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Editorial

The June 2026 (Vol. 34, No. 2) issue of *CIT. Journal of Computing and Information Technology* brings four papers from the areas of network security, computer vision, recommender systems, and image analysis.

The first paper in this issue, titled *Optimization of Incremental Network Intrusion Real-Time Detection Algorithm Based on Computer Data Simulation*, deals with network security topics. Namely, the authors of the paper, Hui Xiong, Chao Yuan, and Zhao Ping introduce a novel network intrusion detection framework that combines Latent Diffusion Models (LDMs) for synthetic intrusion data generation with an improved Location-Sensing Transformer (LST) for incremental intrusion detection. Evaluated on the KDD Cup 99 and NSL-KDD datasets, the proposed approach consistently outperformed recent Transformer- and graph-based models in terms of accuracy, recall, F1-score, and computational efficiency. The LST achieved an accuracy of 98.3%, a recall of 97.1%, and an F1-score of 95.8%, while also demonstrating high detection rates for advanced persistent threats (97.4%) and zero-day attacks (96.8%). The study showed that the integration of AI-based data generation with adaptive real-time detection successfully addresses the scarcity of representative intrusion data and improves the robustness of modern intrusion detection systems.

In the paper, titled *Multi-Object Tracking in Crowded Scenes by Integrating Image Motion Compensation Mechanism and Improved ByteTrack Algorithm*, the author Huanting Feng proposes a multi-object tracking framework for dense crowd scenes. The computer vision approach integrates image motion compensation (IMC) with an improved ByteTrack algorithm. More specifically, the method combines camera motion compensation, adaptive Kalman filtering, and graph neural network-based matching to enhance the tracking of small, occluded, and visually similar targets. Evaluated on the WiderPerson, MOT17, and MOT20 benchmarks, the approach outperformed established tracking methods, including the original ByteTrack, BoT-SORT, and OC-SORT, achieving high tracking accuracy while maintaining low processing latency suitable for real-time applications. The method demonstrated robust performance under challenging crowd densities, with an F1-score above 85%, an average precision of 95.2% (IoU = 0.5), and a processing delay below 100 ms. These results highlight the potential of integrating motion compensation and advanced data association techniques to improve reliable multi-object tracking in complex surveillance environments.

Personalized recommendation has become a key component of modern live-streaming e-commerce platforms, where rapidly changing user preferences and real-time interactions require recommendation models that can continuously adapt to dynamic environments. Traditional recommendation approaches often struggle to capture collaborative user behavior and evolving interests in these complex multi-user scenarios. In the paper, titled *A Multi-Agent Reinforcement Learning Framework for Personalized Product Recommendation in Live-Streaming E-Commerce: Integrating Improved QMIX with Graph Attention Networks and Deep Reinforcement Learning*, the authors Zihan Yang, Sibo Wang, Bingjie Hou, and Jianming He propose a personalized recommendation framework that combines a Q-value mixing network (QMIX) with graph attention networks, recurrent neural networks, and Soft Actor-Critic reinforcement learning to model both collaborative user behavior and evolving preferences. The researchers evaluate their approach on the MovieLens-100K and Amazon datasets, where the proposed method consistently outperformed state-of-the-art recommendation methods, including OneRec, OnePiece, and DSETRec, across multiple evaluation metrics, such as

Accuracy@20, Recall@20, F1@20, and cumulative reward. The results indicate that integrating multi-agent reinforcement learning with dynamic user preference modeling provides an effective and scalable solution for personalized recommendations in live-streaming commerce.

In the last paper of the issue, titled *Convolutional Neural Network with Class-Dependent Label Smoothing Method for Indian Sign Language Recognition*, the authors Keerthi Kumar Masanasetty and Parameshachari Bidare Divakarachari deal with the automatic sign language recognition, in which accurately distinguishing visually similar hand gestures remains a significant challenge. This study proposed a deep learning framework that combines ResNet-50 feature extraction with a Class-Dependent Label Smoothing (CDLS) regularization technique to improve the recognition of Indian Sign Language from hand gesture images. Evaluated on the Indian Sign Language (ISL) and American Sign Language (ASL) datasets, the proposed model consistently outperformed conventional convolutional neural networks, including VGG-16, VGG-19, InceptionNet, and ResNet-18, as well as alternative regularization methods. The framework achieved an accuracy of 99.6%, with precision, recall, and F1-score of 0.99 on the ISL dataset, demonstrating superior discrimination of visually similar gestures while maintaining stable convergence. These findings show the effectiveness of class-dependent regularization for enhancing the robustness and accuracy of deep learning-based sign language recognition systems.

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