

Foreword

Welcome to the third issue of 2026 of the *Pertanika Journal of Science and Technology (PJST)*!

PJST is an open-access journal for studies in Science and Technology published by Universiti Putra Malaysia Press. It is independently owned and managed by the university for the benefit of the world-wide science community.

This issue contains 27 articles: four review articles; and the rest are regular articles. The authors of these articles come from different countries namely India, Indonesia, Iraq, Japan, Malaysia, Nigeria, Oman, Qatar, United Arab Emirates, and United Kingdom.

The article entitled “Design and Development of Unmanned Aerial Vehicles’ Propellers Based on Biomimetic Design” presents an innovative nature-inspired approach to improving the aerodynamic performance of unmanned aerial vehicles. Drawing on the geometry and flight characteristics of eagle wings and feathers, the study develops four Eagle Feather Biomimicry propeller configurations and evaluates them against a conventional design using computational fluid dynamics at 2000, 4000, and 6000 rpm. The designs are assessed in terms of thrust, lift, torque, acoustic behaviour, power consumption, and efficiency. The findings demonstrate that the biomimetic modifications offer distinct performance advantages for different operational needs: EAFB 4 produced the highest thrust across the tested rotational speeds, EAFB 2 generated the greatest lift at lower power demand, and EAFB 5 showed favourable power efficiency at higher rotational speeds. By showing how biological principles can be translated into functional engineering geometry, the work contributes to the development of quieter, more stable, and energy-efficient UAV propulsion systems. The proposed designs have potential applications in agriculture, inspection, surveillance, and other missions requiring improved endurance and aerodynamic reliability. Further details of this study can be found on page 1451.

The issue also features the article titled “Occupational Health Implications of High-Frequency Whole-Body Vibration Exposure in Mine Workers”, which highlights an important occupational safety concern in mining and heavy-machinery operations. Whole-body vibration measurements were collected under actual field conditions from operators of crushers, dumpers, and wheel loaders using a tri-axial accelerometer and a human vibration measurement system. The recorded signals were processed in accordance with ISO 2631-1 to determine root mean square acceleration, daily exposure value A(8), vibration dose value, and associated health-risk levels. The results show that crusher

operators were generally exposed to vibration within acceptable limits, whereas dumper and wheel-loader operators experienced substantially higher levels, particularly along the vertical axis, increasing their risk of long-term musculoskeletal and neurological disorders. The study therefore emphasises the need for engineering controls such as improved seat suspension and vibration isolation, together with administrative measures including job rotation, reduced exposure duration, and structured work-rest schedules. By combining field measurements with internationally recognised assessment criteria, this research provides practical evidence for occupational health management and supports the adoption of real-time monitoring and data-driven interventions to protect mine workers. Further details of this study can be found on page 1727.

Another noteworthy contribution is the article entitled “A LiDAR and IoT Integrated Approach for Intelligent Monitoring of Lubricant Liquid Levels: A Lab-Scale Study on PETRONAS Products”, which addresses the need for continuous and reliable lubricant monitoring in modern industrial systems. The study develops a laboratory-scale prototype that combines a non-contact LiDAR sensor, an ESP32 microcontroller, and an IoT platform to measure lubricant levels and transmit real-time information for remote monitoring. The system was tested using PETRONAS ETRO 6+ base oil and PETRONAS Syntium 800 10W-40, with repeated measurements used to evaluate consistency and stability. Standard deviations of 10.6 mm and 9.27 mm were obtained, respectively, indicating acceptable measurement performance, with the more optically opaque Syntium lubricant producing slightly greater precision. The integration of cloud-based visualisation and automated data collection reduces dependence on manual inspection and supports timely maintenance decisions. This contribution is particularly relevant to predictive maintenance, industrial automation, and smart manufacturing, where early detection of low lubricant levels can prevent equipment damage, minimise unplanned downtime, and improve operational efficiency. The study also provides a practical foundation for future validation under vibration, temperature variation, oil mist, and other real industrial conditions. Full details of this study are available on page 1745.

We anticipate that you will find the evidence presented in this issue to be intriguing, thought-provoking and useful in reaching new milestones in your own research. Please recommend the journal to your colleagues and students to make this endeavour meaningful.

All the papers published in this edition underwent Pertanika’s stringent peer-review process involving a minimum of two reviewers comprising internal as well as external referees. This was to ensure that the quality of the papers justified the high ranking of the journal, which is renowned as a heavily-cited journal not only by authors and researchers in Malaysia but by those in other countries around the world as well.

We would also like to express our gratitude to all the contributors, namely the authors, reviewers and Editorial Board Members of PJST, who have made this issue possible.

PJST is currently accepting manuscripts for upcoming issues based on original qualitative or quantitative research that opens new areas of inquiry and investigation.

Editor-in-Chief

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