Editor's Note

THE *International Journal of Interactive Multimedia and Artificial Intelligence* (IJIMAI) provides a forum for researchers and professionals to share recent advances in artificial intelligence (AI) and its wide range of applications. This issue brings together contributions that reflect the growing diversity of AI research, covering topics such as information credibility assessment in social media, recommender systems, federated learning and data privacy, medical image analysis, educational technologies, large language models and virtual assistants, intelligent multimedia systems, and environmental monitoring. Collectively, these works illustrate how current AI methods continue to expand across disciplines, addressing both theoretical challenges and real-world problems.

In recent years, the rapid growth in the number of social media users has led to the broad dissemination of news and other content that is not always reliable. Due to the nature of social media platforms, such information can spread rapidly, being consumed by users as if it were true. In many cases, it is difficult to determine whether a source is trustworthy, and verification mechanisms are not consistently applied, despite their crucial role in mitigating the spread of misinformation. To address this problem, the first article in this issue presents a literature review in the field of source credibility assessment, focusing on the platforms, indicators, and methods used to evaluate the credibility of different information sources. The review analyzes 23 conference papers and 22 journal articles published in recent years, identifying avenues for future research and the development of effective strategies to combat the challenges posed by misinformation.

Other applications that have proliferated in recent years include platforms for consuming different types of content, such as podcasts, movies, and music, strongly influenced by their recommendation engines. These recommenders rely on various techniques, such as collaborative filtering, which uses similarity measures between user profiles to generate recommendations. The second article demonstrates how Siamese neural network models can be used to learn similarities and dissimilarities between user profiles in these systems, improving performance compared to seven representative baselines evaluated in the experiments.

Another contribution in the field of recommender systems introduces PRESTO, a graph neural network for musical collaborations recommendation. Trained with existing songs created by artists, together with additional features related to both the songs and the artists - including audio properties, contextual data and mood-related attributes - PRESTO suggests new collaborations between artists who have not previously worked together. PRESTO has been evaluated using a dataset comprising more than 200,000 artists, achieving an average F1 score above 0.75.

The increasing use of diverse Internet applications has led to a substantial growth in associated content, much of which requires data privacy protection. By decentralizing model training to the client side, federated learning eliminates the need to share private data by transmitting local model updates, which are then aggregated on a server to form a global model. However, model performance can be affected by unbalanced data distributions or by local data anomalies resulting from clients' vulnerability to attacks. To address this issue, the next paper proposes a method called FedCM, which effectively trains local models on benign (non-noisy) clients to obtain noise-resistant models. This approach reduces the negative impact of data anomalies on global updates and improves the accuracy of the global model. Experimental validation conducted on real datasets shows that FedCM achieves the highest average model accuracy across all proportions of attacked clients when compared with a total of nine baselines.

The next article focuses on the automatic segmentation of dental cone-beam computed tomography (CBCT), a widely used diagnostic imaging modality in dental practice. Most existing approaches are based on convolutional neural networks (CNNs) and typically address a single category - mainly teeth - whereas this work proposes the segmentation of four types of oral structures by implementing previously unutilized query-based segmentation Transformers. The proposed method achieves results comparable to state-of-the-art approaches in tooth segmentation, while using a considerably smaller training dataset than prior contributions.

In the literary domain, the next article presents the UPMVM (Urdu Poetry Metrics Verification Model), a novel rule-based architecture designed to detect metrical patterns in Urdu ghazal verses. Urdu poetry is based on the Arud system, derived from Arabic and Persian languages. The Arud system is the rhythmic pattern found in any poetry and its knowledge ensures that poets comply with poetic weight regulations. The proposed approach introduces a sixteen-stage algorithm capable of automatically identifying Arud meters in the Urdu verses. Evaluated on a dataset consisting of 500 Urdu verses, the model achieved an accuracy of 94%. Unlike conventional methods, the proposed method not only authenticates the adherence of verses but also provides detailed insights into their metrical composition, enabling a deeper understanding of Urdu poetic metrics. This application may support both professional poets and students in analysing poetry within a prosodic framework.

Shifting the focus to educational applications, the following research combines the predictive capabilities of AI models — particularly those based on deep learning techniques — with the teacher's decision-making capacity to select the most suitable activity for each learner. To this end, the proposed model is structured in two phases. The first is a prediction phase, in which the model estimates both the score a learner is likely to obtain and the time required to complete an activity. In the second phase, a single activity is selected through instructional strategies. The selected strategy is always set by the teacher, who ultimately guides learners throughout the process, thereby avoiding the delegation of pedagogical decisions solely to an automated system.

Also, within the education domain, given the emergence of generative artificial intelligence and AI-powered chatbots, increasingly used by students to solve problems, the next article studies whether language models (LMs) can enhance the efficiency and accuracy of educational processes in Computer Science. Specifically, the study compares the performance of LMs with that of undergraduate Computer Science students in a case study focused on the design and implementation of RESTful APIs Domain-Specific Languages (DSLs). Experimental results show high variability in task execution among LMs, leading the authors to highlight the importance of well-defined DSLs and effective prompting processes for achieving optimal performance. This should allow students to focus more on formally describing requirements in natural language, thus focusing on higher-level tasks, while leaving the more routine processes to LMs, improving solution quality.

Also related to the use of language models and virtual assistants, the next article analyzes their application in project management research and practice, with particular attention to virtual assistants as decision-support tools. The study reviews the architectures underlying contemporary virtual assistant models and examines

their application in project management and business decision-making environments. Unlike traditional decision-support systems, which rely on static historical data and predefined rules, generative AI enhances adaptability by generating new strategies, supporting creative problem-solving, and enabling real-time decision-making. The article highlights how retraining techniques allow these models to be adapted to complex organizational challenges, contributing to improved operational efficiency, strategic planning, and more informed business decisions.

The next contribution also explores the use of language models, presenting an AI-driven system designed to enhance the viewing experience of live-streamed e-sports events. The proposed approach integrates deep learning and computer vision techniques to automatically interpret game events, control camera positioning, and generate contextually aligned commentary in real time. By combining convolutional neural networks for spatial analysis, LSTM models for temporal dynamics, and large language models for natural language generation, the system provides an end-to-end solution for automated e-sports broadcasting. Evaluations on fluency, relevance, and strategic depth metrics, show that the system improves viewer experience, demonstrating the potential of integrated AI systems to deliver more immersive and engaging live viewing experiences.

Finally, moving beyond human-centered applications, the last article addresses the application of artificial intelligence techniques to environmental monitoring, exploring the use of data augmentation methods to improve the estimation of tree growth and transpiration. Using field data collected from semi-natural forest sites in Lithuania, the study analyzes the influence of environmental variables — including photosynthetically active radiation, air temperature, and relative humidity — on tree growth prediction. By employing Pareto-optimized time-series augmentation together with a Prophet-based prediction model, the proposed approach enhances data diversity and prediction accuracy despite limited datasets. Experimental results demonstrate significant relationships between environmental variables and tree growth and transpiration, highlighting the potential of augmented data to improve predictive performance in ecological monitoring scenarios.

Overall, this issue showcases the diversity of current artificial intelligence research and its growing impact across scientific, industrial, healthcare, educational, and broader societal domains. We hope readers find these contributions both inspiring and valuable for future research and practice.

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