

## Editorial

The Special Issue on *Computing, Engineering and Multidisciplinary Sciences 2025* in the *Advances in Science, Technology and Engineering Systems Journal (ASTES Journal)* reflects the evolving landscape of modern research, where the boundaries between disciplines are increasingly fluid and innovation thrives at their intersections. In an era defined by rapid technological progress and complex global challenges, the integration of computing methodologies with engineering principles and multidisciplinary scientific approaches has become essential. This issue brings together a diverse collection of contributions that demonstrate how collaborative, cross-domain thinking is driving advancements in both theoretical understanding and practical applications.

A central theme emerging from this issue is the transformative role of computing as an enabling force across scientific and engineering domains. From artificial intelligence and data analytics to high-performance computing and intelligent automation, computational tools are no longer auxiliary but foundational to innovation. The papers featured herein illustrate how these technologies are being harnessed to model complex systems, optimize engineering processes, and extract meaningful insights from vast datasets. Such approaches are not only enhancing efficiency and accuracy but are also opening new avenues for discovery across disciplines ranging from environmental science to biomedical engineering.

Equally significant is the emphasis on engineering solutions that are informed by multidisciplinary perspectives. The contributions highlight how integrating knowledge from physics, chemistry, biology, and social sciences leads to more robust and adaptable systems. Whether addressing sustainable energy challenges, designing resilient infrastructure, or developing smart technologies for urban environments, the research underscores the necessity of holistic thinking. This convergence enables researchers to move beyond narrow problem-solving frameworks and develop solutions that are better aligned with real-world complexities.

The issue also captures the growing importance of collaborative research ecosystems. Many of the studies presented are the result of partnerships between academia, industry, and research institutions, reflecting a broader shift toward cooperative innovation. Such collaborations facilitate the translation of theoretical research into practical implementations, ensuring that scientific advancements have tangible societal and economic impacts. Furthermore, the inclusion of multidisciplinary perspectives fosters creativity and encourages the exploration of unconventional ideas, which are often the catalyst for breakthrough innovations.

Another noteworthy aspect of this collection is its attention to emerging challenges and ethical considerations. As technologies become more integrated into daily life, questions related to data privacy, system security, sustainability, and societal impact become increasingly critical. The contributions in this issue not only present technical advancements but also engage with these broader concerns, highlighting the importance of responsible innovation. By addressing these dimensions, the research aligns with the global imperative to develop technologies that are not only effective but also equitable and sustainable.

From an editorial standpoint, this Special Issue represents a commitment to advancing knowledge at the convergence of computing, engineering, and multidisciplinary sciences. It provides a platform for researchers to share insights that transcend traditional disciplinary boundaries and encourages the development of integrated approaches to complex problems. The diversity of

topics and methodologies showcased here reflects the dynamic and interconnected nature of contemporary research.

The works presented in this issue collectively illustrate that the future of innovation lies in collaboration, integration, and adaptability. By bridging disciplines and fostering a culture of interdisciplinary inquiry, this Special Issue contributes to a deeper understanding of how computing and engineering can be leveraged within a broader scientific context to address the pressing challenges of our time and to shape a more resilient and forward-looking global landscape.

**Guest Editor**

**Prof. Wang Xiu Ying**