

Guest Editorial Preface

Special Issue on Security of Information and Networks

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All aspects of the modern life are related to processing, communicating, storing and retrieving of information in computer networks and systems. Security of information and networks is of vital importance and very highly relevant nowadays in view of rampant attacks on information systems, evolving BYOD practices in enterprises, and particularly due to drives towards cloud-based integration of enterprise systems. The title of this special issue for the *International Journal of Information Security and Privacy (IJISP)* is therefore coined precisely as “Special Issue on Security of Information and Networks”.

This special issue focuses on innovative methods and techniques for addressing unique security issues introduced by new computing paradigms. Original submissions reflecting latest research observations and achievements in the following areas were invited: Access control and intrusion detection; Cyber Physical Systems; Autonomous and adaptive security; Security tools and development platforms; Computational intelligence techniques in security; Security ontology, models, protocols & policies; Computer network defense; Standards, guidelines and certification; Cryptographic techniques and key management; Security-aware software engineering; Industrial applications of security; Trust and privacy; Information assurance; Cyber Warfare (attacks and defenses); Cloud security; Malware analysis; Network security and protocols; and, Security challenges in Mobile/Embedded Systems.

Submissions for this special issue were open to original, high quality contributions that were not published or currently under review by other archival journals or peer-reviewed conferences with formal proceedings. Extended versions of a selection of the best papers from **The 8th International Conference on Security of Information and Networks (SIN'15)** were especially invited to submit their papers to the special issue. SIN 2015 was organized in technical cooperation with the ACM Special Interest Group on Security, Audit and Control (SIGSAC); it was held on 8-10 September 2015, in the Black Sea coast, in a beautiful “Tropical resort” Winter Olympics city called Sochi in Russia. SIN Conferences series provides an international forum for academicians as well as professionals presenting research in and applications of security in information and networks.

There were twenty-six submissions to this special issue which would indicate the overwhelming interest from the security community. Each submission was reviewed by three experts in security and closely related areas. Following two rounds of reviewing, six high quality papers were finally accepted for publication in the special issue, resulting in an acceptance rate of 23%. Some other worthy papers could not be accepted due to enforcing the timeliness of the special issue and the space limitations.

The selected papers cover various important topics in the security of information and networks, such as secret sharing, cellphone forensics, privacy in social networks, cryptography, attacks on wireless ad hoc networks, malware detection, big data and privacy. The following papers were finally included in the special issue:

The paper titled **Threshold Secret Sharing Scheme for Compartmented Access Structures** by Mohamed Fathimal and Arockia Jansi Rani proposes a novel and well-designed method of compartmented secret sharing scheme of visual cryptography where only some threshold number of equally privileged parties from each compartment can retrieve the secret. This scheme provides the key features of better visual quality of the recovered image, non-requirement of half toning of color images, less computational complexity and simple addition of all share images. The result is very good compared to existing schemes. This scheme is highly beneficial in applications where data has to be stored securely in a database and in cloud computing platforms to synchronize information passed to different groups or clusters from a single host.

The paper titled **iPhone Forensics: Recovering Investigative Evidence using Chip-off Method** by Nilay R Mistry, Binoj Koshy, Mohindersinh Dahiya, Chirag Chaudhary, Harshal Patel, Dhaval Parekh, Jaidip Kotak, Komal Nayi and Priyanka Badva, inquire into extracting data from a smartphone by inspecting the contents of its flash memory chip. In this approach which is called ‘chip-off’, the raw digital data is obtainable from the memory chip through various analysis tools. The analysis can fetch Address Book and Contacts details, Address Book Images, Google Maps details, Data Calendar Events, Call History details, Email Database details, Consolidated GPS Cache details, Notes, Photo Metadata, SMS, Messages, Safari Bookmarks, SMS Spotlight Cache, Safari Web Caches, Web Application Cache, Web Kit Storage, Voicemail, and so. Still, findings were mixed and it was concluded that no single tool or method of chip-off can extract every item of interest.

The paper titled **Preventing Identity Disclosure in Social Networks using Intersected Node** by Amardeep Singh, Divya Bansal and Sanjeev Sofat, investigates identity protection in social networks, a timely and important topic in the field of information security and privacy. An advanced K-anonymity algorithm was proposed for preserving privacy of social network data. A good review of existing methods was provided and real social network data sets ARNET, DBLP and CORA were used to evaluate the performance and efficiency of the proposed algorithm.

The paper titled **IPHDBCM- Inspired Pseudo Hybrid DNA based Cryptographic Mechanism to Prevent against Collaborative Black hole Attack in Wireless Ad hoc Networks** by Erukala Suresh Babu, C Nagaraju, Mhm Krishna Prasad, sets to address detecting and defending against the blackhole and cooperative-blackhole attacks in MANETS using hybrid DNA-based cryptography mechanism. The proposed method enhances the security through the underlying modified AODV routing protocol. The simulation results indicate better security and network performance compared to that of the existing schemes.

The paper titled **Detecting Metamorphic Malware Variants via Opcode Frequency Rate** by Mahmood Fazlali, Peyman Khodamoradi, Farhad Mardukhi, Masoud Nosrati, and Mohammad Mahdi Dehshibi, presents a technique based the interesting and original idea of utilizing statistical calculation of opcodes to detect and classify metamorphic malware variants. Decision trees are utilized for classification and detection. For extracting opcode frequencies from source assembly file is a fast process, and speed, efficiency and accuracy are likely advantages of this technique. Experimental results show that the proposed method outperforms the existing approaches.

The paper titled **Combination of Access Control and De-Identification for Privacy Preserving in Big Data (170915-122509)** by Amine Rahmani, Abdelmalek Amine and Reda Mohamed Hamou, provides an interesting contribution to dealing with the problem of preserving privacy over big data such as images, unstructured text, and structured data. The approach combines both access control and data identification techniques thus providing a powerful system. Although part of this special issue, this paper has already been published in volume 10 issues 1 of IJISP (January 2016).

Sincere thanks go to the many individuals who contributed to this special issue. First and foremost, we are grateful to Professor Li Yang, the Editor-in-Chief of the *International Journal of Information Security and Privacy (IGI Global IJISP)*, for his continuing support and guidance for the special issue. We would like thank our reviewers who provided their expert and providing constructive comments; we the guest editors did benefit greatly from their views in the decision process. Last but not the least, we are indebted to the authors who accepted our invitation to submit their best works so that we could avail a high quality collection.

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IJISP

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Reviewers of this special issue were Ryma Abassi, Emin Anarim, Maxim Anikeev, Mohd Anwar, Mehmet Caglayan, Srinivasa Chakravarthy, Alexander Chefranov, Jen-Yao Chung, M. Dave, Steven Demurjian, Nishant Doshi, Ana González-Tablas Ferreres, Jiankun Hu, Qiong Huang, Luigi Logrippo, Leandros Maglaras, Hung Ngo, Bernardi Prangono, Yaira Sánchez, Babak Sokouti, Sowmyarani C. N., Michele Tomaiuolo, Tugkan Tuğlular, Ahmet Unveren, Yi Wang, Dalei Wu, Jing Xie, and Mini Zeng.