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# Editorial

With the March 2025 (Vol. 33, No. 1) issue, *CIT. Journal of Computing and Information Technology* enters its 33rd year of continuous publishing. I would like to welcome Professor Lei Huang from Beijing Jiaotong University, who joined our journal in the role of Associate Editor. I am certain that his experience in the fields of information security and data science will greatly contribute to our goals. The current issue brings four papers from the areas of information security, power load forecasting, time series analysis, and decision support systems.

The first paper in this issue, titled *A Continuous Authentication Model Based on Improved Flower Pollination Algorithm and Extreme Gradient Boosting*, deals with an important topic in information security. Namely, the authors of the paper, Peng Xiao, Jian Hu, Hailin Wang, and Hanruo Li propose to enhance continuous authentication in Zero Trust systems, which do not assume that network is trustworthy, using an improved Flower Pollination Algorithm (FPA) and Extreme Gradient Boosting (XGBoost). An improvement to FPA, called Multi-Strategy Flower Pollination Algorithm (MSFPA), optimizes FPA by refining population initialization, balancing global and local searches, and improving search equations. MSFPA is applied to fine-tune XGBoost's hyperparameters, leading to an optimized MSFPA-XGBoost model for continuous authentication. The machine learning model was evaluated using a human activity dataset collected from 100 users operating mobile phones under different conditions, containing sensor, touch, gesture, and key interaction data. Experimental results show that MSFPA outperforms other optimization algorithms in accuracy and convergence speed. The model ensures more precise and stable identity verification. Future work would include incorporating contextual information and conducting attack simulations to further enhance security.

In the paper, titled *Grid Data Analysis and Load Forecasting Model Based on Federated Learning Technology and LSTM Algorithm*, the authors Zhengyan Huang, Mingfei Zeng, Songyao Feng, and Junhao Song deal with load forecasting in power grids by integrating Federated Learning (FL) with the Long Short-Term Memory (LSTM) deep recurrent network to enhance prediction accuracy and data privacy. The research aims to solve issues such as information leakage, inaccurate predictions, and inefficient power resource allocation. The proposed model, trained on local data at different grid nodes, shares only processed results with a global model, thus reducing privacy risks. Experimental validation, using one year of power system data, shows that the FL-LSTM model achieves an explained variance score (EVS) of 94.5% and a prediction time of just 1.2 ms. Compared to other models, FL-LSTM has the lowest prediction error (0.3%), significantly reducing power companies' operating costs by 27.5% while increasing resource utilization by 31.8%. While the current results are impressive, the authors propose to address forecasting uncertainties caused by weather, holidays, and economic fluctuations as future work.

Stock time series analysis is important for many investors and financial experts. In this field, K-line charts are one of the key representation methods for stock price trends. In the paper, titled *Characteristic Representation of Stock Time Series Data Based on Trend Extreme Points of K-line Combinations*, the authors Lei Han, Xuedong Gao, and Haining Yang propose a segmented representation method, called KCTEP, based on trend extreme points in K-line charts, aiming to improve trend description and compression efficiency. Evaluation of the method using FTSE China A50 Index stock data shows that KCTEP outperforms related methods – uniform extreme points and piecewise aggregation approximation, improving trend description accuracy by 8.63%

and compression rate by 2.95%. KCTEP also enhances stock trend characterization while maintaining low segmentation error across multiple distance metrics, which provides a more reliable tool for investors. However, the authors note that the method has relatively high computational complexity, especially for large datasets, and its performance under extreme market conditions needs further evaluation.

In the last paper of the issue, titled *Automated Machine Learning and Data-Driven Decision Support System for Strategy Management in Organizational Activities*, the author Meiling Lu deals with the topic of intelligent decision support systems for complex organizational management. She addresses the growing complexity of strategy management in organizations, where traditional decision-making methods struggle to adapt to dynamic environments. To overcome these challenges, an automated, machine learning-based decision support system is proposed that integrates LSTM networks with Deep Q-Network (DQN), a network based on reinforcement learning. The hybrid approach enhances decision accuracy by leveraging LSTM for time-series data analysis and DQN for optimizing strategic choices. The results demonstrate that the proposed model significantly outperforms traditional DQN and random strategies in various organizational scenarios, exhibiting high stability and robustness under interference conditions. Still, the model faces limitations, including high computational requirements, potential inefficiencies in rapidly changing environments, and reliance on high-quality historical data.

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