

Network Dynamics and Cyber Attacks: A Computational Intelligence Approach

Abstract:

Cyber security threats are ever increasing and becoming more and more sophisticated as the current detection techniques and solutions do not have the ability to adapt and respond in real time to constantly evolving cyber threats such as hacking, scanning, denial of service (DoS) attacks, worms, and viruses. Because of the constantly evolving cyber threats, building defense systems for discovered attacks is not enough to protect users. Proactive approaches are required to anticipate and eliminate vulnerabilities in the cyber system, and also to defend effectively and rapidly against attacks. Securing cyberspace has gradually evolved into a critical organizational and national research agenda requiring a multidisciplinary scientific workforce. To secure cyber-infrastructure against intentional and potentially malicious threats, a collaborative effort between cyber security professionals and researchers from industries and academics is necessary to explore new techniques to detect, analyze, and mitigate sophisticated cyber-attacks. Computational Intelligence techniques play significant role in cyber security, as more challenges appear in handling of high-dimensional heterogeneous network data, the dynamic change of threats, and the severe imbalanced classes of normal and anomalous behaviors. The proposed special session intends to discuss the role of Computational Intelligence techniques in the design, development and improvement of algorithms and frameworks for cyber security system design. The proposed session will also discuss challenging problems and future research directions in cyber-attacks when the detailed structure of the network is unknown, limiting the knowledge of infection evolution, using Computational Intelligence techniques.

**Name of the session chair: Dr.G.Padmavathi, Professor & Head,
Dept. of Computer Science,
Avinashilingam University for Women,
Coimbatore-43, Tamil Nadu, India.**