Editorial

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Biographical notes: Lorna Uden is Professor Emeritus of IT systems in the Faculty of Computing, Engineering and Technology at The University of Staffordshire. Her research interests include artificial intelligence, technology learning, HCI, activity theory, big data, user experience, knowledge management, web engineering, multimedia, e-business, service science and innovation, mobile computing, cloud computing, neuroscience, social media, intelligent transport systems, healthcare, internet of things, problem-based learning and GAI.

Iraklis Varlamis is a Professor of Data Management in the Department of Informatics and Telematics at Harokopio University of Athens, Greece. He holds a PhD from Athens University of Economics and Business, Greece, and an MSc in Information Systems Engineering from UMIST UK. His research interests vary from data mining and the use of semantics in web mining to social network analytics and knowledge extraction from social media and the news. He collaborates with several start-ups, companies, and government bodies as a technology mentor. He is the scientific coordinator in several H2020 and Erasmus+ projects.

Welcome to V20N3 issue of *IJWET*. This collection features five papers that showcase diverse and forward-looking applications of advanced computational methods across cloud computing, information retrieval, sports analysis, energy systems, and industrial design. The contributions range from optimising storage frameworks with novel scheduling algorithms, refining meta-search engines with clustering and anomaly reduction, and advancing sports action recognition through deep learning, to developing distributed optimisation strategies for smart grid dispatch and applying generative models to industrial product design. Together, these studies highlight the transformative role of artificial intelligence, optimisation, and machine learning in addressing complex real-world challenges and driving innovation across disciplines.

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The first article, titled 'Usage of LIFIS and FILIS algorithms for improving storage performance: an optimised approach' by Saswati Sarkar and Anirban Kundu, addresses the pressing challenge of enhancing storage system efficiency in cloud environments. The authors propose a cloud-based storage framework that leverages optimised mapping, drive partitioning, and a novel map table concept to accelerate input/output request scheduling. The framework achieves significant reductions in seek time, access time, read/write time, and turnaround time by integrating Last_index_to_First_index_scheduling (LIFIS) and First_index_to_Last_index_scheduling (FILIS) algorithms. Parallel disk scheduling techniques further enhance throughput while minimising computational overhead. Experimental comparisons and trace-based analyses demonstrate clear improvements in real-world scenarios, with performance gains highlighted through comprehensive time-difference graphs. This research provides an innovative and practical approach for improving storage density and efficiency, offering substantial contributions to cloud computing and large-scale data management.

The second article, titled 'Clustrosearch: a novel, intent-aware, and anomalous reducing meta-search engine optimisation algorithm based on user scoring system and clustering' by Parsa Parsafar, introduces an innovative approach to improving the accuracy and efficiency of meta-search engines. Recognising the limitations of existing methods in handling diverse user intents and anomalous results, the author proposes a system that integrates a machine learning-based user scoring mechanism with clustering techniques to refine search outputs. By incorporating the cluster-based local outlier factor (CBLOF) algorithm, clustrosearch effectively reduces the impact of outliers, ensuring that retrieved results align more closely with user expectations. Comprehensive benchmarking against established models demonstrates substantial gains in retrieval precision and anomaly reduction, underscoring the scalability and adaptability of the proposed solution. This research advances meta-search optimisation by offering a user-centric, intent-aware, and computationally efficient framework that enhances relevance and satisfaction in digital information retrieval.

The third article, titled 'A Sanda action recognition using CNN-LSTM network model' by Jingying Ouyang, Jisheng Zhang, Yuxin Zhao and Shenghai Chen, proposes a hybrid deep learning framework to advance precision in sports action recognition. Targeting the challenges of skeletal sequence limitations and sensor dependencies, the authors design a CNN-LSTM model that leverages joint positions within a cylindrical coordinate system and applies a random sliding window to capture detailed angle and positional information. By grouping joints, selecting root nodes, and employing a multi-stream network for local feature extraction, the model achieves robust classification in the pooling and fully connected layers. Experimental results demonstrate outstanding performance, with high recognition accuracy, rapid processing times, and minimal deviation in Sanda movement analysis. This research delivers an effective and scalable approach for video-based motion recognition, offering significant applications across education, sports training, and intelligent surveillance.

The fourth article, titled 'Optimisation algorithm for distributed economic dispatching problems in smart grid' by Yan Li and Zhibang Ruan, presents an advanced approach to addressing one of the most critical challenges in modern power systems: efficient and reliable grid dispatch. The authors introduce a smart grid economic dispatch model that applies convex optimisation theory in combination with a distributed second-order consistency algorithm and the internal penalty function method. By incorporating capacity and climb constraints, the proposed model ensures practical applicability to

real-world scenarios. Comparative experiments highlight its superior performance over traditional methods and first-order algorithms, with energy-saving efficiencies – significantly improving grid stability and resource allocation. This research contributes an effective, scalable solution for distributed economic dispatch, advancing the robustness and sustainability of smart grid operations in the face of increasing energy demands.

The fifth article, titled 'Industrial design pattern optimisation research based on 3D deep learning algorithm' by Yao Wang, explores the integration of advanced artificial intelligence techniques into industrial product design. Addressing the inefficiencies and subjectivity of manual design processes, the author develops an intelligent model that combines generative adversarial networks (GANs) with variational autoencoders and GraphVAE to generate innovative and diverse 3D design solutions. By transforming 3D input data into scene diagrams, the model effectively captures structural relationships among components, enhancing both creativity and practicality in design tasks. Experimental evaluations reveal that the proposed model achieves significantly higher information entropy compared to benchmark methods such as GoogLeNet and fast R-CNN, indicating richer output and stronger similarity to input data. While the model trades off some computational efficiency, it offers a powerful framework for improving the quality and diversity of industrial design outputs, marking a promising step toward AI-driven innovation in product development.