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Editorial

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Welcome to Volume 22, Issue 4 of the Computer Science and Information Systems journal, which encompasses 10 regular articles and one special section, "Emergences in Computing and Information Technologies: Towards a Sustainable Wellbeing Environment," which features 9 articles. As is customary, we acknowledge the efforts and enthusiasm of our authors, reviewers, and guest editors, without whom the current issue and the publication of the journal itself would not be possible.

The first regular article, "FAP: A Time Series Analysis and Mining Framework for Scientific and Practical Applications" by Zoltán Gellér et al. presents the main capabilities of the Framework for Analysis and Prediction (FAP), a free and open source Java library designed for processing and mining time series data that has been successfully applied both in research and education since its initial presentation. In this moment, the FAP library contains implementations of all main concepts needed for time-series mining: a significant number of distance measures, various variants of the NN classifier, multiple representations of time series, the main techniques for evaluating classifier performance, as well as classes for training classifiers and tuning parameters of distance measures.

In the second regular article, "VSAF: Verifiable and Secure Aggregation Scheme for Federated Learning in Edge Computing," Shiwen Zhang et al. focus two issues in federated learning (FL): (1) privacy protection of the parameters uploaded by clients, and (2) verification of the correctness of the aggregated result from a cloud server. To this end, the article proposes VSAF, a verifiable and secure aggregation scheme for federated learning in edge computing by designing a single masking protocol which combines the Bloom filter and Shamir's secret sharing, and introducing a lightweight verification algorithm for aggregated gradients based on a linear homomorphic hash function.

"Augmented Reality Mobile Application as a Support in Presentation of Orthodox Iconography," by Dušan Tatić et al. presents a mobile application based on augmented reality technology that facilitates and speeds up access to iconographic content stored on the Virtual Encyclopedia of Bulgarian Iconography (BIDL) platform. The main goal, based on image recognition by a specially designed augmented reality module, is providing instantaneous and on-site information about the concrete icon observed by visitors, while avoiding classical search over a large database (requiring keywords such as geographical location, name of the church, etc.) since the icons are immediately recognized.

Lang Wu and Yi Dong, in "Federated Learning with Committee Mechanism for Class Imbalance," introduce FedCCSM, a federated learning framework designed to address class imbalance and malicious client behavior. Firstly, to accelerate model optimization, a client selection mechanism is introduced based on specific criteria. Secondly, the adoption of a committee mechanism involves selecting a client committee to screen the model before aggregation, enhancing system security. And finally, by simulating mechanisms for unbalanced clients, the algorithm's practical application effectiveness is strengthened.

"Data-Driven Traffic Management: Enhancing Road Safety through Integrated Digital Twin Technology," by Miloš Durković et al. proposes a data-driven approach to enhancing traffic safety through the integration of digital twins, in-vehicle monitoring system, and machine learning. The main goal of the approach is to contribute to solving problems related to driver behavior, inadequate road signage infrastructure, and delayed maintenance, by developing a digital twin model that leverages real-time data for predictive analysis, coaching, and maintenance.

Shunxiang Zhang et al., in their article "Fire Detection Models Based on Attention Mechanisms and Multiscale Features," propose the attention mechanisms and multiscale features (AMMF) model for fire detection, which integrates an attention mechanism and multi-scale feature fusion to improve accuracy and real-time performance. The model incorporates a dynamic sparse attention mechanism in the backbone network to enhance feature capture and restructures the neck network using CepBlock and MPFusion modules for better feature fusion.

The article "Defining the Attractiveness Concept for Cyber Incidents Forecasting," authored by Javier García-Ochoa et al., presents a methodology that defines the attractiveness concept to address challenges in analysing the proneness of an entity to be attacked by an adversary evaluating the relevance of different target features or behaviours. Attractiveness is the possession of features or the exhibition of behaviours in entities that raise interest for potential adversaries. Thus, the more significant the attractiveness value is, the greater the proneness to being attacked is to be considered.

In "Hyperparameter Optimisation in Differential Evolution Using Summed Local Difference Strings, A Rugged but Easily Calculated Landscape for Combinatorial Search Problems," Husanbir Singh Pannu and Douglas B. Kell analyse the effectiveness of differential evolution hyperparameters in large-scale search problems, i.e., those with very many variables or vector elements, using a novel objective function that is easily calculated from the vector/string itself. A neural network is trained by systematically varying three hyper-parameters, viz population (NP), mutation factor (F) and crossover rate (CR).

"Digital Transformation in Public Accounting and Finance Management: A Clusters Literature Review," by Ambrósio Teixeira et al., investigates the literary corpus on the role and potential of digital transformation in public accounting and finance management, encompassing 890 relevant research papers, out of which 24 publications, divided into two clusters, were selected for an in-depth analysis. The findings demonstrate that technologies have significantly transformed accounting and public finance by automating processes to reduce errors and save time, increasing transparency and accountability, preventing fraud with analytical tools, improving budget planning and monitoring, and integrating systems for a comprehensive financial view.

Finally, Xin Su et al., in "HRSP: A High-Risk Social Personnel Risk Assessment Model Based on Graph Attention Label Propagation Algorithm," first analyze and construct a knowledge graph of high-risk individuals based on their backgrounds, trajectories, and related information. Subsequently, they propose a high-risk personnel risk assessment model based on a graph attention-label propagation algorithm. The model employs a multi-label feature selection method, a basic classifier based on a graph attention network for the label propagation algorithm, and an adversarial data augmentation algorithm to enhance the gradient-based adversary during training.