

Special Session on
Nature-Inspired Computing for Cyber Security
in conjunction with
15th World Congress on Nature and Biologically Inspired Computing (NaBIC 2023)
December 13-15, 2023

Website: <http://www.mirlabs.org/nabic23/>

Hybrid Mode – Online & Offline

Onsite Venues: <http://mirlabs.org/nabic23/venue2.php>

Objectives and Scope

This special session aims to explore the utilization of nature-inspired computing techniques in the domain of cyber security. With the increasing complexity and sophistication of cyber threats, there is a growing need for innovative approaches to enhance the security of computer systems and networks. Nature-inspired computing, which draws inspiration from natural processes and phenomena, has shown promise in addressing various challenges in cyber security. Due to their ability to detect known and unidentified incursions or attacks that lack previously established patterns, optimization techniques are frequently used by the intrusion detection community. Nature-inspired computing encompasses a range of techniques, including evolutionary algorithms, swarm intelligence, artificial immune systems, and other bio-inspired approaches. These techniques offer unique advantages in tackling cyber security issues, such as intrusion detection, anomaly detection, malware analysis, and secure communication. By mimicking the inherent resilience and adaptability of natural systems, nature-inspired computing can contribute to the development of robust and effective security solutions. This special session invites researchers and practitioners to submit original research papers focusing on the application of nature-inspired computing techniques in cyber security.

Subtopics

The topics include, but are not limited to:

- Evolutionary algorithms for intrusion detection and prevention
- Swarm intelligence-based approaches for network security
- Artificial immune systems for anomaly detection and malware analysis
- Biologically inspired cryptography algorithms
- Genetic programming for vulnerability assessment and patch management
- Membrane computing for secure data processing
- Hybrid nature-inspired techniques for cyber threat intelligence
- Quantum-inspired computing for secure communication and cryptography
- Evolutionary algorithms in privacy-preserving data disturbance for collaborative edge and Fog computing
- Optimization algorithms for blockchain-based autonomous decentralized online social network
- Optimizing the allocation of resources in modelling cyber networks.
- Responsible AI for data analytics

Paper publications

- Proceedings will be published in Lecture Notes in Networks and Systems, Springer (<https://www.springer.com/series/15179>)
- Indexed by SCOPUS, INSPEC, WTI Frankfurt eG, zbMATH, SCImago
- Papers maximum length is 10 pages
- Papers must be formatted according to Springer format (Latex/word) available at: <https://www.springer.com/de/authors-editors/book-authors-editors/manuscript-preparation/5636#c3324>
- Submission Link: <http://www.mirlabs.org/nabic23/submission.php>

Important Dates

Paper submission due: **September 30, 2023**

Notification of paper acceptance: **October 31, 2023**

Registration and Final manuscript due: **November 10, 2023**

Conference Date: **December 13-15, 2023**

Special Session Chairs

- **K. Anitha Kumari**, Department of Information Technology, PSG College of Technology, Coimbatore, TN, India.
- **S. Sangeetha**, Department of Artificial Intelligence and Data Science, Kumaraguru College of Technology, Coimbatore, TN, India.
- **S. Kannimuthu**, Department of CSE, Karpagam College of Engineering, Coimbatore, TN, India.

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