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EDITORIAL

Inaugural Editorial of the *ICCK Transactions on Systems Safety and Reliability*

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Abstract

***ICCK Transactions on Systems Safety and Reliabilityy* is an academic journal dedicated to advancing the research and application of safety, reliability, and resilience in industrial and engineering systems. The journal seeks to publish high-quality research that addresses the challenges of maintaining and improving the performance of systems across a variety of industries, including energy, transportation, manufacturing, and emerging technologies like artificial intelligence and the Internet of Things. We invite both theoretical and applied research that offers innovative solutions to critical issues such as system optimization, fault diagnosis, risk assessment, and system defense strategies. All submissions undergo a rigorous peer-review process to ensure the publication of only the highest quality papers. This journal aims to be a valuable resource for academics, industry professionals, and policymakers working to ensure the safety and reliability of complex systems in an increasingly interconnected and technology-driven world.**

Keywords: systems safety, reliability.

The *ICCK Transactions on Systems Safety and Reliability* is launched with the aim of filling an important gap in the field of system safety and reliability research. As technology continues to advance and industrial systems grow increasingly complex, the need for robust safety and reliability mechanisms has never been greater. This journal aims to provide a comprehensive platform for researchers, engineers, and industry professionals to share their innovative work and solutions that address the challenges of ensuring the safe and reliable operation of systems across various domains.

Despite the numerous international journals dedicated to system safety and reliability, many tend to focus on specific system types, such as computing, electrical, or transportation systems. However, the complexity and interconnectedness of modern industrial systems require a broader, more interdisciplinary approach. This journal stands apart by welcoming high-quality research that spans a wide range of systems, from traditional energy and transportation systems to the latest developments in artificial intelligence, Internet of Things (IoT), and cyber-physical systems. Our aim is to embrace diversity in topics while maintaining a stringent standard of academic excellence.

The focus of the journal encompasses, but is not limited

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to, the following key areas:

- **Reliability of Information Systems**: As the digital age continues to evolve, ensuring the reliability of information systems, including networks and data storage, is essential. This journal will explore both foundational research and real-world applications in this critical area.
- **Reliability of Energy Systems**: Whether in traditional power grids or modern renewable energy infrastructure, reliability in energy systems is fundamental to sustaining economies and addressing global energy demands. Research into the resilience of these systems and the integration of sustainable energy sources will be a key feature of the journal.
- **Reliability of Transportation Systems**: From road networks to aviation and maritime transport, ensuring the reliability and safety of transportation systems is a priority in maintaining the flow of goods and people. The journal invites papers addressing the latest advancements in system optimization, resilience, and safety in this sector.
- **Reliability of Manufacturing Systems**: Manufacturing systems are the backbone of global economies, and ensuring their operational reliability is paramount. Topics such as predictive maintenance, system monitoring, and process optimization are central to this area.
- **Resilience of Supply Chains**: In the face of increasingly frequent disruptions, understanding the resilience of global supply chains is more important than ever. This journal will feature research on strategies and models that enhance the flexibility and robustness of supply chains in a volatile world.
- **Safety Issues Related to Artificial Intelligence**: The rise of AI presents new challenges in system safety, particularly in autonomous systems, robotics, and decision-making algorithms. This journal will explore the risks and safety issues associated with the integration of AI in safety-critical applications.
- **Reliability of Internet of Things (IoT)**: The IoT is rapidly expanding into every facet of modern life, creating new challenges in terms of security, interoperability, and reliability. Research in this area will focus on ensuring the dependable performance of IoT systems and their resilience to failure.
- **Reliability of Complex Networks**: Communication and transportation networks are becoming increasingly intricate and interconnected. Research on the reliability and optimization of these networks, as well as fault tolerance and failure recovery, will be featured in the journal.
- **Diagnostics and Prognostics**: Accurate diagnostics and prognostics are critical for maintaining the safety and reliability of complex systems. Papers on new methods for predicting failures, detecting faults early, and improving system diagnostics will be encouraged.
- **System Defense Strategies**: As systems become more complex, protecting them from cyber threats and external risks becomes increasingly important. This journal will include research on defense mechanisms, resilience strategies, and cybersecurity measures for critical infrastructure.
- **System Maintenance and Warranty**: Optimizing system maintenance, extending the lifespan of components, and managing warranties are essential to keeping systems running efficiently. The journal will publish research on maintenance optimization, predictive maintenance, and warranty management strategies.
- **Optimization of Systems Considering Risks**: Optimizing system performance while considering various risks, such as financial, operational, and safety risks, is a critical challenge for engineers. This journal will feature papers that develop and apply optimization models that account for these risks in system design and operation.

The journal aims to foster a rich and dynamic exchange of ideas by publishing both theoretical and applied works. Research papers that introduce novel methodologies, techniques, or insights are highly encouraged, as are review articles that provide a comprehensive overview of key areas in system safety and reliability. Regardless of the type of submission, the work must demonstrate significant innovation and provide meaningful contributions to the field. The rigorous peer-review process will ensure that only high-quality papers are published, maintaining the journal's high standards and ensuring its relevance to

both academia and industry.

As the editor of this journal, I believe that the interdisciplinary nature of system safety and reliability research makes it a dynamic and critical field with enormous potential to improve real-world systems. By publishing diverse and groundbreaking research, *ICCK Transactions on Systems Safety and Reliability* will serve as an essential resource for scholars, engineers, and policymakers striving to build safer, more reliable systems that support our modern world.

I invite all researchers in the field to contribute their best work to this journal and join us in addressing the safety and reliability challenges of the future.

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Conflicts of Interest

The author declare no conflicts of interest.

Ethical Approval and Consent to Participate

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Rui Peng is a Management Science and Engineering professor and Ph. D supervisor in School of Economics & Management, Beijing University of Technology. His research topics include software reliability, computing systems reliability, network defense and attack strategies, etc. Currently, he serves as an Editorial Board Member for several prestigious journals, including Reliability Engineering & System Safety, a flagship journal in the field of reliability, Humanities and Social Sciences Communications, an SSCI journal under Nature, and Quality & Reliability Engineering International, a renowned SCI journal in the quality field. Besides, he has experience being guest editor for Journal of Risk and Reliability, Recent Patents on Engineering, etc. He has published over 140 papers in SCI journals, such as Reliability Engineering & System Safety, IISE Transactions, IEEE Transactions on Reliability, IEEE Internet of things journal, IEEE Transactions on Systems, Man, and Cybernetics-Systems, Applied Soft Computing, European Journal of Operational Research, etc. His citation is more than 5300 in Scopus, and his H-index is 42. Besides, he has published two books with Springer, one on software reliability and another on warm standby systems. For seven consecutive years from 2018 to 2024, he has been listed as an Elsevier Highly Cited Chinese Research Scholar. Furthermore, he has been recognized as a Global Top 2% Scientist from 2019 to 2023 and a Scholar GPS Top 0.05% Researcher from 2022 to 2024. He is the program committee co-chair for QR2MSE conferences, paper review co-chair for ICRMS 2025 conference, organizing co-chair for Tsinghua's Annual Conference on Quality and Reliability, and the program committee member for the PRDC conference. (Email: pengrui1988@bjut.edu.cn)