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EDITORIAL

JOURNAL OF INFORMATION PROCESSING SYSTEMS JIPS

Advanced Data Processing, Optimization & Software Engineering

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Executive Editor and Editor-in-Chief, *JIPS*

1. Introduction

The *Journal of Information Processing Systems* (*JIPS*) is the journal published by the Korean Information Processing Society (KIPS), which has indices such as ESCI, SCOPUS, EI-COMPENDEX, DOI, DBLP, EBSCO, and Google Scholar. The research on Computer System and Theory, Multimedia Systems and Graphics, Communication Systems and Security, and Information Systems and Application is introduced. Especially, JIPS contains diverse kinds of hot issues related to the research topics of artificial intelligence, network, database, security, and so forth.

This issue includes 17 peer-reviewed papers that propose novel algorithms, processes, and frameworks in the fields of network, artificial intelligence, person identification, image processing, software & system architectures, Internet of Things, and so on.

2. Related Works

In this section, diverse kinds of algorithms, processes, and frameworks for user-oriented applications are introduced as regular papers published by JIPS.

Chu and Jin [1] provide the delay partial differential equation with constant coefficients under three dimensions. They established the alternating direction difference scheme. They also give the expression of difference scheme truncation errors for time delay partial differential equation with constant coefficients from extended to three-dimensional. This paper shows that this method is simple, easy, and compact by analyzing the effectiveness of the proposed format through the corresponding numerical example.

Lotfi and Benyettou [2] propose a new cross-validation probabilistic neural networks algorithm for various benchmarking databases. This algorithm reduces the hidden layer's size and voids over-fitting at the same time. The proposed algorithm can be used for various and huge datasets. In this paper, the authors show that this algorithm has better processing speed, fewer hidden layers, and better

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generalization of the network than the standard PNN.

Lee et al. [3] propose a group order-preserving data encryption scheme to overcome the limitation of POPIS in case of order matching attacks and data count attacks. It can support efficient query processing, preserve the order of each data group, and also protect data from both order matching attacks and count attacks by generating the signature and data transformation of the encrypted data. The proposed scheme achieved higher degree of data privacy protection than the existing POPIS.

Chu and Zhu [4] present a vibrotactile reading system for mobile phones for new vibrotactile codes utilizing known index characters. In this study, two user experiments were conducted to improve the speed and accuracy of user perception, and vibrotactile codes and reading system prototype were then designed. The evaluation test shows that this method is better than traditional encoding methods.

Kundu and Sarker [5] propose a multi-level integrator with programming-based boosting to build highly secure systems for person authentication using different biometrics. The system consists of single classifiers, super-classifiers, and mega-super-classifier. It uses accuracy, precision, recall, and f-score metrics through the holdout method and confusion matrix for each of the single classifiers, super-classifiers, and mega-super-classifier to evaluate performance. The evaluation results show that the proposed system is more accurate and efficient than conventional systems.

Tong et al. [6] conduct power cable ampacity and influential factors analysis under operation for safe cable operation. In this paper, the authors calculate the diverse steady-state ampacity under different actual circumstances and use the control variety method to discuss the rank of influence of various factors related to the ampacity by specific quantitative data. As a result, this paper shows that this method can effectively improve cable utilization and solve the short-time overload or short circuit fault that happens in various cases.

Lee and Lee [7] present a physical storage design method for image access structures using transformation techniques of multidimensional file organizations in image information systems to provide optimal query processing performance for a given set of queries. This method improves the search query performance by up to 5 times compared with the existing storage structure.

Aydadenta and Adiwijaya [8] propose a clustering approach for feature selection that removes the redundancy in microarray data classification using random forest. This method offers higher accuracy than the approach using random forest without clustering for each dataset, namely Colon, Lung Cancer, and Prostate Tumor.

Aamir et al. [9] introduce a hybrid proposed framework for object detection and classification using an enhanced bag of words. This approach provides a description of the features of the image by measuring the similarity between the image features using the VLFeat linear SVM classifier. The experiment results show that this method is much more efficient than a conventional approach.

Chantrapornchai et al. [10] present a prototype system to search images using the semantic web concept to enhance the performance of search engines. The authors build images and tourism corpus, create ontologies, and develop search engines. The evaluation methods use the precision and recall of the prototype system. The experiment results show that this methodology is efficient and highly satisfactory to the user.

Liu [11] proposes a novel correlation coefficient of interval-valued neutrosophic hesitant fuzzy set (IVNHFS). A method of dealing with multi-attribute decision making (MADM) problems within the framework of IVNHFS is developed based on the novel correlation coefficient. To verify the feasibility of the developed MADM method, a practical numerical example is used.

Gong et al. [12] study a research on the design of a humane animal care system and propose a system that monitors whether the owners actually carry out the management of animals' safety and health. GPS and Bluetooth-based methods have been proposed to prevent loss of pets through simple operation.

Tian and Zhang [13] present an improved method of generating solutions in a genetic algorithm using harmony search algorithms. The experiment results show that the proposed improved harmony search algorithm is simple and easy to implement, and that it finds a better solution than the other algorithms more efficiently.

Batsuren et al. [14] propose two novel techniques on top of the state-of-the-art keyphrase extraction methods: the anti-patterns that aim to recognize non-keyphrase candidates and the dependency graph. The experiment results show that the combination method of dependency graph and anti-patterns outperforms the state-of-the-art methods.

Huang and Yin [15] present a novel embedded multifunctional media server (EMMS) for mobile devices to receive various media programs. The EMMS receives the terrestrial DTV radio signals and demodulate out digital TS or reads streaming media bit-stream from VOD disk, camera, and access interface to the Internet. The experiment results show that the proposed EMMS is stable and quality-efficient.

Lee et al. [16] propose an Internet of Things (IoT) system architecture that is configurable and applicable to firefighting and rescue in various disaster situations. This system renders increased adaptability and reusability to systems compared to existing approaches.

Hu and Feng [17] propose an improved multi-focus image fusion method that uses Lifting Stationary Wavelet Transform to obtain the initial fused image quickly. The experiment results show that the proposed algorithm can simplify the selection of fusion rules as well as overcome loss of definition, and it has validity.

3. Conclusion

This issue contained 17 novel and enhanced peer-reviewed papers from India, China, Korea, Algeria, Thailand, and Indonesia. We present diverse kinds of approaches to subjects, which tackle diverse kinds of research fields such as probabilistic neural networks, query processing of encrypted data, vibrotactile interface, person identification, physical storage design, feature selection in microarray data classification, object detection and classification, semantic web, decision-making, software engineering and so on. We would like to thank all authors who submitted their papers for this issue and all reviewers who accepted our review invitations.

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