With the development and widespread application of information technology and industry, the human society has entered into the information age and people live and work in cyberspace. Cyberspace is the information environment in which mankind lives in the information age and is a collection of all information systems. Therefore, to ensure cyberspace security has become the basic needs of people’s normal life and work.

In technical terms, the emergence and application of new information systems such as cloud computing, Internet of things and big data have brought many new demands for information security. Quantum computing and artificial intelligence techniques continue to make new progress. All of these are posing new challenges to cyberspace security. Therefore, cyberspace security has become a hot topic in the field of international information science and technology.

In order to promote scientific research and technological progress in the field of cyberspace security and to report on the latest research results in the field of cyberspace security, China communication has prepared this special issue focusing on the security of cyberspace. The special issue has published a total of sixteen academic papers. According to the classification of dissertations, there are six papers belonging to cryptography, two papers belonging to network security, and eight papers belonging to computer system security.

Among the six papers belonging to cryptography, there are four researches on cryptanalysis. They are related respectively to the authentication and encryption algorithm AEZ, lightweight ARX ciphers, cryptosystem of RSA and a public key cryptosystem with noncommutative platform groups. Among them, the attack on RSA cryptosystem uses the quantum attack algorithm based on fixed point theory. The remaining two papers on cryptography, one is about an optimal key-aware routing method for trusted relay in Quantum Key Distribution (QKD) networks and another researches on sharing based truthful spectrum auction with collusion-proof.

Regarding the two papers belonging to security of network, one introduced an email protocol P2P botnet with the ability to evade machine learning detection and the other one studied a self-confidence secure internet protocol.

In terms of the eight papers pertaining to the security of computer information systems, there are three studies on trusted computing technology. They respectively studied the dynamic integrity measurement based on vTPM (Virtual Trusted Platform Module), the trusted proof mechanism of nodes based on dynamic measurement and the trusted verification of multi-layer outsourced big data systems in cloud environment. There are two studies on software security, one of which explores software vulnerabilities and the other studies malicious code detection. The other three respectively research the distributed encryption and data sharing algorithm of cloud storage, the attack traceability technology based on context awareness and the method of obtaining data through the computer switching power supply.

The papers in this special issue have made innovative achievements in their respective research contents. Therefore, this special issue reflects some new developments in the field of cyberspace security in China. I appreciate greatly the authors for their contributions and hope readers enjoy reading this special issue.

Biographies

Huanguo Zhang, is an Associate Professor at the State Key Laboratory of Networking and Switching Technology, Beijing University of Posts and Telecommunications (BUPT). He received his Ph.D. degree at BUPT in 2011. He is Program Co-chair of IEEE 2nd International Conference on Edge Computing, Program Co-chair of IEEE 1st International Conference on Fog and Edge Computing, General Chair of CollaborateCom 2016, General Chair of ICCSA 2016, Application Track Chair of IEEE SCC 2015, Workshop Chair of AMC/IEEE UCC 2016, Program Chair of IOV 2014, and Program Chair of SC2 2014. He has published more than 100 papers. His research interests include edge computing, service computing, and cloud computing.