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Editorial

With the March 2024 (Vol. 32, No. 1) issue, *CIT. Journal of Computing and Information Technology* enters its 32nd year of continuous publishing. Professor Stjepan Picek decided to leave the role of Associate Editor for other professional endeavors, and I would like to thank him for his valuable service over the years. The current issue brings four papers from the areas of power load forecasting, optimization of production supply, optimization of financial market trading, and large language models.

The first paper in this issue, titled *Short-Term Power Load Forecasting Method Based on GRU-Transformer Combined Neural Network Model*, deals with accurate power load forecasting in the power industry. The authors of the paper, Weiwei Mao, Suping Yu, and Wenqing Chen propose a method for short-term power load forecasting using a combined GRU-transformer neural network model. This model leverages the transformer's multi-head attention mechanism for feature extraction and the GRU model for prediction, aiming to enhance the accuracy and efficiency of power load forecasting. This forecasting helps in reducing operational costs, improving efficiency, and supporting the transition to clean energy sources, which is crucial for achieving carbon neutrality. The evaluation of the model was conducted on two distinct datasets: one local dataset from southwest China and the other one from Panama City (available on Kaggle). The proposed GRU-transformer combined neural network model was shown to have the lowest MAPE and RMSE values when compared to LSTM, GRU, and transformer models on these datasets.

In the paper, titled *Optimization and Benefit Assessment of Production Supply Chain Networks Using Graph Neural Network Models*, the authors Ting Dong and Mary Jane C. Samonte deal with the evolving role of supply chain management in the context of globalization and technological advancement. They emphasize the impact of operational efficiency and stability of supply chains on enterprise competitiveness and market responsiveness. Since linear models are often inadequate to capture the dynamic changes in supply chains, the study proposes a novel method for optimizing production supply chain network structures and assessing benefits using graph neural networks (GNNs). It introduces a node role type-aware GNN model to intelligently identify and optimize node relationships, thus enhancing network efficiency and robustness. Additionally, hierarchical factor analysis (such as cost efficiency, delivery speed, and supply chain stability) is employed to comprehensively evaluate multi-level benefits, providing a more detailed and accurate assessment. The experiments explored the impact of different node role type injection methods on model performance. The results on three datasets indicate that correctly identifying and utilizing node roles using the proposed GNN model can significantly improve the performance of the supply chain network when compared to four non-transformer and four transformer-based models.

Bitcoin has had a significant impact on the financial world since its inception in 2009, with its decentralized architecture and blockchain technology that facilitates secure transactions. It is well-known that high-frequency quantitative trading (HFQT) of cryptocurrencies such as Bitcoin has significantly influenced the digital currency market. In the paper titled *High-Frequency Quantitative Trading of Digital Currencies Based on Fusion of Deep Reinforcement Learning Models with Evolutionary Strategies*, the authors Yijun He, Bo Xu, and Xinpu Su focus on exploring deep reinforcement learning (DRL) for identifying complex patterns for HFTQ, using one-minute candlestick data for detailed analysis. The core contribution is the deep evolutionary reinforcement

learning (DERL) model (DRL fused with evolutionary strategies) that is used to extract high-frequency factors for HFTQ. The experimental design and results analysis demonstrate that the DERL model outperforms traditional methods such as Q-learning and policy gradient. Since the proposed model was tested on a rather limited dataset, where Bitcoin from 2021 was chosen as the training set, and the test set was chosen for January, February, September, and November of 2022, the authors stipulate that future research should explore the scalability of this approach to other digital currencies and trading scenarios.

In the last paper of the issue, which is a review paper titled *A Brief Survey on Safety of Large Language Models*, the authors Zhengjie Gao, Xuanzi Liu, Yuanshuai Lan and Zheng Yang deal with the topic of large language models (LLMs), such as BERT and GPT, and their influence on advancing downstream natural language processing tasks like text generation and machine translation. Namely, despite their success, LLMs raise safety and security concerns, which this survey explores. Key issues include ethical and moral considerations, hallucinations, and prompt injection attacks. LLMs can also perpetuate biases, produce misleading or harmful content, and be vulnerable to adversarial attacks. The authors highlight the need for robust defense mechanisms and ethical deployment to mitigate these risks, providing a comprehensive overview of existing research and future directions for addressing the challenges posed by LLMs.

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