Editorial

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Biography: Debasish Jena is presently working as Associate Professor, Department of Computer Science and Engineering, IIIT BHUBANESWAR, Bhubaneswar, Odisha, India. He received his master degree from Utkal University, Bhubaneswar and subsequently obtained his Ph. D. degree from National Institute of Technology, Roukela in the year 2010. . He has published several research papers in the national/international journal of repute in the field of Information Security, IoT Security, Blockchain, Cloud Security, Data Science.He has served as Program Chair and program committee members in many international conferences. He has also conducted staff development programs under the financial support of All Indian Council for Technical Education as chief-coordinator. As a member of CERT-O, he provides technical support to Government of Odisha in the field of Cyber Security. He is the Chief Investigator of ISEA project sponsored by MeiT, Government of India. He has also got another project from Department of Science and Technology, Government of Odisha.

It is my pleasure to present the inaugural issue of *International Journal of Communication Network and Security(IJCNS)* based on selected papers presented during the 2nd International Joint Conference on Information and Communication Technology(IJCICT-2011) which took place in Bhubaneswar, the Temple City of India, which is famous for its own glory and heritage, from 8th – 9th January 2011. This issue brings out the various articles from diverse area of Data Communication, Computer Networking and Security. IJCNS will be published quarterly with high quality original research contribution.

This journal is intended to provide a forum for researchers, educators and professionals to present their discoveries and innovative practice and to explore future trends and applications in the field communication, network and security to make the communication faster. However, this journal will also provide a forum for dissemination of knowledge on both theoretical and applied research on the above area with an ultimate aim to bridge the gap between these coherent disciplines of knowledge. This forum accelerates interaction between the above bodies of knowledge, and fosters a unified development in the next generation communication.
The broad spectrum of the journal includes the topic but not limited to:

Hardware support, System architectures, Services and system support
• Algorithm/protocol design and analysis
• Mobile environments and Applications
• Wireless communications and networks
• Software systems and communication systems
• Distributed and cooperative control systems
• Modelling, identification, analysis and control of time delay systems
• Networked control systems (NCS)
• Network control, e.g., admission/flow/congestion control
• Network scheduling and bandwidth allocation
• Quality of service (QoS) and quality of performance (QoP)
• Protocol-based feedback control and control-oriented communication protocols
• Design and analysis of quantisers and coder/decoders

• Control with partial/intermittent/delayed information feedback
• Computationally efficient control and communication algorithms
• Fault detection, diagnostics and prognostics
• Evolving complex network models and design algorithms
• New features and theoretic analysis of complex network systems
• Synchronisation and control of complex dynamical networks
• Emergent behaviours and patterns on complex networks
• Complex dynamic networks and multi-agent systems
• Frequency hop set design
• Point to point link topology, propagation modelling and ray tracing
• Key performance indicators, surrogates and quality of service measurement
• Traffic modeling, Routing
• Subscriber location issues
• High performance computing, Parallel processing
• Incoming and outgoing wireless links
• Efficacy of mobile communications
• Mobile communication security issues and requirements
• Interaction and integration in mobile communications
• Mobile ad hoc networking and Nomadic communication
• Wireless information assurance
• Security and communications in distributed systems
• Access control, Authentication and Authorisation
• Data integrity and Data confidentiality
• Security specification techniques in all kinds of networks
• Formal analyses and Security group communications
• Anonymity, Prevention of traffic analysis
• Secure location determination and Denial of service
• Network security performance evaluation
• Routing, Medium access control (MAC)
• Coverage, Connectivity and Longevity
• Scheduling, Synchronisation and Network resource management
• Fault tolerance and diagnostics
• Performance analysis
• Security, privacy, and data integrity
• Network protocols

I am happy to note that IJCNS will be getting wide popularity among the educationist, researchers and professionals within short time span. To begin with, ten short listed papers have been included in this issue covering various aspects of communication network and security.

The first paper entitled "Performance of Joint Admission and Power Control Algorithms for Cognitive Radio CDMA Networks in Shadowed Environment" by Roy et. al. has proposed a simulation study of joint admission and power control algorithms in presence and absence of log-normal shadowing. They have also studied the combined effect of path loss and log-normal shadowing on total secondary revenue and blocking probability.

The second paper entitled "Computing Symmetric Block Cipher Using Linear Algebraic Equation" by Mallicket. al. has presented a key generation technique for both encryption and decryption using linear algebraic equations. Result and analysis of the paper exhibits that the current algorithm works well and more secured to break the cipher text.

In the third paper, Gonnadeet. al. have presented "Recovery of loss of packet in network using constant packet reordering". This paper proposes a new version of the TCP which gives the high throughput when the packet reordering occurs and in another case if the packet reordering does not occur, then it is also friendly to other version of the TCP where timer is used to keep track how long packets are being transmitted. Finally they have obtained the better result with comparison to existing mechanism.

In the fourth paper, Panda et. al. have presented "Encryption and Decryption algorithm using two dimensional cellular automata rules in Cryptography". They have developed a new approach for both encryption and decryption based on the linear and non linear cellular automata rules and found the proposed algorithm is more secure.

The Fifth paper entitled "Impact of Mobility Models on Mobile Sensor Networks" discusses the impact of various mobility models with AODV and DSDV routing protocols. The authors Pushpaet. al. have compared the throughput of the models. The authors have also considered the parameters such as loss ratio, hop counts, velocity of the nodes and these parameters have been analyzed by varying the node density using various mobility models and routing protocols.

The sixth paper "Incursion Model for Nomenclature of EEG Signals via Wavelet Transform" aims at providing new insights on the Electroencephalography (EEG) fragmentation problem using wavelets. The authors RamaRajuet. al. have described a computer model in order for providing a more accurate picture of the EEG signal processing via Wavelet Transform.

In seventh paper Raoet. al. have discussed "Reducing Throughput-delay Analysis of Conflict–free Scheduling in MultihopAdhoc Networks". Their study investigates the performance of an analytical approximation for the throughput-delay characteristic of a multihop ad-hoc network employing conflict-free time division multiplex (TDM) scheduling with half-duplex transceivers. This analytical approximation models traffic at each link as an independent M/D/1 queue and its performance is measured by comparing to simulation results for various topologies, traffic loads, and network sizes.

The authors of eighth paper have discussed an analysis on End-To-End inference methods based on packet probing in network. They have analysed the strengths and weaknesses of various inference methods and evaluated the techniques based on the packet loss and packet delay statistics. Authors result shows the inference methods at End-user level will help the users and network administrators to know network characteristics which are private at router level through various approaches.

In ninth paper Panda et al. have presented Equivalence of DES and AES algorithm with cellular automata. They have identified all the permutation and substitution operations involved in DES and AES algorithm and compare these operations with the cellular automata rules.

The tenth paper entitled "A temporal logic based approach to multi-agent intrusion detection and prevention" by Das et. al. aims to introduce a new architecture for intrusion detection and prevention based on multiple autonomous agents working collectively. They have also adopted a temporal logic approach to signature-based intrusion detection and implemented a prototype tool, called MIDTL to detect a variety of security attacks in large log-files provided by DARPA.

In eleventh paper, Vijayalaskhmi et al. have presented QoS parameter analysis on AODV and DSDV protocols in a wireless network. And found that AODV routing protocol is best suited for general mobile ad-hoc networks as it consumes less bandwidth and lower overhead when compared with DSDV routing protocol