
EDITORIAL MESSAGE

The IIUM Engineering Journal Vol. 26 No. 3 continues its commitment to advancing impactful research that addresses contemporary engineering challenges through innovation, sustainability, and interdisciplinary integration. This issue features 28 high-quality papers across a broad spectrum of disciplines: Civil and Environmental Engineering, Electrical, Computer and Communications Engineering, Engineering Mathematics and Applied Science, Materials and Manufacturing Engineering, and Mechatronics and Automation Engineering.

The Civil and Environmental Engineering section reflects a growing focus on safety, durability, and sustainable infrastructure. Papers in this category explore accident probability among elderly motorcyclists in Indonesia, corrosion assessment in fly ash–silica fume concrete via non-destructive testing, eco-processed pozzolan characterization, strength forecasting using machine learning and response surface methodology, clayey sand improvement using brick dust, and sediment scour simulations in submerged weirs. Collectively, these works contribute to improved construction practices and enhanced environmental resilience.

The Electrical, Computer, and Communications Engineering section comprises the largest set of contributions, showcasing cutting-edge AI and computational advancements across multiple domains. Topics include real-time deep learning for UAV object detection, electronic nose integration with LeNet and regularization, blockchain benchmarking on heterogeneous IoT hardware, and health monitoring of lead-acid batteries in off-grid solar systems. Other notable studies investigate fake news detection using multimodal embeddings, hybrid deep learning for data center temperature control, sensor-based fingerspelling recognition, and spatiotemporal models for earthquake prediction. Additionally, papers on chipless RFID resonators, LoRa-driven UAV return prediction, saliency-based segmentation of skin cancer, and sentiment analysis on TVET from social media highlight AI's broad impact. Further innovations are presented in malware detection within IoMT environments, trade-space analysis of satellite anomalies, parametric cost modeling, and power generation optimization using bio-inspired algorithms. These papers demonstrate the transformative role of AI, IoT, and intelligent systems in reshaping engineering practice.

In Engineering Mathematics and Applied Science, a significant theoretical contribution explores a novel seven-dimensional chaotic system, enriching our understanding of nonlinear dynamics and complex systems. The Materials and Manufacturing Engineering section highlights progress in safety engineering and the development of advanced composites. Featured studies include the enhanced design of portable oil spill skimmers using computational fluid dynamics, void formation analysis in BFS/CaCO₃ diffusion couples, and the evaluation of machining performance in hybrid fiber-reinforced polymer composites. These contributions reflect ongoing efforts to optimize material performance and environmental protection.

In Mechatronics and Automation Engineering, contributions emphasize intelligent control and autonomous systems. Topics include the dynamic analysis of aerial work platforms using hybrid CAD for satellite testing, as well as autonomous navigation based on frontier-based detection integrated with social force modeling. These efforts highlight the integration of robotics, control systems, and intelligent automation to improve operational reliability and mobility in complex environments.

This issue exemplifies the journal's mission to bridge theory and real-world application across diverse engineering domains, promoting secure, sustainable, and intelligent systems. The editorial team expresses its sincere gratitude to all authors, reviewers, and section editors for their valuable contributions, commitment to excellence, and support in upholding the scholarly integrity of this publication. We hope these contributions inspire future innovations, foster stronger academia–industry collaboration, and accelerate global progress towards sustainable, inclusive, and technology-driven development.

Prof. Ir. Ts. Dr. Teddy Surya Gunawan

Executive Editor

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