

Editorial

The Journal of Engineering Research and Sciences (JENRS) continues to provide a multidisciplinary platform for research addressing emerging challenges across engineering, science, and technology. The contributions presented in this issue reflect the increasingly interconnected nature of contemporary engineering research, spanning cybersecurity, human-computer interaction, condensed matter physics, artificial intelligence, public-sector digital governance, and intelligent fault diagnosis. Collectively, these studies demonstrate how theoretical developments, systematic reviews, experimental validation, and emerging computational methodologies can contribute to the development of more secure, reliable, accessible, and intelligent technological systems.

The security of legacy network infrastructure remains a critical concern, particularly within highly regulated financial and mainframe environments. A systematic migration framework from SNMPv2c to SNMPv3 is presented for IBM z/OS, Cisco IOS-XE, SolarWinds, and related operating-system environments, incorporating authenticated privacy mechanisms based on HMAC-SHA-96 and AES-128. Through FAIR-based risk analysis, the proposed transition demonstrates a substantial reduction in expected annual loss, while the five-phase migration methodology addresses coexistence, asset discovery, RACF configuration, engineID management, and cutover validation. The alignment of the approach with established security standards and guidance further enhances its practical value for organizations seeking to modernize legacy network-management infrastructures [1].

Accessibility and engagement in user experience evaluation are examined through the development of voice-based adaptations of the User Experience Questionnaire. Two conversational implementations, Voice1-7 and Voice2Q, together with the visually supported Voice2Q+VC variant, demonstrate how natural language interaction can be incorporated into established UX assessment methodologies. Validation involving 345 participants indicates that the voice-based approaches can produce results comparable to the conventional written questionnaire, while Voice2Q improves response consistency and Voice2Q+VC helps address cognitive workload associated with voice-only interaction. These findings highlight the potential of conversational interfaces to make UX evaluation more accessible while maintaining measurement validity and improving user engagement [2].

The fundamental mechanisms governing superconducting critical temperature remain an important challenge in condensed matter physics. A phenomenological framework based on the concepts of superconducting gene, superconducting DNA, orbital electron-hole pairs, and associated structural parameters is proposed to describe variations in critical temperature across copper oxides, iron-based superconductors, and high-pressure hydrides. The resulting orbital engineering strategy considers electron orbital filling, light-element heterojunctions, pressure, doping, and isotope effects as potential pathways for increasing superconducting transition temperatures. By seeking a unified description across different superconducting material families, the study offers theoretical perspectives that may support the future design of high-temperature superconducting materials and technologies [3].

The growing availability of social media content in Bengali presents both an opportunity and a challenge for computational emotion analysis, particularly because of limited annotated resources and the informal nature of online language. A unified six-class Bengali emotion classification framework based on a manually annotated corpus of 5,401 social media comments systematically evaluates recurrent, transformer-based, and hybrid architectures. The proposed soft voting ensemble combines complementary contextual representations and achieves 91.31% accuracy with a weighted F1 score of 0.913, outperforming individual models. The incorporation

of LIME and SHAP further strengthens interpretability, contributing to the development of more transparent and reliable natural language processing systems for Bengali-language applications [4].

Digital transformation within public-sector organizations requires technological innovation to be balanced with governance, regulatory, and operational requirements. A systematic review of 39 sources examines the potential integration of Artificial Intelligence for IT Operations and Machine Learning Operations into ITIL-based change and release management workflows. The analysis identifies key themes involving AI-driven monitoring and incident management, public-sector governance constraints, legacy-system challenges, and limited adoption of AI within change and release processes. The identified gaps in explainability, empirical validation, AI-ready change records, and governance frameworks provide a valuable foundation for future research aimed at developing responsible and effective AI-supported operational management in public-sector environments [5].

The increasing complexity of cyber-physical systems has created a growing need for intelligent fault-diagnosis methods capable of understanding relationships among interconnected components. A comprehensive survey of Graph Neural Network-based fault diagnosis examines graph representations, learning paradigms, diagnostic objectives, deployment architectures, benchmark datasets, and evaluation practices across industrial automation, smart grids, transportation, healthcare, and other domains. Particular attention is given to practical challenges including topology drift, cascading misdiagnosis, noise amplification, open-set misclassification, adversarial vulnerability, and concept drift. The discussion of physics-informed learning, multimodal fusion, dynamic graph modeling, and privacy-preserving federated approaches, together with practitioner-oriented design guidance, provides a broad perspective on the path toward reliable and deployable GNN-based diagnostic systems for safety-critical infrastructures [6].

The contributions assembled in this issue demonstrate the broad scope and evolving character of engineering research, where cybersecurity, artificial intelligence, digital governance, human-centered technologies, advanced materials, and intelligent diagnostics increasingly intersect. From securing legacy infrastructure and improving digital accessibility to exploring new theoretical pathways for superconductivity and developing robust AI-driven analytical systems, the featured studies address challenges of both scientific significance and practical relevance. The collective findings provide valuable insights for researchers, practitioners, and technology developers and underscore the importance of interdisciplinary approaches in advancing reliable, secure, sustainable, and intelligent engineering systems.

References:

- [1] R.K. Shaw, "SNMPv2-to-SNMPv3 Migration in Financial Mainframes: Risk Reduction and Repeatable Playbook," *Journal of Engineering Research and Sciences*, vol. 5, no. 6, pp. 1–14, 2026, doi:10.55708/js0506001.
- [2] I. Diaz-Oreiro, G. Lopez, "Beyond Written Surveys: Validating Voice-Based Implementations of the User Experience Questionnaire," *Journal of Engineering Research and Sciences*, vol. 5, no. 6, pp. 15–26, 2026, doi:10.55708/js0506002.
- [3] G. Zhang, X. Zhang, "Superconductivity Research Method Based on Atomic Properties and Hole-Electron Tensor," *Journal of Engineering Research and Sciences*, vol. 5, no. 6, pp. 27–38, 2026, doi:10.55708/js0506003.
- [4] M. Alam, S.S. Aonty, S.N. Mahmud, N.R. Swachha, A.T. Wazih, "Bengali Emotion Classification from Social Media Text Using Deep Learning and Transformer-Based Models with Explainability," *Journal of Engineering Research and Sciences*, vol. 5, no. 6, pp. 39–55, 2026, doi:10.55708/js0506004.

- [5] C. Ganduri, "From ITIL to AIOps in Public Sector: A Systematic Literature Review," *Journal of Engineering Research and Sciences*, vol. 5, no. 6, pp. 56–66, 2026, doi:10.55708/js0506005.
- [6] V. Tiwari, O. Suaifan, R. Othman, A. Gupta, "Graph Neural Networks for Fault Diagnostics in Cyber-Physical Systems: A Survey of Taxonomy, Deployment Architectures and Failure Modes," *Journal of Engineering Research and Sciences*, vol. 5, no. 6, pp. 67–96, 2026, doi:10.55708/js0506006.

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