Guest Editorial Preface

Special Issue on Emerging Networks and Data Processing Techniques

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Welcome to the special issue of the International Journal of Interdisciplinary Telecommunications & Networking. This special issue addresses the issues faced by emerging networks which cannot adapt the original data processing techniques. In keeping with the journal's mission this issue is dedicated to new results from high-quality original interdisciplinary academic and practitioner research, surveys, and case studies which address advanced telecommunications issues, answer telecommunications questions, or solve telecommunications problems. The aim of this special issue is to provide high-quality research to deal with the problems related to emerging networks and data processing techniques. Research articles are solicited in all aspects including theoretical studies, algorithms, practical applications, open issues, and challenges. Topics addressed include Numerical Computation and Mathematical Modeling, Ad Hoc, Sensor, and Mesh Networks, Communications Software and Services, Emerging Wireless and Mobile Technologies and Applications, Intelligent Transportation Systems, Multi-hop and Cooperative Communications, Multiple Access Techniques, Network Technologies etc. Nine articles are included from open submissions.

The papers included in this special issue are more technical in nature. The first article, by Y. Zhang et al, investigates an algorithm based on a state decision tree called Beyond l-diversity model which aims at protecting multi-sensitive attributes from being attacked. The results indicate that the l-BDT algorithm has the best performance in controlling the information loss by ensuring that the published data is comparable to the original data, so as to ensure that the published data is as useful as possible. The second article by X. Si et al, provides a functional framework and universal model of mobile internet security audit technology, which can monitor internal users' activity, forbid abnormal behavior of internal users by analyzing the current security status and architecture of mobile internet security. The third article proposed a novel local weight index to distinguish the node influence based on the theory of ties strength, emphasizing that the node influence is jointly decided by the quantity and quality of the neighbors, and its time complexity is much lower than closeness and betweenness. Using of the SIR information transmission model, the author J. Cheng et al verifies the validity of the local weight index. The next article by H. Zhao et al proposed a new vector construction method for ear retrieval based on Block Discriminative Common Vector using Support Vector Machine as a classifier to make a decision. The experimental results show that the proposed method performs better than classical PCA+LDA, therefore it is an effective human ear recognition method. The fifth article by W. Lu et al proposed a knowledge-augmented multiple-prototype model by using corpora and ontologies which is based on the distributed word vector learned from the CBOW model. The authors append the concept definition and the relational knowledge vector into the target word vector

to enrich the semantic information of the word. Finally, the authors perform the experiments on well-known datasets to verify the efficiency of their approach.

The next article by W. Liao et al presented the design of a document storage management system based on Hadoop, which uses the distributed file system HDFS and the distributed database HBase, to achieve efficient access to electronic office documents in a steel structure enterprise. The seventh article by Y. Yuan et al, investigated WM2-SCTP (Wireless Multi-path Multi-flow - Stream Control Transmission Protocol), a transport layer solution for concurrent multi-path transfer with parallel sub-flows which aimed at exploiting SCTP's multi-homing and multi-streaming capability by grouping SCTP streams into sub-flows based on their required QoS and selecting best paths for each sub-flow to improve data transfer rates. The results indicated that under different scenarios WM2-SCTP is able to support QoS among the SCTP stream, and achieved better throughput. The eighth article by C. Chen et al analyzed vulnerabilities of the RSA cryptographic algorithm which is not securely implemented. This paper targets at RSA algorithm which is implemented with the sliding window exponentiation algorithm via OpenSSL, the attacker can monitor the cryptographic thread by executing a spy thread, recording the timing characteristic during the RSA decryption when reading the cache. The authors also provided some countermeasures of how this attack could be mitigated or eliminated entirely. The final paper by M. Wang et al proposed an algorithm based on detecting the uncore disturbance by memory bandwidth or PMU events counting variance of NUMA system. The disturbance pattern vectors are obtained by running a dedicate benchmark and then calculating the routing table begins with direct connected nodes and then to the longer distance routing path step by step. The experiment indicated that the algorithm work effectively for some real NUMA systems and synthesized topologies and generates the correct routing tables.

Finally, we would like to thank the authors for their valuable contributions and the reviewers for their time and efforts in providing many valuable suggestions and comments. We particularly wish to express our gratitude to the Editors-in-Chief, Michael R. Bartolacci and Steven R. Powell, and IGI's staff, for their kind support in the preparation of this special issue. We sincerely hope that IJITN's audience will enjoy reading this issue.

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