

## Editorial

The Special Issue on Computing, Engineering and Multidisciplinary Sciences (2024) in the *Advances in Science, Technology and Engineering Systems Journal (ASTES Journal)* reflects the accelerating convergence of computational intelligence, engineering innovation, and cross-disciplinary collaboration in addressing the complexities of a rapidly evolving technological landscape. As global challenges become increasingly interconnected, the integration of diverse scientific perspectives has emerged as a critical enabler of robust, scalable, and forward-looking solutions. This issue brings together a collection of contributions that demonstrate how computing and engineering, enriched by multidisciplinary approaches, are shaping the next generation of scientific and technological advancement.

A central theme of this issue is the pervasive influence of advanced computing paradigms in transforming engineering systems and multidisciplinary applications. Contributions explore the deployment of artificial intelligence, machine learning, data analytics, and intelligent automation to enhance system performance, optimize resource utilization, and support real-time, data-driven decision-making. These technologies are applied across a broad spectrum of domains, including smart cities, healthcare systems, industrial automation, communication networks, and energy management, highlighting their versatility and transformative potential.

The multidisciplinary dimension of this issue is further reflected in its focus on sustainability, resilience, and innovation. Several papers investigate environmentally responsible engineering practices, renewable energy integration, and efficient resource management, aligning with global priorities for sustainable development. Others examine emerging challenges in digital ecosystems, infrastructure resilience, and human-centered technologies, emphasizing the importance of integrating technical expertise with societal considerations. This convergence of perspectives underscores the value of collaborative research in addressing both technical and socio-economic dimensions of contemporary problems.

Methodological diversity continues to be a defining strength of this special issue. The selected studies employ a wide range of approaches, including theoretical modeling, computational simulations, experimental research, and real-world case analyses. This integrative methodology ensures that the research is both academically rigorous and practically relevant. Many contributions emphasize scalability, adaptability, and robustness, offering solutions that can be effectively implemented across diverse operational contexts and industries.

The 2024 timeframe provides an important context characterized by rapid digital transformation, increasing reliance on intelligent systems, and heightened awareness of sustainability and resilience. The research presented in this issue reflects these trends, showcasing innovations that support automation, connectivity, and sustainable growth while addressing emerging global challenges.

The editorial team expresses its sincere appreciation to the authors for their high-quality contributions and to the reviewers for their thoughtful and constructive evaluations. Their collective efforts have ensured the integrity and scholarly impact of this special issue, reinforcing the journal's commitment to excellence in multidisciplinary research.

This special issue highlights the transformative potential of integrating computing, engineering, and multidisciplinary sciences. By presenting diverse perspectives and innovative research, it

provides a valuable platform for advancing knowledge, fostering collaboration, and supporting the development of solutions that address the complex demands of an increasingly interconnected world.

**Guest Editor**

**Prof. Mohamed Abdelaziz Hassan Eleiwa**