

Editorial

Engineering and Computing Insights Welcomes Submissions Across All Fields of Engineering and Computing in an Open and Inclusive Manner

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1. Disciplines in an Era of Transformation

With the profound scientific and engineering transformations brought about by artificial intelligence, the disciplines of engineering and computing have never been more closely interconnected. From mechanical engineering and semiconductor devices to electromagnetics, electronic circuits, communications, and computer science, this broad field is being fundamentally reshaped at an unprecedented pace [1, 2].

Against this background, with artificial intelligence as a key driving force and interdisciplinary integration as a central focus, *Engineering and Computing Insights* welcomes submissions from all fields of engineering and computer science with an unprecedented spirit of openness and inclusiveness. We firmly believe that interdisciplinary exchange will serve as a core driving force for the future development of science.

2. AI-Empowered Electromagnetics Research: Emerging Frontiers

As a key bridge between the physical world and information technology, electromagnetics and electromagnetic devices are undergoing a profound transformation driven by artificial intelligence. As a scholar in this field, I would like to encourage researchers working in electromagnetics and related areas to submit their work to this journal. From my perspective, several important directions deserve particular attention in the future development of this field:

AI-driven algorithms are reshaping the design paradigm of electromagnetic devices.

Traditionally, research on electromagnetic hardware has largely started from structure, as structural design is closely related to device performance. In contrast, AI-driven electromagnetic device design often begins with data, prioritizing the achievement of target performance rather than focusing primarily on a predefined structural form. Such data-driven and inverse-design approaches have already demonstrated great potential in nanophotonics, metasurfaces, and electromagnetic device optimization [3–6].

Breaking the constraints of pixelization.

Due to limitations in computational resources, current AI-driven electromagnetic device design often begins with pixelated representations. In the future, it will be crucial to overcome this limitation and expand the computational scale of electromagnetics research from the level of deep learning to that of large language models. This shift may enable more flexible, continuous, and physically interpretable design strategies for next-generation electromagnetic structures [2, 5].

Expanding the definition of “meta”.

Over the past few decades, the concept of “meta” has, whether intentionally or unintentionally, often been associated with “periodicity”. This association has constrained the possible forms of many electromagnetic devices, particularly in industrial applications [7–9]. It also departs to some extent from Sir John Pendry’s original vision of realizing electromagnetic functionalities that are difficult or impossible to obtain from naturally occurring materials [10, 11]. In this broader context, the pioneering works of Engheta and collaborators on metamaterials, optical nanocircuits, and epsilon-near-zero media have further expanded the conceptual boundaries of engineered electromagnetic matter [12–14]. Broadening this concept may give rise to a wider variety of electromagnetic device architectures.

Exploring practical application scenarios.

Electromagnetic materials are often evaluated by performance metrics such as gain, reflection coefficient, bandwidth, or efficiency [15]. However, practical applications involve far more than the simple arrangement and combination of such materials. Greater attention should be paid to real-world deployment scenarios, manufacturability, robustness, system-level integration, and application-oriented performance evaluation.

3. Join Us

We warmly invite researchers, engineers, students, and members of the broader academic and professional communities to join *Engineering and Computing Insights* as editorial board members, reviewers, authors, and contributors. Together, we hope to become a key force in advancing the AI-driven transformation of engineering and computing, and in exploring the unlimited possibilities that lie ahead.

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