
Editorial

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Biographical notes: Jin Li received his BS in Mathematics from Southwest University in 2002. He received his PhD in Information Security from Sun Yat-sen University at 2007. Currently, he works at Guangzhou University as a Professor. He has been selected as one of science and technology new stars in Guangdong province. He has published over 50 research papers in refereed international conferences and journals and has served as the program chair or program committee member in many international conferences. His research interests include security in cloud computing and applied cryptography.

Fatos Xhafa holds a PhD in Computer Science from the Technical University of Catalonia (UPC), Barcelona, Spain. He was a Visiting Professor at the University of London, UK (2009/2010) and a Research Associate at Drexel University, Philadelphia, USA (2004/2005). He has widely published in peer reviewed international journals, conferences/workshops, book chapters and edited books and proceedings in the field. He is the Editor-in-Chief of the *International Journal of Space-based and Situated Computing*, and of *International Journal of Grid and Utility Computing*, Inderscience. He is actively participating in the organisation of several international conferences. His research interests include parallel and distributed algorithms, combinatorial optimisation, networking, cloud, grid and P2P computing.

1 Network computing and its security

Cloud computing presents a new research with special emphasis on distributed system architecture and big data managing and processing methods. As a more general sense of cloud computing, network computing covers the novel algorithms, architectures, implementations, experiences and security related to this issue.

The goal of network computing is to allow computers and servers to collaborate together to offer powerful computing and improved security relative to that what is currently available. Many research works have been done in respective field independently such as grid computing and distributed computing. This special issue on network computing and its security is intended to find good point at which two fields can be combined with each other or introducing other promising properties. It will include a number of related topics, demonstrate pioneer work in this field, investigate the novel solutions and discuss the future trends in this field.

2 Special issue content

Network computing and its security are critical research topics. With solid security, we are confident in using the schemes and protocols in various real-world applications. This special issue on 'Network computing and its security' attempts to highlight some of the latest research addressing those challenges. It consists of eight papers selected from the contributions of the 5th International Conference on Intelligent Networking and Collaborative Systems (INCoS2013) and 4th International Conference on Emerging Intelligent Data and Web Technologies (EIDWT2013). More specifically:

The paper of Wen and Gong, titled 'Private mutual authentications with fuzzy matching', proposes a new privacy-preserving mutual authentication protocol to achieve fuzzy private matching. The proposed protocol supports more flexible threshold-based appropriate matching under the multiple-groups environment.

The paper of Xu, Deng, and Du, titled ‘Computing the PUE of data centres by leveraging workload fluctuation’, proposes an approach to compute the PUE by leveraging the workload fluctuation. The proposed protocol is an effective method which can be utilised to calculate the PUE of data centre.

The paper of Ren, Hu and Wang titled ‘On provably secure code-based multiple grade proxy signature scheme’, proposes a code-based multiple grade proxy signature based on Stern’s identification scheme. The proposed protocol is secure based on the syndrome decoding problem and satisfies verifiability and unforgeability.

The paper of Hou, Liu, Bai and Ren titled ‘Public-key searchable encryption from lattices’, proposes two searchable public-key encryption schemes from lattice. One is probabilistic, while the other is deterministic. Both of them are proven secure in the random oracle model.

The paper of Wang and Bo, titled ‘A novel approach to generate and extract audio watermark’, proposes a combination of audio watermarking algorithm based on the wavelet transform and the Fourier transform. The simulation is also given to show the robustness and transparency.

The paper of Jian, RenHong, Kai and Hong, titled ‘Research on born-digital image text extraction based on conditional random field’, proposes a novel method to segment the text connected components (CCs) from a born-digital image. Experimental results show that the proposed method can effectively extract text from the born-digital images.

The paper of Cai, Du and Chen, titled ‘Enhancing the search ability of differential evolution through competent leader’, proposes a competent leaders guiding strategy (cLGS) to alleviate this drawback and enhance the search ability of differential evolution. Experimental results demonstrate the high performance of cLGS by comparing with several differential evolution variants.

The paper of Zhou, Wu, Tang and Rong, titled ‘STSHC: secure and trusted scheme for Hadoop cluster’, proposes a secure and trusted architecture framework for Hadoop cluster with trusted computing base (TCB). The security analysis shows that the scheme can efficiently meet the security requirement of Hadoop cluster.

The entire special explores the range of the challenges in the field of cloud computing, cryptography, etc. We believe that with the field reaching maturity new solutions and techniques will be developed. And, thus, this special issue can serve as roadmap for further research in this specific area.

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