



International Conference

on

Sustainable Computing in Science, Technology & Management
(SUSCOM-2019)

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Internet of Things (IoT), Lightweight Cryptography and Network Security

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Aims & Scope:

Internet of Things (IoT) envisage to formulate hyper associated large-scale ecosystem such that different computing systems communicate among each other any time anywhere and capable of delivering enhanced services to the IoT customers. IoT systems endorse to produce enhanced value chain by device communication, data gathering, data processing and knowledge based information across diverse sectors. The applications of IoT systems include smart city, smart home, industrial automation, health care systems and etc. The IoT ecosystem consists of huge scale of heterogeneous computing elements. The major issues associated are resource management and security management for IoT systems. The IoT devices are mostly resource constrained elements with limited computation capability, energy, storage space, and etc. Hence, optimization of limited resources among IoT devices is required. Further, the increase in the number of connected IoT devices exponentially increases the security risk associated.

The first aims of the session are to promote research aspects for resource constrained IoT systems. The second aim is cryptography and network security issues for both resourceful and resource constrained devices. For resource constrained IoT devices, lightweight security aspects are associated with constraints on metrics including power, energy, computational ability, hardware surface area, time and space complexities. Goal of this special session is to create a platform where these concerns can be addressed and their solutions are proposed for evaluation.

Subtopics:

- Energy efficient IoT architectures based on Things centric, Data handling Centric, and Service Centric approaches.
- Energy efficient intelligent solutions for IoT systems using Artificial intelligence, Machine learning techniques and Nature Inspired algorithms.
- Computational resource optimization mechanism for IoT systems based on Deep Learning algorithms and Neural Network models.

- Integration of enabling techniques such as Cloud Computing, mobile computing, wearable computing, big data with IoT systems.
- Designing, analysis and implementation aspects of lightweight cryptographic primitives and protocols.
- Simulation and emulation of cryptographic primitives and protocols over constrained domains like IoT.
- Network security aspects for wired and wireless embedded IoT systems.
- Low-power cryptography architectures for IoT systems.
- Lightweight security models and cryptanalysis techniques.
- Network security aspects including complexity, information, coding and number theory.
- Wireless network security for low-resource IoT devices.
- Side channel attacks and countermeasures on lightweight devices.
- Efficient and scalable cryptography primitives and protocols for the Next Generation Cloud and Smart Grid Networks.
- Other topics: Random Number Generators, Secure Channel Protocols, Post-quantum Cryptosystem, Block and Stream Ciphers for resource constrained devices, Zero-Day Exploits, Homomorphic Encryption/Decryption.
- Attacks and Countermeasures: side-channel analysis and countermeasures, fault analysis, reverse engineering and tampering, hardware trojans and counterfeit detection, cryptanalysis etc.
- Security and Privacy: secure network protocols, authentication, authorization, access control, anonymity, malware detection etc.

Technical Programme Committee(s):

- Dr. Alok Aggarwal, University of Petroleum and Energy Studies, Dehradun, India.
- Dr. Neelu Jyoti Ahuja, University of Petroleum and Energy Studies, Dehradun, India.
- Dr. Rashmi Sharma, University of Petroleum and Energy Studies, Dehradun, India.
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- Dr. Aparajita Nanda, Jaypee Institute of Information Technology, Noida, India.
- Dr. Rachna Jain, Bharati Vidyapeeth's college of engineering, New Delhi, India.
- Dr. Bandana Mahapatra, Siksha O Anusandhan University, Bhubaneswar, India.

Submission Procedure:

Researchers and practitioners are invited to submit papers through the below given easy chair link:

<https://easychair.org/conferences/?conf=suscom2019>.

Select the special session track from the listed track. All submissions must be original and may not be under review by another publication. The submitted papers will be reviewed on a double-blind and peer review basis.

Publications:

All registered and presented papers will be published in the **ELSEVIER-SSRN Digital Library** at <https://hq.ssrn.com/conference=SUSCOM-2019>. Extended versions of selected papers will be considered for the special issue of journals indexed in ESCI, Scopus, SCIE, DBLP, Web of Science, ACM, Compendex, INSPEC, Thomson Reuters, Cabell's Directories to name a few.

All inquiries should be directed to the attention of Session Chair/Co-Chair:

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