Editorial

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The prosperity of 5G and internet of things (IoT) brings revolutionary changes to our daily lives and generates an enormous volume of data as well. The intelligent empowered IoT computing has been applied in the academic and industrial successfully, such as healthcare, intelligent manufacturing, intelligent transportation system, and smart education. These applications have promoted us to enjoy the benefits from the smart cities that using and deploying intelligent-empowered IoT. This issue features six selected papers with high quality, discussing and exploring recent advances and applications in the fields of intelligent-empowered IoT.

The first paper, titled 'Improved LSH-driven string similarity join filtering-verification framework', discuses that the similarity join widely used in the fields of similarity search, data cleaning, and recommendation application. In that paper, given high-dimensional data and high edit distance threshold, a filtering-verification framework based on locality-sensitive hashing (LSH) is proposed, which adopts dual filtering mode to effectively balance the number of both false positive and false negative, thereby improving the efficiency and accuracy of similarity join. Experimental results show that the similarity join filtering-verification framework based on LSH can effectively reduce the number of false-positive, and it has a significant improvement in efficiency compared with the traditional method based on edit distance.

The second paper, titled 'Proximity-constrained and cost-efficient scheduling of workflows over edge computing resources', research the edge computing due to it is capable of offloading computation from centralised nodes to edge resources. Workflow scheduling upon edge is the reduction in monetary cost while fulfilling service-level-agreement. To the problem, in that paper, they study the multi-workflow scheduling problem and develop a novel approach to cost-efficient scheduling of multi-workflows upon edge. The considered approach minimises edge computing costs while meeting user-specified workflow completion deadlines by leveraging a discrete firefly algorithm for yielding the scheduling plan. They perform experimental case studies based on multiple well-known scientific workflow templates and a real-world dataset of edge resource locations as well. Experimental results suggest that the proposed approach beats traditional ones.

The third paper, titled 'Toxic behaviour detection based on improved SMOTE algorithm and bi-LSTM network', focuses on the classification of toxic comment text, that the minority classes are often surrounded by the majority classes. The traditional classification methods cannot detect the toxic comment on the minority classes. Therefore, in that paper, a modified toxic behaviour detection model is proposed, which combines an improved SMOTE algorithm bi-LSTM, named it AS-BL. In the first step, the dataset is pre-processed, and the features are extracted. Then, they increase the

minority classes in the toxic comment text via the improved SMOTE (AD-SMOTE) algorithm and use KNN to calculate the average sampling density and increase the number of minority comment samples from the data level. Finally, the text vector is introduced to the trained bi-LSTM model for detection. The results of the experiments show that the model outperformed the other existing models in the classification accuracy and improve the overall detection.

The fourth paper, titled 'Context aware self-optimisation scheduling in internet of things', points out the IoT consists of systems that are highly dynamic, homogenous, and heterogeneous. These systems bring in the automaticity resources management and scheduling problem that need to be addressed both at the design and runtime stage. In that paper, they aim to support for middleware core components with self-optimisation and reconfiguration capabilities through the exact match priority (EMP) algorithm, implementing autonomic task scheduling on middleware core components. The algorithm executes the scheduling process using dependent variables, context management tasks, number of configuration for the core components and number of components to minimise the waiting time for the reconfiguration of the system structures. The experiment indicates that autonomic task scheduling using EMP at the design stage of systems is important to achieve self-management functionality in middleware design.

The fifth paper, titled 'Human pose estimation based on region refined network', considers the keypoint detection of the human body. An improved model for refined prediction of keypoints is proposed. The original one-stage detection network is transformed into a two-stage end-to-end detection network. The detection error of the typical model in the keypoint neighbourhood is reduced, and the AP of the model on the COCO2017 dataset has an increase of 1 percentage point.

The sixth paper, titled 'Sample and restoring algorithm of physiological signals from wireless body area network', uses ZigBee as the basic network structure of the WBAN system, and introduces the dynamic storage algorithm to map the periodic signals of time series to the new storage samples on the server side. Then, the regression models of artificial neural network (ANN), convolutional neural network (CNN) and residual network (ResNet) are used to restore the samples to the original signals. Finally, a cost function is discussed to evaluate the restoring method that the time complexity, the number of storage points and the recovery accuracy are considered.

We thank all authors' efforts to the research and application of intelligent-empowered IoT.