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IN ENGINEERING | TECHNOLOGY | APPLICATIONS

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International Journal of Research in Engineering Technology and Applications (IJRETA)TM



Vision:

The vision of the *International Journal of Research in Engineering Technology and Applications (IJRETA)* is to:

- **Lead in Innovation:** Become a global leader in disseminating pioneering research in engineering, technology, and their interdisciplinary applications.
- **Bridge Academia and Industry:** Foster a seamless connection between theoretical advancements and practical applications, driving transformative innovation.
- **Support Sustainable Development:** Promote research that contributes to sustainable, inclusive, and technology-driven global growth.
- **Inspire Research Excellence:** Encourage high-quality, impactful research that addresses current and future challenges in science, engineering, and technology.

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The mission of *International Journal of Research in Engineering Technology and Applications (IJRETA)* is to:

- **Promote Multidisciplinary Research:** Provide a platform for the integration of diverse engineering and technological disciplines to address complex global challenges.
- **Facilitate Innovation and Application:** Encourage research that bridges theoretical concepts with real-world applications, advancing both academic and practical knowledge.
- **Facilitate Global Collaboration:** Connect researchers, academicians, and industry professionals from across the world to share ideas, innovations, and insights.
- **Support Open Exchange of Ideas:** Foster collaboration by publishing high-quality, peer-reviewed articles that are accessible to a global audience.
- **Maintain Ethical Standards:** Uphold the highest standards of integrity, originality, and ethics in scholarly publishing, ensuring the reliability and credibility of published research.
- **Enhance Practical Impact:** Highlight research that provides tangible solutions to real-world challenges, driving technological progress and societal development.
- **Enable Global Reach:** Expand the boundaries of knowledge dissemination by reaching researchers, educators, and practitioners across the world, particularly in developing and underserved regions.

By staying committed to its mission and vision, IJRETA aims to create a significant impact in the academic and professional engineering community worldwide.

International Journal of Research in Engineering Technology and Applications (IJRETA)TM



Aims and Scope:

The **International Journal of Research in Engineering Technology and Applications (IJRETA)** is a peer-reviewed, multidisciplinary platform dedicated to advancing research and innovation across diverse domains of engineering, technology, and their real-world applications. IJRETA seeks to bridge the gap between theoretical research and practical implementation, fostering collaboration among academia, industry, and policy-making communities.

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IJRETA welcomes high-quality research contributions from a broad spectrum of disciplines, including but not limited to:

- **Computer Science and Engineering:** Artificial Intelligence, Machine Learning, Cloud Computing, Data Science, Internet of Things (IoT), Blockchain, Cybersecurity, Software Engineering, and Computational Theory.
- **Electrical and Electronics Engineering:** Embedded Systems, VLSI Design, Robotics, Power Systems, Renewable Energy Technologies, and Communication Systems.
- **Interdisciplinary Technologies:** Biotechnology applications in engineering, Smart Cities, Healthcare Technologies, and the Management of Technological Systems.

The journal particularly encourages papers that explore innovative applications of engineering and technology in addressing global challenges and societal needs.

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IJRETA serves a diverse readership, including:

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- **Industry Professionals:** Engineers, technologists, and innovators applying research outcomes in industrial and societal contexts.
- **Policy Makers and Strategists:** Professionals involved in shaping technology-driven policies and sustainable development frameworks.
- **Graduate and Postgraduate Students:** Emerging researchers seeking inspiration and foundational understanding through contemporary studies and applications.

Dedication



This inaugural volume of the International Journal of Research in Engineering Technology and Applications (IJRETA) is lovingly dedicated to the cherished memory of my beloved father, **Sri Ramaswamy S. P.**, whose values of integrity, perseverance, and dedication continue to guide me in every endeavour. Though he is no longer with us, his teachings, sacrifices, and unwavering belief in the power of education remain the foundation of my personal and professional journey. I also dedicate this work to my beloved mother, **Smt. Nagamma**, whose boundless love, strength, and constant encouragement have been my greatest source of inspiration. Her unwavering support and faith in my abilities have motivated me to pursue excellence and contribute meaningfully to the academic and research community.

I extend my heartfelt gratitude and dedication to my loving wife, **Mrs. Rohini M.**, whose patience, understanding, encouragement, and steadfast support have been instrumental in the successful establishment of IJRETA. I am equally grateful to my precious daughters, **Ananya N** and **Aadhya N**, whose innocent smiles, joy, and affection bring meaning and balance to my life, inspiring me to strive for greater achievements. I also express my sincere appreciation to my dear brother, **Mr. Ravikumar S. R.**, for his continuous encouragement, trust, and support throughout this journey. This journal stands as a humble tribute to my family, whose love, sacrifices, and inspiration have made this milestone possible. May this publication contribute to the advancement of knowledge, innovation, and research, reflecting the values they have instilled in me.

Dr. Nagaraja S. R.
Founder & Editor-in-Chief, IJRETA
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The International Journal of Research in Engineering Technology and Applications (IJRETA) is a peer-reviewed, multidisciplinary platform dedicated to advancing research and innovation across diverse domains of engineering, technology, and their real-world applications. IJRETA seeks to bridge the gap between theoretical research and practical implementation, fostering collaboration among academia, industry, and policy-making communities.



CHIEF EDITOR:



Dr. Nagaraja S R is an accomplished academician, researcher, and academic leader with 18+ years of experience in higher education, specializing in Computer Science, Data Science, IoT, Big Data Analytics, and Emerging Technologies.

He is currently serving as Professor at Presidency University, Bengaluru, and is also the Director of FortuneTree Technorider Pvt. Ltd., contributing to industry-driven innovation, technology consulting, and skill development initiatives.

Known for his strategic vision, academic leadership, mentoring excellence, and collaborative approach, Dr. Nagaraja S R continues to play a pivotal role in advancing institutional excellence, research innovation, industry engagement, and student success.



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