

Editorial

The *Journal of Engineering Research and Sciences (JENRS)* is pleased to present a collection of research contributions that address contemporary challenges in agricultural automation, software reliability engineering, and neurotechnology-assisted healthcare. These studies showcase the growing integration of artificial intelligence, advanced sensing technologies, and data-driven methodologies to improve productivity, reliability, and human well-being. The research published in this issue reflects the multidisciplinary nature of modern engineering and highlights innovative solutions with significant practical and societal impact.

Advancements in agricultural automation are transforming traditional farming practices through the adoption of intelligent robotic systems. One contribution presents an AI-powered robotic solution for autonomous date harvesting, integrating computer vision, LiDAR sensing, and robotic manipulation technologies. By combining YOLO-based object detection with convolutional neural networks for fruit maturity classification, the proposed system enables accurate identification and harvesting of ripe dates while minimizing fruit damage. The study demonstrates the potential of intelligent harvesting systems to reduce labor dependency, improve crop quality, and support sustainable agricultural development, particularly in regions where date cultivation plays a significant economic role [1].

Software quality assurance remains a critical concern in large-scale enterprise environments where test automation forms the backbone of continuous integration and continuous deployment pipelines. A comprehensive investigation into test flakiness explores the underlying causes of unstable automated tests across user interface, application programming interface, mobile, and data-processing domains. The proposed multi-level stability framework incorporates robust synchronization mechanisms, deterministic locator strategies, resilient API validation, controlled test-data management, and cloud-based reliability patterns. Enhanced by AI-driven analytics for flakiness prediction and diagnosis, the framework demonstrates substantial reductions in unstable test executions and diagnostic effort, providing a practical roadmap for improving software reliability and operational efficiency in enterprise-scale systems [2].

Improving cognitive performance and attention among children affected by neurological disorders represents an important area of healthcare research. A study investigating the application of brainwave entrainment techniques combines virtual reality, binaural audio stimulation, and electroencephalogram analysis to evaluate their effectiveness in enhancing attentional learning. Using audio-visual entrainment at a frequency of 10 Hz, the research examines neurophysiological changes among children diagnosed with Attention Deficit Hyperactivity Disorder, Autism Spectrum Disorder, and comorbid conditions. Quantitative analysis of EEG signals reveals measurable improvements in attention and cognitive functioning among participants with ADHD and comorbid conditions, while more limited effects are observed among individuals with ASD. The findings contribute valuable insights into the potential role of non-invasive neurotechnology interventions in supporting cognitive development and therapeutic outcomes for children with neurological disorders [3].

Collectively, the studies featured in this issue demonstrate the transformative influence of artificial intelligence, intelligent automation, and advanced analytical techniques across diverse sectors. From sustainable agricultural practices and dependable software engineering to innovative healthcare interventions, these contributions advance both theoretical understanding and practical implementation. It is anticipated that the findings presented herein will encourage further interdisciplinary research and inspire the development of technologies that address pressing societal and industrial challenges in an increasingly connected world.

References:

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