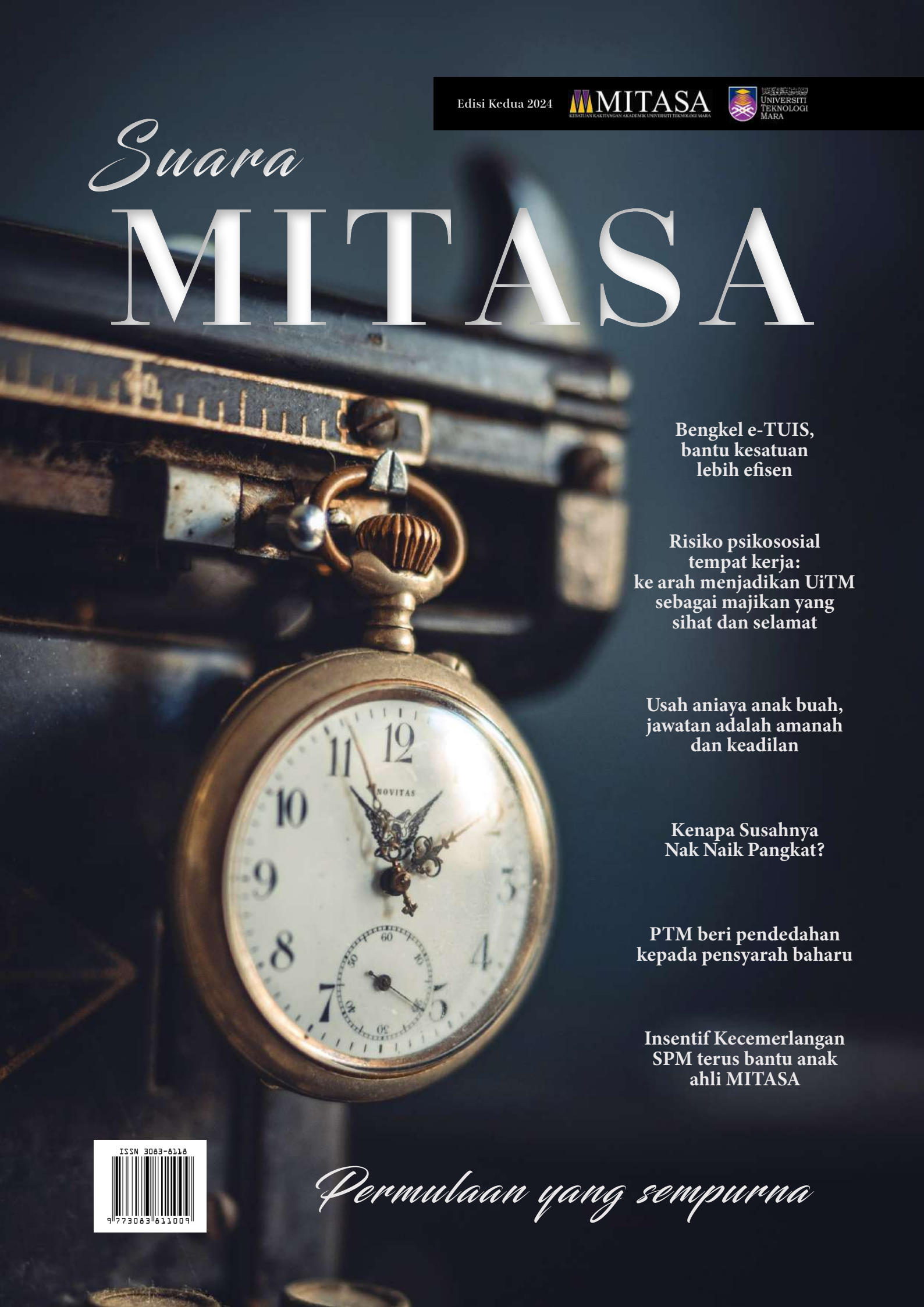
Edisi Kedua 2024

MITASA
KESATUAN KAKITANGAN AKADEMIK UNIVERSITI TEKNOLOGI MARA

UNIVERSITI TEKNOLOGI MARA

Suara MITASA



Bengkel e-TUIS, bantu kesatuan lebih efisen

Risiko psikososial tempat kerja: ke arah menjadikan UiTM sebagai majikan yang sihat dan selamat

Usah aniaya anak buah, jawatan adalah amanah dan keadilan

Kenapa Susahnya Nak Naik Pangkat?

PTM beri pendedahan kepada pensyarah baharu

Insentif Kecemerlangan SPM terus bantu anak ahli MITASA

ISSN 3083-8118

Permulaan yang sempurna

Harnessing Applied AI: Transforming Social and Applied Sciences in Malaysia

Ts. Zaaba Ahmad
Lecturer, College Of Computing, Informatics And Mathematics

Applied artificial intelligence (AI) refers to the practical implementation of AI technologies to solve real-world problems. In recent years, AI has become increasingly important in social and applied sciences, offering unprecedented opportunities for research and innovation. This article examines how AI is transforming these fields, highlighting its significance, current applications, and future potential.

AI has significantly impacted the social sciences by enabling more precise and large-scale analyses of human behaviour and social phenomena. For example, AI models can study social behaviour patterns to predict societal trends and inform policy decisions. During the COVID-19 pandemic, policymakers used AI to analyse social media data to track public sentiment and adherence to health guidelines. This enabled policymakers to adjust real-time communication strategies to better address public concerns and improve compliance with health measures. However, integrating AI in social sciences also presents challenges, such as ensuring data privacy and addressing biases in AI models. Developing robust ethical frameworks and guidelines to mitigate these risks and ensure the responsible use of AI technologies is crucial.

In applied sciences, AI has led to numerous innovations and breakthroughs. In healthcare, AI algorithms assist in diagnosing diseases, personalising treatment plans, and predicting patient outcomes. For example, AI systems have been developed to analyse medical images, such as X-rays and MRIs, to detect abnormalities more accurately than human radiologists. These advancements are particularly beneficial in low-resource settings with limited access to medical specialists.

Environmental scientists use AI to model climate change scenarios and optimise resource management. AI-driven models can predict the impact of various factors on climate change, enabling researchers to develop more effective strategies for mitigating its effects. For instance, AI can analyse satellite imagery to monitor deforestation and predict its impact on local and global ecosystems.

In engineering, AI-driven automation enhances efficiency and safety in manufacturing processes. AI-powered robots can perform complex tasks with precision and consistency, reducing the risk of human error and improving overall productivity. These examples demonstrate the transformative potential of AI across various applied science disciplines.

Interdisciplinary research is crucial for maximising AI's benefits in the social and applied sciences. Collaborative efforts between AI experts and researchers from other fields can lead to innovative solutions and new research paradigms. For instance, a real-time Malaysian Sign Language (MSL) detection algorithm based on YOLO has been developed. Sign language serves as a communication medium for individuals with hearing impairments, but it differs from American Sign Language in certain aspects. Thus, there is a need to localise the AI model. This project utilised Convolutional Neural Network (CNN) techniques and the You Only Look Once version algorithm to create a system capable of detecting Malaysian sign language in real-time. The localised model was trained on labelled images from web sources and recorded Malaysian sign language videos. This model can be integrated into mobile applications to assist in communication with the hearing impaired.

The Malaysian agricultural sector developed real-time ripe palm oil bunch detection using the YOLO algorithm to enhance harvesting efficiency. Traditionally, the harvester's experience determines the ripeness of palm oil bunches, potentially leading to errors. This project proposed a real-time detection system using YOLO to identify ripe palm oil bunches, improving accuracy and reducing reliance on human judgement. The system involved collecting and labelling images of palm oil bunches, followed by training using the Darknet framework.

Another study focused on automatically classifying mangosteen ripening stages using deep learning. The quality of mangosteens depends on their ripening stage at harvest. This project employed a CNN architecture using the V3 Inception model to classify the ripening stages of mangosteens. In the future, this automated classification may help farmers harvest mangosteens at the optimal time, improving yield quality. These examples highlight the potential of interdisciplinary research in developing practical AI applications tailored to local needs.

In the realm of AI, data specificity and contextual relevance are paramount. Global datasets predominantly develop existing pre-trained AI models, which may not accurately reflect the unique characteristics and nuances of Malaysian text, image, and audio data. Therefore, it is crucial for UiTM researchers to establish a localised AI initiative. This initiative would involve collecting and utilising data from various domains, including social media, healthcare, environmental monitoring, etc. By doing so, we can address the unique challenges and opportunities presented by Malaysia's diverse linguistic, cultural, and social landscape.

AI researchers from the computer science domain can collaborate with social and applied science researchers to facilitate the collection and analysis of Malaysian-specific data. This interdisciplinary approach will enable social scientists to benefit from advanced AI tools while contributing valuable domain-specific knowledge to the AI community. For example, localised AI models can be used to analyse social media trends, monitor public health, and study environmental changes within Malaysia. Training AI models on localised data can significantly improve their performance and accuracy.

While AI offers significant benefits, it raises important ethical and societal concerns. Ethical considerations include ensuring fairness, transparency, and accountability in AI systems. AI models must be designed to avoid biases that can lead to unfair treatment of certain groups. One approach in addressing these concerns is to involve diverse stakeholders in developing and deploying AI technologies. This includes policymakers, industry leaders, researchers, and representatives from affected communities. By fostering inclusive dialogue and collaboration, it is possible to develop localised AI systems that are equitable and beneficial for all Malaysians.

To ensure the ethical and responsible development and deployment of AI technologies, Malaysians, particularly UiTM researchers, policymakers, and practitioners, must collaborate. By embracing AI's interdisciplinary nature and addressing its ethical implications, we can create a future where AI is a powerful tool for advancing a better Malaysia.

Untuk sebarang urusan berkaitan akses terhadap MITASA, ahli-ahli boleh mengikuti kami di platform media sosial MITASA dengan mengimbas kod QR yang disediakan seperti Tiktok, Facebook, Instagram dan Twitter. Bersama ini juga disertakan kod QR untuk pendaftaran sebagai ahli dan borang aduan untuk ahli yang memerlukan.

Media Sosial MITASA

Tiktok

Facebook

Twitter

Instagram

Laman Web

Keahlian & Aduan

Kemaskini Keahlian

Borang Ahli

Borang Aduan

Siti Fatihah Awang
Setiausaha Media dan Korporat MITASA
010-9280262

Nadra Sharfina Ab Rahman
Setiausaha Pejabat MITASA
018-2365130