

ISSN: 1656-1996  
Vol 6, Issue 8  
Aug. 2024

# Journal of Research in Science and Engineering

Journal of Research in Science and Engineering (JRSE)

ISSN: 1656-1996

Bryan House Publishing Limited  
contact@bryanhouspub.org  
www.bryanhouspub.org  
Telephone:  
0044-121-7813744



**BRYAN HOUSE PUBLISHING LIMITED**  
Multidisciplinary Academic Journal Publisher



# **Journal of Research in Science and Engineering (JRSE)**

## **ISSN 1656-1996**

<b>Editor-in-Chief</b>	Dr Taylor M. Matt, University of Macquarie, Sydney, Australia
<b>Editorial Board Members</b>	Dr. Markus Haag, Department of Management and Business Systems, University of Bedfordshire, United Kingdom
	Professor Nathan N. Elekwa, University of Nigeria, Nsuka, Nigeria
	Dr. Vin vng, Department of computer, University of Bedfordshire, United Kingdom
	Dr. Stephen Mackson, Department of Management and Business Information Systems, University of Bedfordshire, UK
	Dr. Make Smart, Faculty of Mathematics and Natural Science, University of Augsburg, Germany
	Dr. Matthew Peters, Department of computer Science, University of Western Sydney, Australia
	Deepankar Choudhury, Associate Professor, Department of Civil Engineering, Indian Institute of Technology (IIT) Bombay, Powai, Mumbai, India

### **Copyright**

*Journal of Research in Science and Engineering (JRSE)* is licensed under a Creative Commons-Non-Commercial 4.0 International Copyright (CC BY-NC4.0). Readers shall have the right to copy and distribute articles in this journal in any form in any medium, and may also modify, convert or create on the basis of articles. In sharing and using articles in this journal, the user must indicate the author and source, and mark the changes made in articles. Copyright © Bryan House Publishing Limited. All Rights Reserved.

# Journal of Research in Science and Engineering (JRSE)

ISSN 1656-1996

## Aims and Scope

Introduce the new peer-reviewed, open access journal entitled *Journal of Research in Science and Engineering (JRSE)* is an international open access journal publication by Bryan House Publishing Limited.

All manuscripts must be prepared in English and are subject to a rigorous and fair peer-review process. The journal publishes original papers including but not limited to the following fields:

- Aerospace Engineering and Technology
- Architectural Engineering and Technology
- Artificial Intelligence Technology
- Automatic Speech Recognition Technology
- Bioprocess Engineering
- Chemical Technology
- Civil Engineering
- Composites Engineering
- Control Engineering
- Data Engineering
- Ecological Science and Technology
- Electrical and Computer Engineering
- Engineering Education
- Engineering Geology
- Engineering Physics
- Environmental Sciences
- Food Science and Engineering
- Genetic Engineering and Biotechnology
- Green Energy Engineering and Technology
- Hydraulic Engineering
- Industrial Technology
- Information Technology
- Manufacturing Engineering and Technology
- Materials Science and Engineering
- Medical and Biomedical Engineering
- Micro-System Technology
- Military Technology and Equipment
- Nano-System Technology
- Naval Engineering
- Nuclear Science and Technology
- Opto-Mechatronics
- Particle Physics
- Petroleum Engineering
- Pharmaceutical Engineering
- Polymer Engineering
- Reservoir Engineering
- Security Engineering
- Structural Engineering

We are also interested in: 1) Short Reports - 2-5 page papers where an author can present either preliminary data or an idea with theoretical background but has not yet completed the research needed for a complete paper; 2) Book Reviews - Comments and critiques.

### **Bryan House Publishing Limited.**

E-Mail: [contact@bryanhouspub.org](mailto:contact@bryanhouspub.org)

Official Website: [www.bryanhouspub.org](http://www.bryanhouspub.org)

Address: Flat 4, Huntingdon House Faulkers Farm Drive Edington,  
Birmingham West Midlands, United Kingdom, B23 7XF.

Telephone: 0044-121-7813744

## **CONTENTS**

- 1 Data Security and Privacy in Data Engineering**  
Ranjana Rajiv Gaikwad
- 7 Family Science: Learning About Healthy Living**  
Srinivas Naveen
- 9 A Literature Review on the Causes and Spillover Effects of Local Government Debt Risk**  
Wenqian Yang, Changyi Lei
- 16 Ultra-Short-Term Wind Power Forecasting Based on VMD-GRU-Transformer**  
Wei Liu, Xinfu Liu
- 21 Abnormal Pollen Size as a Biological Indicator of Vehicle Pollution**  
Saurabh Suman Choudhuri, Chitra Sathe
- 24 Research on the Application of Electronic Technology in Communication Engineering in the Era of Big Data**  
Tian Feng, Yu Jun
- 28 Analysis and Study of Coriandrum Sativum Linn as a Promising Component**  
Gowtham Mulpuri
- 32 Application of Integrated RSA Encryption in Remote Data Integrity Check**  
Sagi Sreevibhu, Teendra Pavan Kumar
- 38 Research on Multi-modal Intelligent Navigation and AI+AR Display Design Theory**  
Jing Tong, Tingkui Ren
- 42 Analysis of Shoulder Rotation Range of Motion and Isometric Strength in Shoulder Pain Badminton Enthusiasts**  
Sumeng Wang
- 48 Analysis of the Current Status of Patent for AI in Network Security Protection**  
Xiaoyi Xiao
- 52 Enhanced Cloud Computing Security Based on Single to Multi Cloud Systems**  
Pranav Ojha
- 57 Composite Materials, Metals, And Ceramics Used in the Boeing 787- Materials Overview**  
Pramodkumar Nedumpilli Ramakrishnan
- 63 The Shuffling of the Concept of Nanomaterials in Chemistry: A Critical Spectrum**  
Oktavian Tamon
- 67 Preparation of Environmentally Friendly Bioplastics from Marine Red Algae, Salt Horned Seaweed, And Seaweed**  
Teja Sriya, Mani Deepak

**CONTENTS**

- 73    **Using AI and ML to Completely Change the Customer Experience in Crm Applications**  
Stella Adjei