

Special Issue on
Security Challenges and Solutions in Constrained Digital Environments, Multimedia Networks, and Applications

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There are many recent technologies and applications that changed our daily lives forever; the following are among these useful technologies: IoT, mobile cloud computing, and multimedia networks. The advances in multimedia networks and its rapid expansion enabled the access to digital information, images, and videos at any time and from anywhere in this small world. Moreover, these advances made it easy to build and run variety of useful applications including mobile apps, multimedia medical records, and even electronic games. In addition to that, the multimedia networks enabled the development and spread of Online Social Networks allowing the users to share Terabytes of multimedia contents over the Internet through PCs, smart phones, and tablets.

The integration between these new technologies and applications made our life easier in many aspects, but, at the same time, it brought up serious challenges including securing all these huge amounts of digital information in digital constrained environments with limited storage and processing capabilities such as smart phones. The private and public key encryption algorithms provide high level of security to protect data on computing environments. But they involve complex mathematical operations requiring huge processing and making them not suitable solution for multimedia networks where the performance is very important. Here comes the trade-off between security and performance, which is claimed to be solved by using Lightweight Cryptography (LWC), which is becoming a very popular topic motivated by the need for security algorithms with lowest computations possible and minimum delay.

This special issue aims to study the security challenges and solutions to secure digital information in different computing environments including multimedia networks and contents. We will discuss what is lightweight crypto is all about, and how it can be used to provide high level of security with minimum complexity? Moreover, we aim to review current lightweight implementation and study the possible solutions to secure digital contents in constrained environments with acceptable performance level.

Potential topics include but are not limited to the following:

- ▶ Information security challenges in digital computing environments.
- ▶ Privacy issues and performance requirements of real-time applications such as multimedia networks and applications
- ▶ Study the visibility of using lightweight crypto for securing Internet related technologies in multimedia contents
- ▶ Software and hardware implementation of lightweight crypto and standardization process

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