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EDITORIAL

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Enhanced Integrated Algorithm & Software Architecture

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1. Introduction

The *Journal of Information Processing Systems* (*JIPS*) has such indices as ESCI, SCOPUS, EI COMPENDEX, DOI, DBLP, EBSCO, Google Scholar, and CrossRef, and has are four divisions: Computer systems and theory, Multimedia systems and graphics, Communication systems and security, and Information systems and applications. Published by the Korean Information Processing Society (KIPS), JIPS places special emphasis on hot research topics such as artificial intelligence, network, databases, and security.

2. Related Works

This section introduces various enhanced and novel research papers which have been published by JIPS as regular papers.

The study by Perez et al. [1] explores and compares the features of wireless sensor networks (WSN) and ubiquitous sensor networks (USN). First, the paper classifies the security- and privacy-related challenges of USNs, and then identifies available solutions and discusses the related challenges. The paper ends with a brief discussion of the open challenges for designing further approaches to security and privacy protection in next-generation USNs.

Kim and Lee [2] discuss ongoing approaches to guaranteeing or verifying the safety of software systems and future research challenges. Formalizing the semantics of an existing language or designing a new language with formalized language semantics is very useful for safe and trustworthy software. Examples include the application of proof-carrying code, typed assembly language, dependently typed functional language, separation logic, etc. To enhance trustworthiness, additional annotation is applied to the code of the classic programming language, such as software fault isolation, information flow security, etc. If source codes are not available, it is useful to identify certain defects in the software systems based on fuzzing, sandboxing, information flow security, and so on. Finally, the trusted computing base, theorem prover, and policy specifications are introduced as future areas of research.

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Zubedi et al. [3] introduce case studies aimed at examining the nexus for the environment and its relationship with Foreign Direct Investment, transportation, economic growth and energy consumption. First of all, the impacts of investments in the environment, in energy consumption and carbon emissions, in economic growth, and in transportation and carbon emissions are introduced. After describing carbon emissions in Pakistan, five recommendations are suggested Arshad et al. [4] review digital forensic research. Diverse issues related to digital evidence are explained, such as standard data sets, establishment of the error rate, standardization issues, anti-forensic techniques & tools, diversity and quick evolution in digital forensic sub-fields are addressed.

Qiang et al. [5] introduce a logical architecture as the logic basis of trust management, service entity management, and resource reservation, which contains an access control center and a management domain. They suggest various strategies for selecting candidate service resources, such as resource clustering based on user preferences, for selecting candidate resources based on trust value, and for conserving resources, and strategies for selecting candidate service resources, based on an evaluation of users' trust in the service entity, trust evaluation of users to recommend users, trust evaluation of cloud to service entity.

Kim [6] proposes an itinerary-based R-tree (IR-tree) for more efficient spatial-temporal query processing in wireless sensor networks compared with GR-tree distributed indexing, where the GR-tree constructs a grid-based tree, and the spatial index information is distributed and stored in wireless sensor nodes. For the processes of the proposed IR-tree, the creation of indices, the processing of spatio-temporal queries, and the merging of spatio-temporal qualities are described.

Barigou [7] analyzes the impact of using instance selections as reduction methods on the performance of kNN-based text categorization, which improves the efficiency of kNN-based text categorization without degrading its classification accuracy.

Elmouhtadi et al. [8] propose a new fingerprint identification system based on minutiae-matching using the Delaunay triangulation method. Otsu binarization, Zhang's skeletonization, and cross number-based are performed for the preprocessing of each image, and then "Similar_DT" is calculated from the triangles obtained from the Delaunay triangulation method.

Ye et al. [9] propose a method of reallocating the number of employed bees and onlooker bees to establish a better balance between global search and local search. The proportion of employed bees within a colony is reduced while that of onlooker bees is increased.

Bagchi [10] proposes an analytical formulation for generating solutions for nonlinear network ODE systems with functional decomposition. Furthermore, the input excitations are analytically resolved in linearized dynamic networks; and the stability condition of dynamic networks is determined. The proposed analytical framework is generalized in nature and does not require any domain or range constraints.

Bougueroua and Boucheham [11] propose an enhanced version of the local binary pattern (LBP) operator for texture extraction in images in the context of image retrieval, which is based on the observation that the LBP exploits only the lowest kind of local information through a global histogram.

Hai and Zhao [12] propose a multi-objective bi-level programming model for a high-speed railway passenger train working plan centered on the interests of both passengers and rail transport enterprises. To address the traditional problems, the paper introduces the train stop strategy, basic assumption, travel cost and time, and Railway Enterprises Profit, and then utilizes a genetic algorithm to solve the

established two-layer programming model, before finally attempting to determine an (approximate) optimal solution for the model.

Jang et al. [13] propose an efficient hybrid transactional memory scheme using near-optimal retry computation and sophisticated memory management in order to efficiently process transactions in a multi-core environment, i.e. a near-optimal retry computation algorithm, efficient concurrency control, and a memory management scheme.

Wang et al. [14] review various self-embedding fragile watermarking methods with the focus on self-embedding fragile watermarking for image tamper detection and self-recovery. First, the basic model is described, and then common attacks are introduced. Notably, common attacks are described by dividing them into collage attack, constant average attack, content-only attack, and vector quantization attack.

Lee et al. [15] present experiments conducted to examine the changes in user authentication performance when using feature vectors customized for each user versus using all features. The paper describes the data acquisition scenario, collection of data, and the extraction, normalization and classification of the features. Then, the equal error rate is evaluated and discussed.

Lin [16] propose an effective method of removing mixed noise from images. The suggested method consists of a median filter, wavelet transform, a wavelet threshold de-noising method, and image reconstruction, while receiving noisy images as input and conducting de-noised images as output.

Wang et al. [17] introduce the complementarity of a method of coupling expected patch log likelihood and guided image filtering de-noising. It uses the expected patch log likelihood (EPLL) model to construct a guided image for guided filtering, which can provide better structural information for guided filtering.

3. Conclusion

This issue contains seventeen enhanced peer-reviewed papers from South Korea, China, Malaysia, Algeria, and Morocco among other countries. We introduce efficient novel approaches to subjects in diverse research fields, such as available solutions in WSN and USN, the safety of software systems, the nexus for the environment, digital evidence, a logical architecture, an IR-tree, a fingerprint identification system, a method of reallocating bees, an analytical formulation for generating solutions of nonlinear network ODE systems, a LBP operator, a multi-objective bi-level programming model, a hybrid transactional memory scheme, self-embedding fragile watermarking methods, an method of removing mixed noise from images, and so on. We would like to thank all the authors who submitted their papers to this issue and all the reviewers who accepted our invitation to review these papers.

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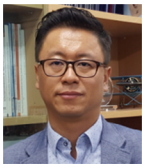

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