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EDITORIAL

Introducing the International Journal of Digital Technology Driven Engineering: Scope, Principles, and Editorial Vision

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ABSTRACT

Engineering research is being reshaped by the convergence of computational modelling, data-driven methods, artificial intelligence, digital twins, advanced manufacturing, automation, sensing, optimization, and high-performance simulation. The International Journal of Digital Technology Driven Engineering (IJDTDE) is being established as an open-access venue for rigorous work at these interfaces. This inaugural editorial defines the journal's scope, the forms of contribution it seeks, and the principles intended to guide its editorial practice. IJDTDE will prioritize technically sound and clearly reported studies that connect digital methods to meaningful engineering questions, provide sufficient evidence for their claims, and support reproducibility and responsible reuse where possible. The journal's editorial framework emphasizes independent assessment, transparent policies, research integrity, complete metadata, persistent scholarly records, and constructive peer review. It also recognizes that software, data, models, and computational workflows are increasingly central research outputs. By bringing together engineering disciplines and digital methodologies, IJDTDE aims to support a scholarly community in which methodological innovation is evaluated alongside engineering relevance, validation quality, and practical transferability.

1 A journal for a changing engineering landscape

Engineering has always advanced through the interaction of theory, experiment, computation, and practice. What is changing is the degree to which digital technologies now connect these activities. Computational models can be updated from sensor data; optimization can interact with manufacturing constraints; artificial intelligence can assist design exploration and diagnosis; digital twins can support decisions across the life cycle of an asset; and interoperable data environments can connect work that was previously separated by discipline or software platform.

These developments create opportunities, but they also raise demanding scholarly questions. A model that is accurate in one dataset may not generalize to another operating regime. An optimization result may be mathematically strong but difficult to manufacture or verify. An artificial-intelligence method may improve a metric while remaining physically inconsistent or insufficiently interpretable. A digital-twin architecture may be technically sophisticated but lack evidence that it changes engineering decisions. The

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value of digital technology in engineering therefore depends not only on novelty, but also on validation, transparency, reproducibility, and relevance to a clearly defined engineering problem.

The International Journal of Digital Technology Driven Engineering (IJDTDE) is being established to provide a focused scholarly venue for this intersection. The journal is intentionally cross-disciplinary. Its purpose is not to privilege one technology or application sector, but to examine how digital methods contribute to the analysis, design, manufacturing, operation, monitoring, maintenance, and transformation of engineered systems.

2 Scope and contribution expectations

IJDTDE welcomes original research articles, review articles, technical notes, short communications, and case studies that make a clear scholarly contribution. Relevant topics include, without being limited to, computational and data-driven engineering, digital twins and digital threads, artificial intelligence and machine learning for engineering, advanced simulation, structural and multidisciplinary optimization, smart manufacturing, additive manufacturing, automation and robotics, sensing and structural health monitoring, uncertainty quantification, reduced-order modelling, scientific machine learning, and digitally enabled engineering design.

Scope alone is not sufficient for publication. A strong submission should identify a meaningful engineering question, explain the relationship between the proposed method and established knowledge, and provide evidence that supports its conclusions. Depending on the study, that evidence may include analytical justification, experimental observations, benchmark comparisons, sensitivity analysis, uncertainty assessment, ablation studies, independent validation data, convergence studies, or documented industrial experience.

The journal will encourage authors to distinguish clearly between a conceptual demonstration and a validated engineering solution. Claims should be proportionate to the evidence presented. Computational performance should not be reported without sufficient information about data, models, parameters, software, and evaluation conditions. Case studies should describe what is transferable beyond the individual application. Review articles should do more than catalogue publications; they should establish a transparent synthesis, identify limitations in the field, and define useful directions for research and practice.

3 Editorial principles

3.1 Scholarly merit and independent assessment

Editorial decisions should be based on scholarly merit, methodological quality, relevance to the journal, and the strength of the supporting evidence. The journal's published policies define editorial screening, peer-review expectations, conflicts of interest, complaints and appeals, corrections, and research-integrity procedures. These policies are intended to be applied consistently and refined as experience and community feedback identify improvements.

Constructive peer review is central to this process. Review should test whether the question is significant, the method is appropriate, the evidence is sufficient, and the conclusions follow from the work. It should also help authors improve clarity and reproducibility. Reviewer expertise, confidentiality, competing interests, and responsible use of artificial-intelligence tools must be managed carefully. Articles authored by editors or members of the journal's governing bodies require an independent handling process and a transparent statement that prevents those authors from influencing the decision on their own work.

3.2 Transparency and research integrity

Legitimate scholarly publishing requires more than a review decision. Journal ownership, management, editorial governance, peer-review model, author charges, copyright, licensing, and ethics procedures should be publicly described. IJDTDE intends to develop its operations in alignment with the Principles of Transparency and Best Practice in Scholarly Publishing issued jointly by COPE, DOAJ, OASPA, and WAME [1], and with relevant COPE guidance for editorial offices [2]. Reference to these frameworks is not a claim of membership or indexing; it is a commitment to use recognized guidance when developing and evaluating journal practice.

The journal expects accurate authorship, complete citations, disclosure of funding and competing interests, appropriate ethical approval, and correction of the scholarly record when necessary. Artificial-intelligence tools cannot be authors and cannot assume responsibility for published content. Authors remain accountable for the accuracy, originality, provenance, permissions, and integrity of all submitted material, including content created or revised with automated assistance.

3.3 Reproducibility, data, software, and research objects

Digital engineering studies increasingly depend on datasets, source code, trained models, simulation inputs, parameter files, workflows, and software environments. These objects often determine whether a result can be understood or evaluated. IJDTDE will therefore ask authors to describe the availability of supporting materials and to explain legitimate restrictions. Not every dataset can be shared openly, particularly where privacy, security, commercial confidentiality, or contractual obligations apply. Even in such cases, clear metadata and an explicit access statement improve transparency.

The FAIR principles describe research objects in terms of findability, accessibility, interoperability, and reusability [3]. Their implementation varies by discipline, but their central direction is valuable for digital engineering: outputs should be identifiable, described, connected to their provenance, and reusable under clear conditions where possible. Reproducibility should be treated as a design consideration throughout a study, not as documentation added only at submission.

3.4 Open access and durable scholarly communication

IJDTDE is designed as an open-access journal so that published work can be read without subscription barriers. Open access is most useful when it is accompanied by clear licensing, reliable metadata, accessible article pages, preservation planning, and stable links between publications and their supporting research objects. These elements make research discoverable by people and machines and help preserve the context required for responsible reuse.

The broader open-science movement emphasizes accessibility, collaboration, knowledge sharing, and equitable participation while recognizing legitimate constraints [4]. For IJDTDE, this means that openness should be implemented responsibly rather than treated as a slogan. The journal will seek practical improvements in metadata quality, author guidance, accessibility, data statements, and long-term availability as its publishing infrastructure develops.

4 What we invite from authors and readers

The journal invites contributions that connect digital innovation with engineering substance. Authors should explain why their problem matters, how their methods differ from existing approaches, how performance was evaluated, and where the limitations lie. Negative or mixed findings may be valuable when they are supported by sound methods and clarify the boundaries of an approach. Replication and validation studies can strengthen the evidence base of rapidly developing fields. Interdisciplinary work is particularly welcome when each discipline contributes more than terminology and the integration produces a genuine methodological or engineering advance.

Readers, reviewers, and authors also shape the standards of a journal. We invite reviewers to provide rigorous, specific, and respectful assessments. We invite authors to treat transparent reporting as part of the research contribution. We invite readers to identify errors, ambiguities, and opportunities for correction or post-publication discussion. The journal's credibility will depend on how consistently it responds to this collective scrutiny.

5 Building IJDTDE responsibly

A new journal should be evaluated by its conduct rather than by promises. IJDTDE begins with an editorial scope, public policies, an open publishing platform, and a commitment to develop reliable metadata and editorial workflows. These foundations must be tested in practice. Review quality, decision consistency, author service, publication timeliness, correction procedures, preservation arrangements, and indexing readiness require continuous measurement and improvement.

The journal will not claim identifiers, memberships, metrics, or indexing services before they are valid. It will distinguish staging material from the scholarly version of record and will replace workflow-test content before public launch. Special issues or collections, when introduced, should follow the same review, conflict-of-interest, transparency, and publication-ethics standards as regular content.

This first editorial is intended to establish a public benchmark against which the journal's later decisions can be assessed. The objective is a focused, international venue where digital methods are examined with engineering rigour and where technically ambitious work is accompanied by evidence, transparency, and responsible communication.

6 Conclusion

Digital technologies are changing what engineers can model, observe, optimize, manufacture, and operate. They also change what scholarly communication must record: not only conclusions, but also data, software, models, workflows, assumptions, and uncertainty. IJDTDE is being established to address this evolving research landscape. Its editorial direction combines cross-disciplinary scope with clear expectations for engineering relevance, methodological quality, validation, transparency, and research integrity.

We invite the community to contribute work that is both digitally innovative and scientifically accountable. The long-term value of the journal will be determined by the quality of the research it publishes, the fairness of its editorial decisions, and its willingness to improve its own practices in the same evidence-based spirit that it expects from authors.

Author contributions

Conceptualization, N.D.L., R.Z.A., and S.K.G.; writing—original draft, S.K.G.; writing—review and editing, N.D.L., R.Z.A., and S.K.G.; supervision, N.D.L., R.Z.A., and S.K.G. The corresponding author confirms that all listed authors meet the authorship criteria, have approved the submitted version and author order, and authorize the corresponding author to communicate with the journal on their behalf.

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