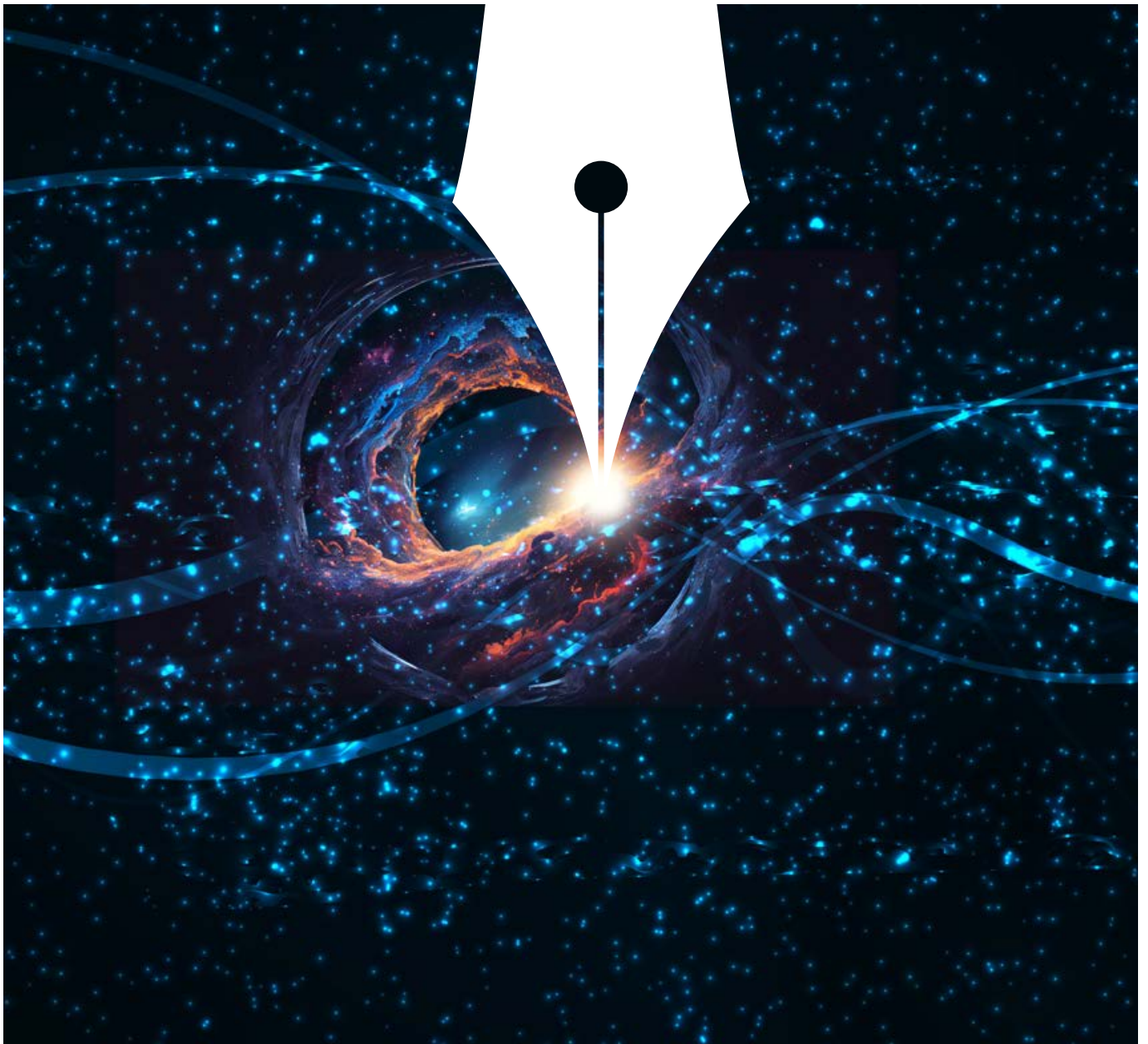

RESEARCH

MARCH 2024

PUBLICATIONS



RESEARCH

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PUBLICATIONS

“ Research is creating new knowledge. ”

Neil Armstrong

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

Albert Einstein

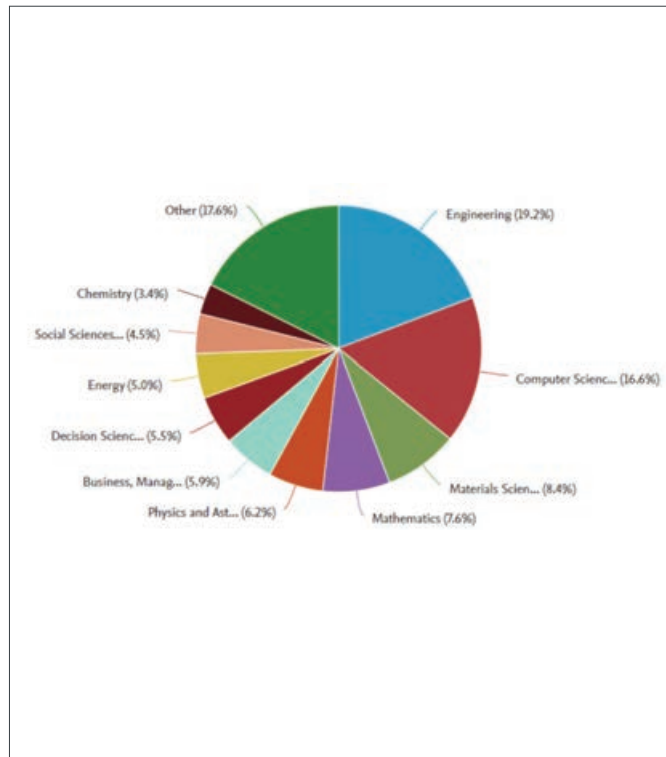
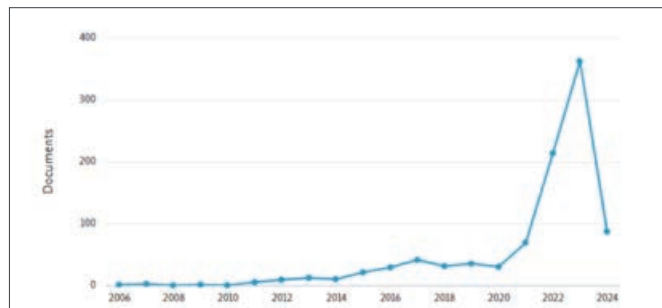
“ Research is formalized curiosity. It is poking and prying with a purpose. ”

Zora Neale Hurston

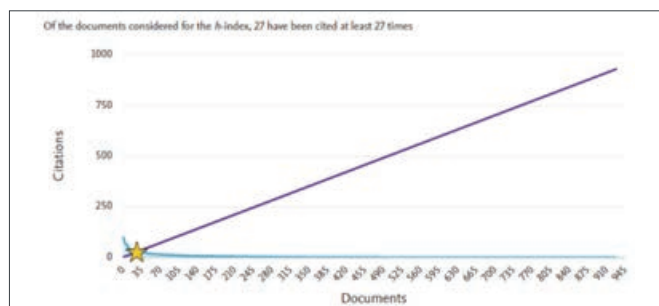
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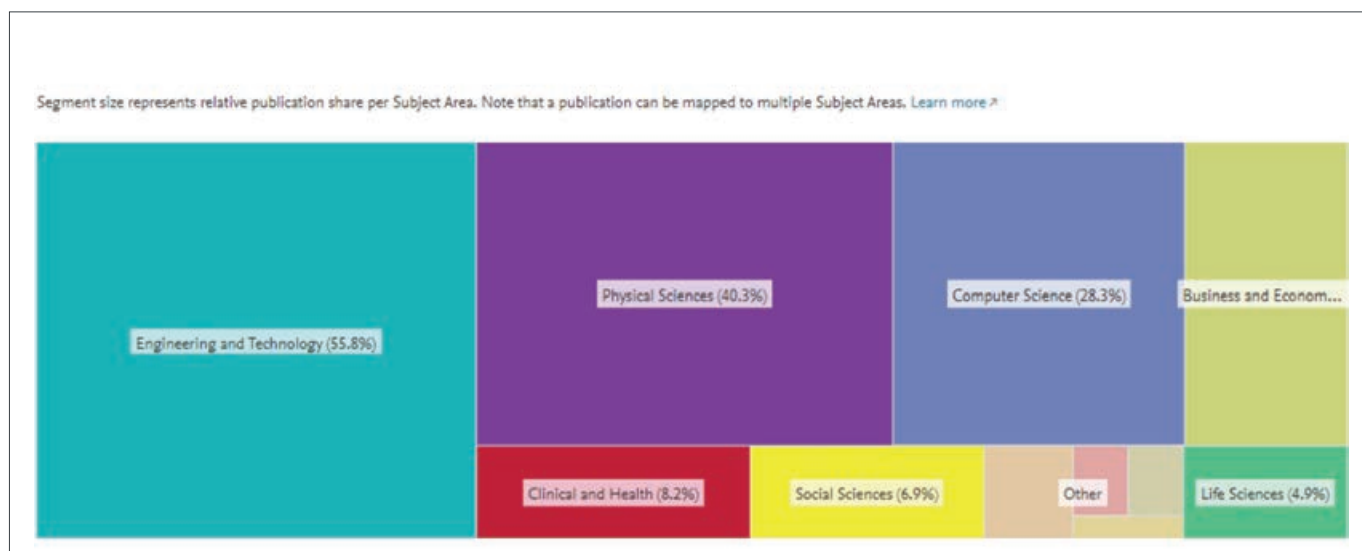
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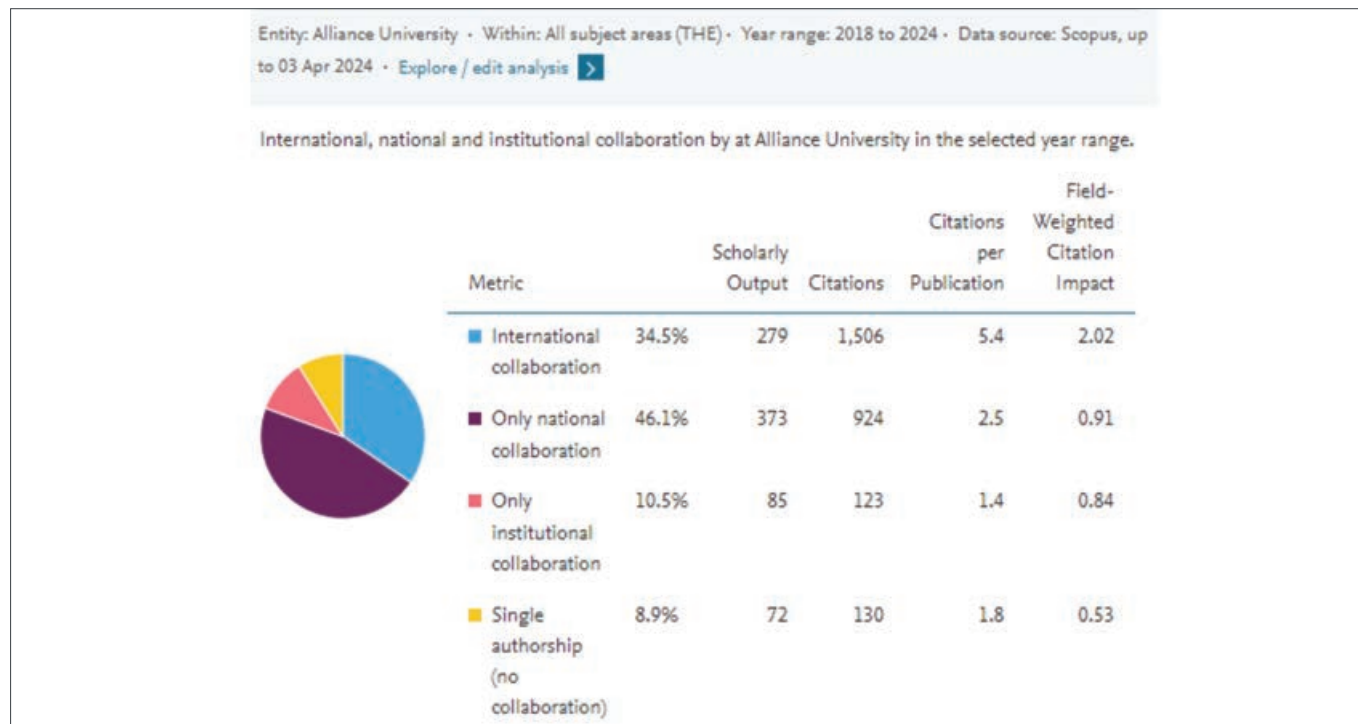
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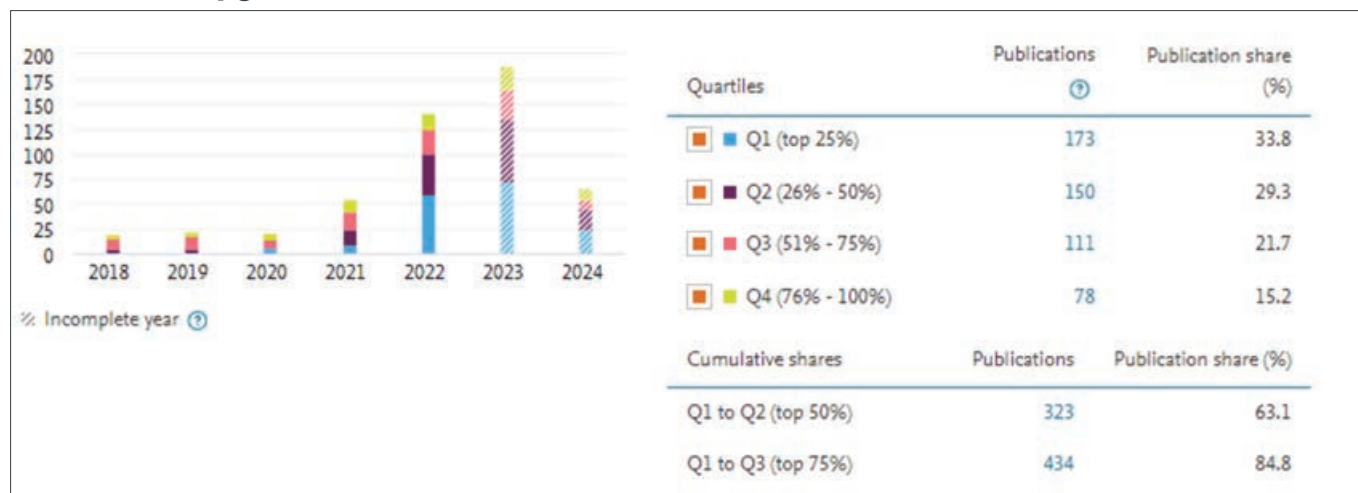
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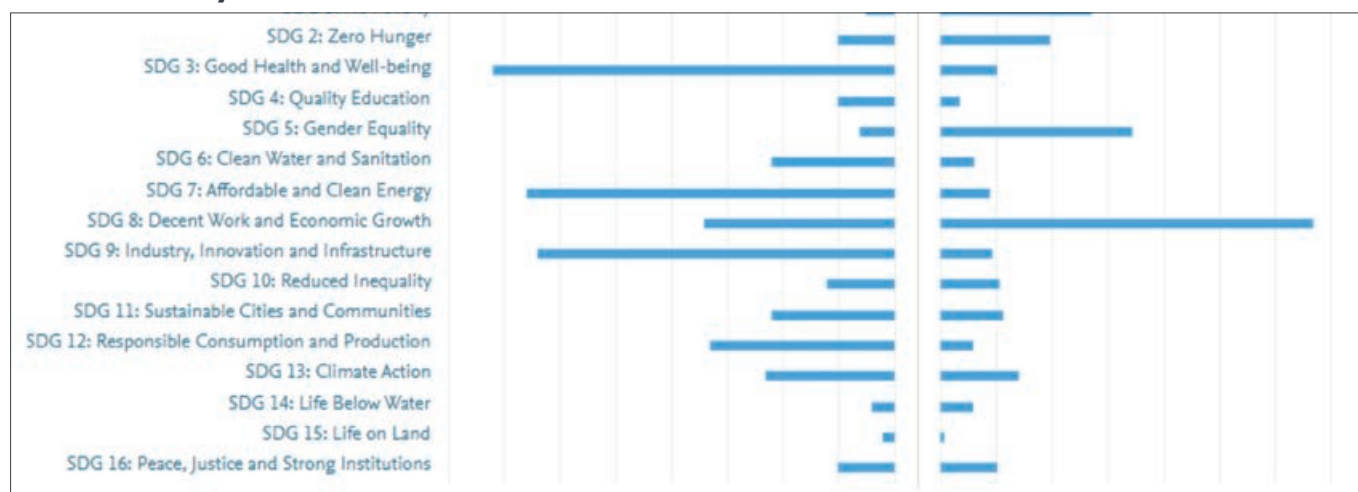
Geographical Collaboration Overall



Publication by Journal Quartile



Publication by SDG



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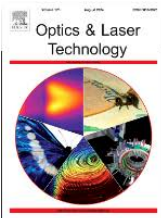


LIGHT ORIGAMI MULTI-BEAM INTERFERENCE DIGITAL HOLOGRAPHIC MICROSCOPE FOR LIVE CELL IMAGING

Yoneda N., Pensia L., Muniraj I., Anand V., Kumar R., Murata T., Awatsuji Y., Matoba O. Optics and Laser Technology , 176, 110961

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Optics & Laser Technology

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8.3

CiteScore

5

Impact Factor

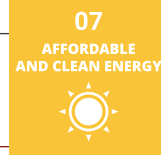
Abstract

In the field of scientific, industrial, and biological research, digital holographic microscopy (DHM) has established itself as a potential optical instrument due to its three-dimensional (3D) imaging capabilities and non-destructive nature. Like any imaging system, the field-of-view (FoV) of DHM is constrained by the image sensor's finite size. To address this challenge, in the present study, we propose the Light Origami Multi-Beam Interference (LOMBI)-DHM technique for live cell imaging that leverages single-shot acquisition and double FoV. The concept of the proposed study to extend the FoV is based on the optical spatial multiplexing of two distinct regions of the object beam by introducing a cube beam splitter in the path of the object beam. The beam splitter is angled so that it produces two object beams with different object

information that are propagating in the same direction and collected within the area of the image sensor. The image sensor records a multiplexed digital hologram in a single-shot as a result of the interference of three beams: two object beams with different FoVs and one reference beam. The two distinct imaging regions corresponding to the two recorded FoVs, can be simultaneously retrieved during the reconstruction process. The experimental results of imaging different areas of a standard resolution target, microlens array, and living plant cells, are shown to demonstrate the capability of the proposed single-shot off-axis double FoV LOMBI-DHM. Furthermore, we dynamically monitor the time-lapse live-cell imaging of tobacco plant cells by the proposed system.

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Author keywords- Digital holographic microscopy; Extended field-of-view; Live cell imaging; Multiplex microscopy; Phase imaging



Quartile – Q1

Percentile – 99th

Impact Factor – 9.9

SDG :



UBIQUITOUS LEARNING MODELS FOR 5G COMMUNICATION NETWORK UTILITY MAXIMIZATION THROUGH UTILITY-BASED SERVICE FUNCTION CHAIN DEPLOYMENT.

Alghayadh, F.Y., Ramesh, J.V.N., Quraishi, A., Patni, J.C., Farouk, A. *Computers in Human Behavior*, 156, 108227

Dr. Jagdish Chandra Patni

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Alliance College of Engineering and Design,
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Computers in Human Behavior

Supports open access

17.8

CiteScore

9.9

Impact Factor

Abstract

The main problem of deploying service function chains in virtualized 5G networks is dealt with in wireless 5G communications and effective ubiquitous learning models. The aim is to ensure differentiated network performance for a wide range of services while maximizing the collaborative revenue of infrastructure operators and wireless virtual operators. To achieve this, a utility-based service function chain deployment strategy is introduced, tailored to the specific characteristics of Ubiquitous Learning based 5G-RAN-Architecture. Consideration is given to the virtual operator's maximum tolerable end-to-end latency, minimum service rate requirements, and the infrastructure operator's constraints on computing and link resources. It also looks at how different deployment scenarios for service function chains

affect network performance and creates a utility model using a business framework. The ultimate objective is to optimize the collective revenue of infrastructure operators and virtual operators. The approach leverages genetic algorithms and Matlab's Linprog function for iterative problem-solving. The graph clearly shows that the SFC deployment algorithm in this study uses less infrastructure resources for Front Haul links. This implies that the algorithm successfully reduces the load on Front Haul lines, which in turn lowers the cost of SFC deployment and makes it easier to deploy more SFCs across the infrastructure. This work contributes to the evolution of 5G wireless communications and its seamless integration with ubiquitous learning models.

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Author keywords- 5G-RAN-Architecture; Genetic algorithms; Matlab's linprog function; Network functions virtualization; Service function chain; Ubiquitous learning



A SYMMETRIC OPTICAL CRYPTOSYSTEM BASED ON QZ DECOMPOSITION AND HERMITE GAUSSIAN BEAM SPECKLES

Vardhan, H., Sakshi, Reddy, S.G., Muniraj, I., Kumar, R. *Optical and Quantum Electronics*, 56(5), 885

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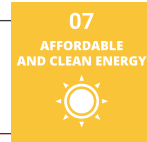
Abstract

In this paper, we propose a new asymmetric optical cryptosystem for phase image encoding with the utilization of speckles generated by scattering the Hermite Gaussian beams (HGBs) through a rough surface. These speckle patterns are unique and almost impossible to clone as one cannot mimic the physical process. The generalized Schur decomposition, named as, QZ decomposition, approach is used to generate unique private keys for decrypting the encoded data. The plaintext image is first phase-encoded and then modulated with the pattern obtained by the convolution of HGBs and random phase masks. The modulated image is then Fresnel propagated for a distance of z_1 , and the QZ decomposition operation is performed on the complex wavefront to generate the private keys. Afterward, the gyrator transforms with a rotational angle (α), and the phase truncation is used to further process the information. The phase truncation and

phase reservation (PT/PR) will result in another phase private key, which will be utilized for decryption. A non-linear power function is introduced to modify the amplitude part after PT/PR operation and the resultant is modulated using an HGB amplitude mask to get an intermediate wavefront. Finally, the encrypted image is obtained by Fresnel propagating the intermediate wavefront with a distance of z_2 . The effectiveness and validity of the proposed method are tested and verified through numerical simulations. A series of potential attacks such as contamination and plaintext attacks have been tried and tested to further check the robustness of the proposed method. The results confirm the efficacy of the proposed method.

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Author keywords- Asymmetric encryption; Hermite Gaussian beam speckles (HGBS); Non-linear power function; Optical cryptosystem; QZ decomposition



Quartile – Q1 | Percentile – 90th | Impact Factor – 3.9 | SDG



RETRACTION NOTE: AUDIO-VISUAL AUTOMATIC SPEECH RECOGNITION TOWARDS EDUCATION FOR DISABILITIES

Debnath, S., Roy, P., Namasudra, S., Crespo, R.G. *Journal of Autism and Developmental Disorders*, (2023), 53, 9, (3581-3594), 10.1007/s10803-022-05654-4

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 Springer

Journal of Autism and Developmental Disorders

Publishing model
Hybrid

Abstract

The Publisher has retracted this article in agreement with the Editor-in-Chief. The article was submitted to be part of a guest-edited issue. An investigation by the publisher found a number of articles, including this one, with a number of concerns, including but not limited to compromised editorial handling and peer review process, inappropriate or irrelevant references or not being in scope of the journal or

guest-edited issue. Based on the investigation's findings the publisher, in consultation with the Editor-in-Chief therefore no longer has confidence in the results and conclusions of this article. The authors disagree with this retraction.

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Author keywords- autism; automatic speech recognition; commercial phenomena; consultation; developmental disorder; disability; education; erratum; human; peer review



MITIGATION OF BIO-CORROSION CHARACTERISTICS OF CORONARY ARTERY STENT BY OPTIMISING FS-LASER MICROMACHINING PARAMETERS

Chenrayan, Venkatesh^{a,,}, Palanisamy, Dhanabal^b, Mani, Kalayarasan^b, Shahapurkar, Kiran^{c, d, e}, Elahi M. Soudagar, Manzoore^{f, g}, Fouad, Yasser^h, Kalam M.A.ⁱ, Ali, Muhammad Mahmood^{j, k}, Nasir Bashir, Muhammad^{l, m} *Heliyon*, Volume 10, Issue 6

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Heliyon

Open access

4

Impact Factor

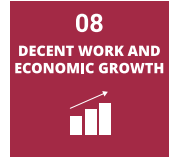
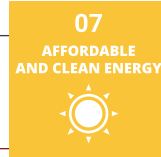
Abstract

Cardiovascular diseases, particularly coronary artery disease, pose big challenges to human life. Deployment of the stent is a preferable treatment for the above-mentioned disease. However, stents are usually made up of shape memory alloy called Nitinol. The poorer surface finish on the machined nitinol stents accelerates the migration of Nickel ions from the implanted nitinol stent, which is considered toxic and can lead to stenosis. The current study deals with controlling surface quality by minimising surface roughness and improving corrosion resistance. Femtosecond laser (fs-laser 10–15 s) micromachining was employed to machine the Nitinol surface to achieve sub-micron surface roughness. The Grey relational analysis (GRA)-coupled design of the experimental technique was implemented to determine optimal levels

of four micromachining parameters (laser power, pulse frequency, scanning speed, and scanning pattern) varied at three levels to achieve minimum surface roughness and to maximize the volume ablation. The results show that to yield minimum surface roughness and maximum volume ablation, laser power and scanning speed are in a higher range. In contrast, the pulse frequency is lower, and the scanning pattern is in a zig-zag manner. ANOVA results manifest that scanning speed is the predominant factor in minimising surface roughness, followed by pulse frequency. Furthermore, the corrosion behaviour of the machined nitinol specimens was evaluated, and the results show that specimens with lower surface roughness had lower corrosion rates.

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Author keywords- Corrosion; Fs-laser; GRA; Nitinol; Surface roughness; Volume ablation



Quartile – SCOPUS

Percentile – 25th

Impact Factor –

SDG



DEVELOPING CRITICAL THINKING SKILLS: ENCOURAGING ANALYTICAL AND CREATIVE THINKING

Wani, Showkat Ahmad^a, Hussian, Zahid^b, Book Chapter - *Transforming Education for Personalized Learning*, Pages 114 - 13011 March 2024

Dr. Showkat Ahmad Wani

Assistant Professor,
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Alliance University, Bangalore, INDIA

Abstract

The chapter analyses that it is crucial to incorporate mixed teaching methods that promote mobility, agility, creativity, and critical thinking to enhance student's learning experience. Critical thinking ability is indispensable in all fields, both within and beyond academia. It needs to be more than conventional classroom methods to impart theoretical and conceptual knowledge. Educational institutions should necessarily incorporate practical, real-world learning experiences into the curriculum by changing internal assignments into field studies. Further, the authors in this chapter

discussed how the primary objectives of teaching need to create innovative pedagogical techniques to build collaborative relationships and research-oriented assignments that create sound reasoning skills essential to developing critical thinking. It involves analytical thinking, assessing evidence, determining assumptions, and examining arguments. These skills allow learners to make informed decisions, form opinions, and solve problems confidently.

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Quartile – SCOPUS

Percentile – 64th

Impact Factor – 3.0

SDG

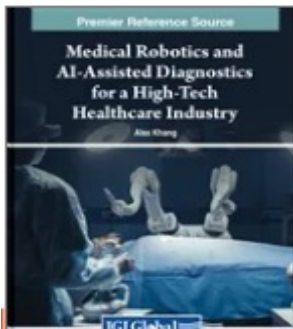


MULTI-MODAL MRI IMAGES ANALYSIS FOR IMPROVED HERNIATED DISC DIAGNOSIS USING DEEP LEARNING

Saji, Princy K. a; Krishnachalitha K.C. b; Kannan M. *Medical Robotics and AI-Assisted Diagnostics for a High-Tech Healthcare Industry*, pp. 65–80

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Medical Robotics and AI-Assisted Diagnostics for a High-Tech Healthcare Industry

Alex Khang

Release Date: March, 2024 | Copyright: © 2024 | Pages: 458

DOI: 10.4018/979-8-3693-2105-8

ISBN13: 9798369321058 | EISBN13: 9798369321065

Abstract

Herniated discs are a common medical condition that can cause severe back pain and lead to serious complications if not diagnosed and treated correctly. MRI is the preferred imaging modality for diagnosing herniated discs, providing detailed images of the spine and surrounding structures. A herniated disc, also known as a slipped or ruptured disc, occurs when the soft inner portion of a spinal disc protrudes through a tear in the more rigid outer layer. This can cause pain, numbness, and weakness in the affected area, typically the lower back or neck. The most common

cause of a herniated disc is age-related degeneration of the spine, which can weaken the disc's outer layer and cause it to bulge or rupture. However, other factors such as improper lifting, repetitive strain, or trauma can also contribute to developing a herniated disc. Early detection of a herniated disc is vital because it allows for prompt treatment, preventing the condition from worsening and potentially causing permanent nerve damage.

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Quartile – Q4

Percentile – 15th

Impact Factor – 3.0

SDG



IOT BASED AUTOMATIC TEMPERATURE MONITORING AND ADJUSTMENT SYSTEM FOR THE ORGANIC FARM

Venkatesan, R., Jebaseeli, T.J., Ramalakshmi, K., Hemanthkumar, P.B. *AIP Conference Proceedings*, 3035(1), 020015

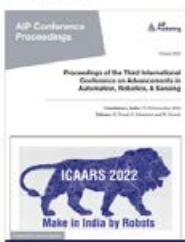
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Volume 3035, Issue 1
4 March 2024

RESEARCH ARTICLE | MARCH 04 2024

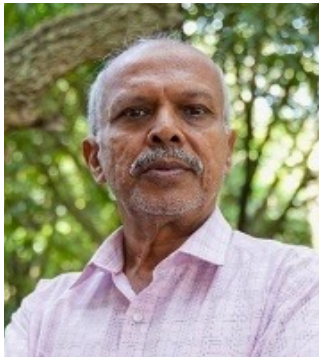
Preface: Third International Conference on Advancements in Automation, Robotics and Sensing (ICAARS 2022)



Abstract

The modern techniques of organic farming come with a lot of room for innovation. There are a several ways available through which the human can get connected to nature and farming is the simplest way available but due to the work schedule of human beings, it is often seen that the care required by the plants is ignored. The only way through which this problem can be solved is smart monitoring of plant growth with the modernizing of the existing methods available. The system that is proposed in this paper focuses on implementing the smart of monitoring the growth of plants and also taking necessary steps on its own. This way the plants can be easily monitored by humans even when they are not

around. The proposed system can be described as plant growth automation using IoT technologies. The Internet of Things (IoT) has several applications in the field of crop cultivation and maintenance. The paper proposes an organic plant monitoring system with the use of suitable sensors and online platforms that will ensure the growth of plants and will also monitor its conditions such as moisture level, temperature, and humidity of the location, amount of light present from time to time. Apart from this, the system will save a lot of time and effort being put by human beings in their farms and all these things will be done without compromising the state of your farm.



ANALYZING THE IMPACT OF SERVICE QUALITY ON PUBLIC TRANSPORT PERFORMANCE: A PANEL DATA ANALYSIS WITH AN ONLINE RECOMMENDATION SYSTEM

Moovendhan, V., Kundu, G.K., Gaur, P., Sharma, G.M. , *European Transport - Trasporti Europei*, (96)

Dr. Goutam K. Kundu

Professor,
Alliance School of Business,
Alliance University, Bangalore, INDIA



Abstract

This study aims to examine the effect of various service quality parameters on the schedule-wise performance of intercity bus passenger transit using objective measures through a panel data regression model. The study findings show that service quality parameters such as bus fare and customer rating positively impact the operator's schedule-wise performance. In contrast, travel time hurts performance. The study also finds that bus type insignificantly affects performance, and an increase in bus fare does not impact performance. In summary, this study underscores the importance

of service quality in the public transport system.

It recommends that operators prioritize service quality parameters such as bus fare and customer rating to enhance their schedule-wise performance. Furthermore, this study offers valuable insights into the factors that affect the performance of intercity bus passenger transit, which can inform policymaking and management decisions in the public transport sector.

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Author keywords- Intercity Bus Transport Performance; Panel data analysis of service quality; Schedule Performance; Service attributes

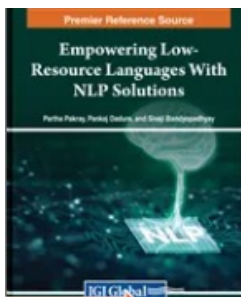


MACHINE LEARNING APPROACH FOR KASHMIRI WORD SENSE DISAMBIGUATION

Lawaye, A.A., Mir, T.A., Mir, M.H., Ahmed, G., *Empowering Low-Resource Languages With NLP Solutions*, pp. 113–136

Mr. Tawseef Ahmad Mir

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Empowering Low-Resource Languages With NLP Solutions

Partha Pakray, Pankaj Dadure, Sivaji Bandyopadhyay

Release Date: February, 2024 | Copyright: © 2024 | Pages: 314

DOI: 10.4018/979-8-3693-0728-1

ISBN13: 9798369307281 | EISBN13: 9798369307298

Abstract

Studying the senses of words in a given data is crucial for analyzing and understanding natural languages. The meaning of an ambiguous word varies based on the context of usage and identifying its correct meaning in the given situation is a famous problem known as word sense disambiguation (WSD) in natural language processing (NLP). In this chapter, the authors discuss the important WSD research works carried out in the context of different languages using different techniques. They also explore a supervised approach

based on the hidden Markov model (HMM) to address the WSD problem in the Kashmiri language, which lacks research in the NLP domain. The performance of the proposed approach is also examined in detail along with future improvement directions. The average results produced by the proposed system are accuracy=72.29%, precision=0.70, recall= 0.70, and F1-measure=0.70. © 2024, IGI Global. All rights reserved.

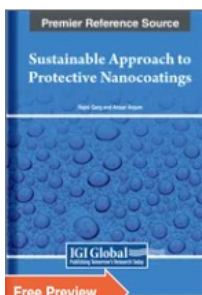


NANOCOATINGS IN MEDICINE: REVOLUTIONIZING HEALTHCARE THROUGH PRECISION AND POTENTIAL

Boopathy, G., Gurusami, K., Vijayakumar, K.R., Kumar, M.H., *Sustainable Approach to Protective Nanocoatings*, pp. 265–289

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Sustainable Approach to Protective Nanocoatings

Rajni Garg, Ansar Anjum

Release Date: February, 2024 | Copyright: © 2024 | Pages: 443

DOI: 10.4018/979-8-3693-3136-1

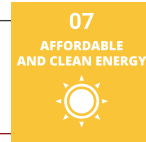
ISBN13: 9798369331361 | EISBN13: 9798369331378

Abstract

The use of nanotechnology in healthcare and medicine is crucial, particularly for nanocoatings. The therapeutic potential of nanocoatings on medical implants and devices is examined in this chapter. It goes into the ingredients, production processes, and health benefits of nanocoatings. Device functionality and biocompatibility can be enhanced by nanocoatings. They are essential in addressing healthcare issues including cardiovascular stents and orthopedic

implants. Additionally, nanocoatings are used in medication delivery systems, tissue engineering, and wound healing. This chapter offers important knowledge on the medical applications of nanocoatings to experts and researchers. Nanotechnology has the potential to alter the medical industry, which would be advantageous for patients.

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Quartile – SCOPUS | Percentile – | Impact Factor – | SDG

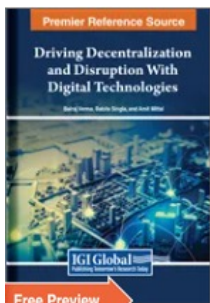


INFLUENCER MARKETING: WAY TO A SUSTAINABLE MARKETING APPROACH

Mukherjee, S., Verma, A., Neogi, S., *Driving Decentralization and Disruption With Digital Technologies*, pp. 198–216

Mr. Sayantan Mukherjee

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Driving Decentralization and Disruption With Digital Technologies

Balraj Verma, Babita Singla, Amit Mittal

Release Date: February, 2024 | Copyright: © 2024 | Pages: 322

DOI: 10.4018/979-8-3693-3253-5

ISBN13: 9798369332535 | EISBN13: 9798369332542

Abstract

The millennial focus has shifted from mere consumption to sustainable consumption. Responsible and ethical buying is the primary focus. Millennial consumers are highly concerned about issues like environmental degradation and climatic changes and are ready to contribute to good causes. They are becoming more risk-averse and prefer to support businesses that emphasize pro-social messaging, environmentally friendly production, and moral business practices. The target consumer's perception of influencer marketing buzzwords like authenticity, credibility, and consumer

involvement can be perceived as evolving. Influencers also power their voices to promote changes for good environmental causes. The study enlightens the development of the urge for ethical/sustainable buying to adopt moral influencer content as a basis to follow them and facilitate the consumer buying process. The people associated with the domain as influencers or aspiring to be one should focus on ethical influencing. The growing ethical consumerism is playing a vital role in behavioral adoption of ethical influencers.

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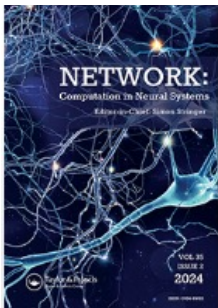


SECURE AND PRIVACY IMPROVED CLOUD USER AUTHENTICATION IN BIOMETRIC MULTIMODAL MULTI FUSION USING BLOCKCHAIN-BASED LIGHTWEIGHT DEEP INSTANCE-BASED DETECTNET


Pandiyan, S., Keerthika, V., Surendran, S., Ravi, S. *Network: Computation in Neural Systems*

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Network: Computation in Neural Systems

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Publishes theoretical neuroscience research on brain models, neural and synaptic dynamics, consciousness, and biologically inspired artificial intelligence.

Abstract

This research introduces an innovative solution addressing the challenge of user authentication in cloud-based systems, emphasizing heightened security and privacy. The proposed system integrates multimodal biometrics, deep learning (Instance-based learning-based DetectNet–(IL-DN), privacy-preserving techniques, and blockchain technology. Motivated by the escalating need for robust authentication methods in the face of evolving cyber threats, the research aims to overcome the struggle between accuracy and user privacy inherent in current authentication methods. The proposed system swiftly and accurately identifies users using multimodal biometric data through IL-DN. To address privacy concerns, advanced techniques are employed to encode biometric data, ensuring user

privacy. Additionally, the system utilizes blockchain technology to establish a decentralized, tamper-proof, and transparent authentication system. This is reinforced by smart contracts and an enhanced Proof of Work (PoW) mechanism. The research rigorously evaluates performance metrics, encompassing authentication accuracy, privacy preservation, security, and resource utilization, offering a comprehensive solution for secure and privacy-enhanced user authentication in cloud-based environments. This work significantly contributes to filling the existing research gap in this critical domain.

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Author keywords- cloud security; instance-based learning-based DetectNet; proof of work; smart contracts; User authentication



Quartile – Q3

Percentile – 34th

Impact Factor – 1.05

SDG



EVALUATION OF BORON COMBUSTION FOR DUCTED ROCKET APPLICATIONS USING CONDENSED PRODUCT ANALYSIS

Hashim, S.A., Karmakar, S., Roy, A., Abubakar, M., *Defence Science Journal*, 74, pp. 278–287

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Abstract

Boron, a metalloid, produces high energy upon combustion. It is recommended as an ingredient for fuel or propellant in rocket propulsion, despite the challenge of extracting its full thermal energy. So far no one has claimed the complete energy conversion of boron upon combustion. On the other hand, the current propulsion system of the Meteor missile uses boron-loaded propellant. The boron-loaded propellant provides an approximately three-fold increase in specific impulse compared to conventional propellants. The present study focuses on boron-HTPB-based solid fuels impregnated with early ignited particles as additives, aiming to assess the combustion performance of boron particles. These additives are magnesium (Mg), titanium (Ti), and activated charcoal (C), and their effects are evaluated

based on the residual active boron content in the condensed combustion products (burned residues). An economical tool commonly called stagnation flow or Opposed Flow Burner (OFB) is used to deflagrate the fuel sample by means of pressurized oxygen gas. The condensed combustion products are examined using a Field Emission Scanning Electron Microscope (FESEM), X-ray Diffraction (XRD), Thermo Gravimetric Analysis (TGA), and Differential Thermal Analysis (DTA). Among the fuel combinations investigated here, magnesium has been found to be a good burning enhancer of boron, leaving the lowest active boron content (30 %) in the burned-out residue. The current research aims to develop an efficient boron-containing solid fuel for hybrid propellant ducted rocket engine applications.
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Author keywords- Additive loading; Boron-based solid fuel; Ducted rocket; Residual products; Thermal analysis

Quartile – Q1

Percentile – 77th

Impact Factor – 5.23

SDG



EFFECT OF FERROUS, NICKEL, AND TUNGSTEN FILLERS REINFORCEMENT ON GLASS FIBER REINFORCED VINYL ESTER/ POLYESTER COMPOSITES

Hemath, M., Rangappa, S.M., Pandi Selvan Durai, C., ...Asiri, A.M., Althomali, R.H.
Polymer Composites 2024

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Abstract

The present investigation targets the physical, mechanical, and thermal characteristics of glass fabric-reinforced vinyl ester/polyester hybrid laminates filled with ferrous, nickel, and tungsten micro-particles. The metal-fillers-glass fabric reinforced vinyl ester/polyester hybrid composites was produced by distributing 1 wt% ferrous, nickel, and tungsten with an ultrasonication probe-assisted wet layup method. Polyester resin reinforced with glass fabrics and tungsten fillers (PRGT) presents improved mechanical characteristics compared with other hybrid laminates, with tensile, compression, and flexural strength values of 157.89 MPa, 163.74 MPa, and 167.29 MPa, respectively. The fractographic microstructure of tensile fracture PRGT laminates exhibits that glass fibers pull out, microcracks,

and lower gaps, because of stronger filler-fabric-matrix adhesion when compared with other hybrid laminates. The artificial neural network modeling was conducted to choose the best composite among the various manufactured composites. Statistical analysis was observed from the one-way ANOVA technique, substantiating that the physical, mechanical, and thermal characteristics of metal fillers-reinforced hybrid composites were statistically significant. Highlights: Metal-fillers-glass fabric reinforced vinyl ester/polyester hybrid composites. Selection of the best composite from developed composites by ANN. Tungsten fillers are a useful material for reinforcement.
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Author keywords- ANN; composites; fillers; glass fiber; polyester; vinyl ester



ECONOMETRIC MODEL USING ARBITRAGE PRICING THEORY AND QUANTILE REGRESSION TO ESTIMATE THE RISK FACTORS DRIVING CRUDE OIL RETURNS

Maitra, S., Mishra, V., Kundu, S., Chopra, M. *International Journal on Informatics Visualization*, 8(1), pp. 333–342

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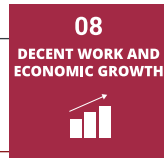
Abstract

This work presents a novel approach to determining the risk and return of crude oil stocks by employing Arbitrage Pricing Theory and Quantile Regression. Arbitrage Pricing Theory identifies the risk factors likely to impact crude oil returns. Subsequently, Quantile Regression estimates the relationship between the selected factors and the returns across different distribution quantiles. The West Texas Intermediate (WTI) crude oil price is used in this study as a benchmark for crude oil prices. WTI's price fluctuations can significantly impact the performance of global crude oil stocks and, subsequently, the global economy. Various statistical measures are used in this study to determine the proposed model's stability. The results show that changes in WTI returns can have varying effects depending on market conditions and

levels of volatility. This study emphasizes the influence of structural discontinuities on returns. These are likely generated by changes in the global economy and the unpredictable demand for crude oil during the pandemic. The inclusion of pandemic, geopolitical, and inflation-related explanatory variables adds uniqueness to the study as it considers current global events that can affect crude oil returns. Findings show that the key factors that pose significant risks to returns are industrial production, inflation, the global price of energy, the shape of the yield curve, and global economic policy uncertainty. This implies that while making investment decisions in WTI futures, investors should pay particular attention to these elements.

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Author keywords- Arbitrage pricing theory; crude oil; econometric model; quantile-regression; risk management; statistical methods



Quartile – SCOPUS | Percentile – | Impact Factor – | SDG



EFFECT OF HYGROTHERMAL AGING AND WATER ABSORPTION ON POLYMER COMPOSITES

Ng, L.F., Yahya, M.Y., Rushdan, A.I., Parameswaranpillai, J., Muthukumar, C., *Aging and Durability of FRP Composites and Nanocomposites*, pp. 17–42

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Aging and Durability of FRP Composites and Nanocomposites

Woodhead Publishing Series in Composites Science and Engineering



Abstract

Polymer composites are well-known versatile materials that manifest various promising characteristics. These materials have been broadly utilized for a wide range of engineering applications such as aerospace, automobile, and construction to substitute metal alloys with the aim of reducing the overall weight of the structures while improving specific mechanical properties. One of the most challenging issues in polymer composites is associated with the hygrothermal aging effect, which could greatly undermine the residual strength and structural integrity of the materials.

From this standpoint, it is vital to scrutinize the hygrothermal aging and water-absorbing mechanism of polymer composites. Therefore, this chapter aims to discuss the water-absorbing mechanism of polymer composites and the driving factors that lead to hygrothermal aging and rapid water absorption. Moreover, several techniques to reduce water absorption and avoid hygrothermal aging are discussed in detail.

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Author keywords- Hygrothermal aging; Mechanical properties; Polymer composites; Residual strength; Water absorption.

Quartile – Q1

Percentile – 82nd

Impact Factor – 3.0

SDG



ADVANCING PNEUMONIA VIRUS DRUG DISCOVERY WITH VIRTUAL SCREENING: A CUTTING-EDGE FAST AND RESOURCE EFFICIENT MACHINE LEARNING FRAMEWORK FOR PREDICTIVE ANALYSIS

Sharma, O., Ghantasala, G.S.P., Ioannou, I., Vassiliou, V., *Informatics in Medicine Unlocked*

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Informatics in Medicine Unlocked

Open access

Abstract

Pneumonia, a severe respiratory infection characterized by a significant morbidity and fatality rate, afflicts many individuals globally. The demand for highly effective antiviral medications has experienced a surge because of the emergence of novel pneumonia viruses, such as the COVID-19 coronavirus. Due to their inherent time and cost constraints, conventional drug development strategies sometimes need to be more manageable. Exploring alternative approaches is crucial to identifying and establishing effective therapy choices. This work introduces a computational methodology for analyzing the chemical space of medications targeting the pneumonia virus, employing Python-based data mining tools. Using computer-aided analysis in drug molecules aims to enhance the efficiency of

identifying and evaluating potential new therapeutic candidates using Machine Learning (ML). The research successfully discovered two therapeutic compounds by utilizing the Bayesian Ridge approach, which is the most accurate with the least mean squared error, is less computationally expensive in terms of power, memory, and CPU, and is the fastest of the investigated approaches. It discovered the CHEMBL433378 and CHEMBL93653, with promising docking scores of -4.3 and -4.2 , respectively. Additionally, both molecules demonstrated significant inhibitory activity against their respective targets, as seen by their IC₅₀ values of 0.0018 and 0.001. Both compounds meet the criteria for the B. Mann Whitney U Test and Lipinski test.
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Author keywords- Drugs; Employability; Industry; Machine learning; Medicine



DEEP LEARNING-BASED MULTI-HEAD SELF-ATTENTION MODEL FOR HUMAN EPILEPSY IDENTIFICATION FROM EEG SIGNAL FOR BIOMEDICAL TRAITS

Dutta, A.K., Raparathi, M., Alsaadi, M., ...Sandhu, M., Patni, J.C. , *Multimedia Tools and Applications*

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Abstract

The neurological condition epilepsy is demanding and even fatal. Electroencephalogram (EEG)-based epilepsy detection still faces various difficulties. EEG readings fluctuate, and different patients have various seizure activity patterns. EEG signal detection is time-consuming and labour-intensive, which puts a strain on medical staff and raises the possibility of erroneous detections. Usually, electrodes are inserted into the scalp or inside the brain for a brief period of time in order to obtain EEG data. It is essential to research efficient cross-patient automatic epilepsy detection techniques. The multi-head self-attention mechanism recognises long-distance dependencies with the same proficiency as it does temporal dynamic correlations between short-term temporal pattern characteristics and sequential relationships. The contextual representations are inputted into a bidirectional long short-term memory network (BiLSTM) so that information can be extracted

in both directions. Classification and training are carried out utilising the log SoftMax algorithm. The experiments utilised scalp EEG data from the CHB-MIT database. Sensitivity, specificity, F1-score, and accuracy were computed to be 96.5 percent, 97.04 percent, 96.6 percent, and 96.2 percent, respectively. The results of the experiment show how well the technique works for detecting seizures in several patients utilising multi-channel EEG recordings. The results also demonstrate the method's improved generalisation capabilities and resilience and consistency in collecting seizure patterns. This is particularly critical for the tertiary diagnosis of epilepsy, and the findings indicate that the proposed method significantly improves the accuracy of detection.

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Author keywords- Bidirectional Long Short-Term Memory Network; Biomedical traits; Electroencephalogram; Seizure Disorder; Seizure Patterns; Self-Attention Mechanism

Quartile – Q1

Percentile – 92nd

Impact Factor – 0.38

SDG



THE EVOLVING MEDIA ECOSYSTEM AND RELIGIOUS PATTERNS IN ANANTNAG, KASHMIR

Mir, R. *Journal of Religion, Media and Digital Culture*, 13(1), pp. 88–109

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Journal of Religion, Media and Digital Culture

Editor-in-Chief: Ruth Tsuria

The *Journal of Religion, Media and Digital Culture* (RMDC) is a peer-reviewed academic journal, publishing three issues per year. RMDC is published in cooperation with the International Society for Media, Religion and Culture (ISMRC).

To understand religion today, we must understand how religious ideas and practices are communicated, learned, represented, enacted and resisted through media. Religion circulates through social media, is discussed in the news and becomes a source of imagery for...

Abstract

This paper explores how followers of Islamic traditions in the Anantnag district of Jammu and Kashmir, India, articulate their religious experiences within the context of various communication mediums. The primary aim is to examine how Islamic traditions in Anantnag uphold their relationship with diverse media symbols and formats, while exploring how individuals in this Muslim-majority region derive religious significance from their engagement with various media platforms. The paper aims to illuminate the processes associated with communicating Islamic traditions within the evolving context of media history in Anantnag. By employing

in-depth interviews and a thorough review of existing literature, this paper argues that each media form holds a distinctive influence in shaping religious practices and discourses within the context of Anantnag. To understand how Muslims construct meaning through engagement with media of religious significance, this paper delves into narratives of self-identity, considering them as essential resources for illustrating the intersection of religious patterns and media landscapes in Anantnag.

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Author keywords- Anantnag; identity; India; Kashmir; media; orality; religion; technology

Quartile – Q2

Percentile – 53rd

Impact Factor – 2.24

SDG



PERINATAL MENTAL DISORDERS: THE 'NON LIQUET' FACET OF MENTAL HEALTH LEGISLATIVE INSTRUMENTS IN INDIA

Behl, R., Nemane, V., Sims, D., *Journal of Health Management*

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The Journal of Health Management is designed as a forum for exploring major issues of health policy and health management (including population and family welfare) in developing countries with a view to assisting the better implementation of desired changes. It caters to the needs of health policy-makers, health managers, reflective ...

This journal is a member of the [Committee on Publication Ethics \(COPE\)](#).

Abstract

Due to the impetus provided by the Millennium Development Goals and the Sustainable Development Goals, maternal health has become the subject matter of various legislative instruments worldwide. However, perinatal mental disorders have remained an underestimated public health issue in many countries. High prevalence rates of such perinatal disorders in India have been reported by various evidence-based studies. This makes it imperative to analyse the provisions of the mental healthcare legislative instruments that have been brought into force in India. This article aims to evaluate and analyse coverage of perinatal mental disorders under the provisions of the legislative instruments, especially statutes, providing for mental health in India. Websites of the Government of India, various Indian Ministries and other government agencies were visited to obtain relevant documents

regarding the mental health policy and legislation. None of the mental health legislative instruments in India underscore perinatal mental disorders as a public health concern, whereby failing to identify the unique characteristics of perinatal mental disorders. They consequently do not provide for nationwide detection and treatment measures. There is an immediate and pertinent need to highlight perinatal mental disorders through legislative instruments. The National Mental Health Policy, 2014 provides for comprehensive healthcare services; however, it excludes measures for perinatal mental health services. The Mental Healthcare Act, 2017 should be amended to explicitly include women during the perinatal period, along with originally provided mental health services for children and elderly individuals.

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Author keywords- 2016; 2017; India; legislations; mental health; Mental Healthcare Act; Perinatal mental disorders; reproductive rights; Rights of Persons with Disability Act

Quartile – Q2

Percentile – 55th

Impact Factor – 1.61

SDG



PREDICTIVE AND EXPERIMENTAL ANALYSIS OF FORCES IN DIE-LESS FORMING USING ARTIFICIAL INTELLIGENCE TECHNIQUES

Kumar, A., Shrivastava, V.K., Kumar, P., Kumar, A., Gulati, V. *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*

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The *Journal of Process Mechanical Engineering* publishes high-quality, peer-reviewed papers covering a broad area of mechanical engineering activities associated with the design and operation of process equipment.

This journal is a member of the [Committee on Publication Ethics \(COPE\)](#).

Abstract

The use of a novel technology for producing the components of lightweight materials and to reduce the requirements of power utilized during manufacturing processes can be a great aspect to decrease pollution and save resources. Single point incremental forming (SPIF) is the viable and novel approach for manufacturing the parts of high strength and lightweight materials without involving dedicated tools and dies economically. This die-less forming technique outperforms the conventional forming techniques by saving the energy and materials. In this work, the estimation and investigation of forming forces have been accomplished to ensure the secure uses for the SPIF machines for performing this process for the designed conditions on AA2024 sheets which is a lightweight aluminum alloy being widely used in aerospace and automotive sectors. To predict the peak

deforming load, machine learning (ML) techniques are employed in the current work along with the artificial neural network (ANN) by taking experimental results as the input dataset. The proposed ML model revealed better accuracy (99%) than previous work performed using similar approaches. The proposed ANN model produced lower mean absolute percentage error 4.35 as compared to other models. Authors also calculated the computing time taken during estimation of forming force. Combination of the Flatend-R1 tool and the 1.6 mm blank thickness increased the deforming loads drastically and can become the limiting factor for forming machine which should be avoided whereas the combination of hemispherical tool and lower blank thickness (0.5 mm) reduced the deforming loads that are needed to manufacture the conical frustum. It was also noticed that as the tool shape was changed

from hemispherical-end to Flatend-R1, the axial peak forces were increased by 13.16%, 16.59%, 20.43%, and 22.78% for the levels 1, 2, 3, and 4 of the blank thickness, respectively. © IMechE 2024.

Author keywords- 2016; 2017; India; legislations; mental health; Mental Healthcare Act; Perinatal mental disorders; reproductive rights; Rights of Persons with Disability Act



RESEARCH

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