
Department of Sciences ,
Alliance University, Bangalore, INDIA



Book

Chemistry of Dehydrogenation Reactions and Its Applications

Edited By Syed Shahabuddin, Rama Gaur, Nandini Mukherjee

Edition 1st Edition

Abstract

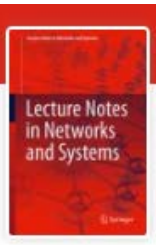
Pharmaceutical compounds are utilized for the diagnosis, treatment, and cure of a wide range of human ailments and are also used as additives utilized in the formulation of medications. Generally, these pharmaceutical compounds are complex organic molecules requiring multistep synthetic protocols for their assembly. Numerous classes of organic reactions have been developed and refined to produce the final target pharmaceutical compounds. The dehydrogenation reaction is one of the more widely utilized reactions to synthesize both the final compounds and the intermediate building blocks that are utilized in the compilation of these drug molecules. In this review, these compiled different types of dehydrogenation reactions serve to make either drug intermediates or target pharmaceutical compounds. Additionally, this chapter discusses nature-inspired and enzyme-catalyzed dehydrogenation reactions including human metabolic reactions. © 2024 selection and editorial matter, Syed Shahabuddin, Rama Gaur and Nandini Mukherjee; individual chapters, the contributors.

Quartile – Q4 | **Percentile** – 11th | **Impact Factor** – 0.7 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

PREDICTING STUDENTS' PERFORMANCE USING FEATURE SELECTION-BASED MACHINE LEARNING TECHNIQUE

Kartik, N., Mahalakshmi, R., Venkatesh, K.A. *Lecture Notes in Networks and Systems 785, pp. 389-397*

Dr. K A Venkatesh
Professor & Registrar (Examination & Evaluation)
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA



Book series
Lecture Notes in Networks and Systems

Abstract

Early evaluation of the students' performance to determine their strengths and weaknesses helps them perform better in examinations. Improving students' overall learning experiences and academic success has been a hot issue recently. In this paper, classical machine learning algorithms like the random forest, J48, and Logistic Model Tree are built and trained on student data to predict students' performance. To improve the accuracy of the models, feature selection algorithms like correlation-based feature selection, information gain ranking filter, gain ratio feature evaluator, and symmetrical uncertainty ranking filter are used, and selected features are trained on the model and compared the performance of the models with each other.

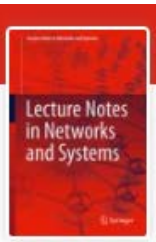
Author keywords- Features selection; Machine Learning models; Students' performance

Quartile – Q4 | **Percentile** – 11th | **Impact Factor** – 0.7 | SDG

A NOVEL APPROACH TO VIDEO SUMMARIZATION USING AI-GPT AND SPEECH RECOGNITION

Prabhu, B.P.A., Sharma, T., Dani, R., Prasad, M.S.G. *Lecture Notes in Networks and Systems 820, pp. 201-209*

Mr. Aniruddha Prabhu B P
Assistant Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA



Book series
Lecture Notes in Networks and Systems

Abstract

In an era where online video data is exploding, there is a growing need for efficient ways to summarize video content. In this paper, a novel approach is proposed that leverages AI and speech recognition techniques for video summarization. The procedure involves two main stages: audio processing and text generation. Speech recognition transcribes the video audio into text in the audio processing stage. Then, the transcribed text is fed into AI-GPT to generate a concise summary that captures the main ideas and concepts of the video in the text generation stage. Experimental results reveal considerable gains in video summarization over state-of-the-art techniques, proving the usefulness of the suggested strategy. The system is evaluated on diverse datasets, including news broadcasts, educational videos, political speeches, and sports matches that outperform other methods in terms of summary quality and processing speed. The proposed approach has potential applications in news aggregation, education, video retrieval, and video recommendation systems. It is a promising solution for addressing the difficulties of managing and analyzing large amounts of video data. © 2024, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

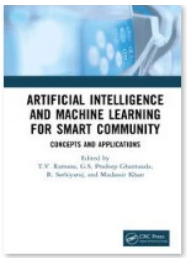
Author keywords- AI-GPT; Natural language processing; Speech recognition; Transcribed text; Video summarization

Quartile – SCOPUS | **Percentile** – 98th | **Impact Factor** – 0.1 | SDG 11 SUSTAINABLE CITIES AND COMMUNITIES

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING FOR SMART COMMUNITY: CONCEPTS AND APPLICATIONS (BOOK)

Ramana, T.V., Ghantasala, G.S.P., Sathiyaraj, R., Khan, M. *Artificial Intelligence and Machine Learning for Smart Community: Concepts and Applications pp. 1-163*

Dr. GGS Pradeep
Professor
Alliance College of Engineering and Design
Alliance University, Bangalore, INDIA



Book

Artificial Intelligence and Machine Learning for Smart Community

Concepts and Applications

Edited By T V Ramana, G S Ghantasala, R Sathiyaraj, Mudassir

Abstract

Intelligent systems are technologically advanced machines that perceive and respond to the world around them. Artificial Intelligence and Machine Learning for Smart Community: Concepts and Applications presents the evolution, challenges, and limitations of the application of machine learning and artificial intelligence to intelligent systems and smart communities. · Covers the core and fundamental aspects of artificial intelligence, machine learning, and computational algorithms in smart intelligent systems · Discusses the integration of artificial intelligence with machine learning using mathematical modeling · Elaborates concepts like supervised and unsupervised learning, and machine learning algorithms, such as linear regression, logistic regression, random forest, and performance evaluation matrices · Introduces modern algorithms such as convolutional neural networks and support vector machines · Presents case studies on smart healthcare, smart traffic management, smart buildings, autonomous vehicles, smart education, modern community, and smart machines Artificial Intelligence and Machine Learning for Smart Community: Concepts and Applications is primarily written for graduate students and academic researchers working in the fields of computer science and engineering, electrical engineering, and information technology. Seasonal Blurb: This reference text presents the most recent and advanced research on the application of artificial intelligence and machine learning on intelligent systems. It will discuss important topics such as business intelligence, reinforcement learning, supervised learning, and unsupervised learning in a comprehensive manner. © 2024 selection and editorial matter, T. V. Ramana, G. S. Pradeep Ghantasala, R. Sathiyaraj, Mudassir Khan individual chapters, the contributors.

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