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Advances in Information Security

## Computer Science : Security

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# Proactive and Dynamic Network Defense

- Highlights a wide variety of scientific techniques for proactive and dynamic network defense
- Covers the topics of proactive network defense in a number of computer, network, wireless and mobile applications
- Includes research results that offer formal frameworks to define proactive and dynamic network defense, and develop novel models to analyze and evaluate proactive designs and strategies in computer systems, network systems, cyber-physical systems and wireless networks

This book discusses and summarizes current research issues, identifies challenges, and outlines future directions for proactive and dynamic network defense. This book also presents the latest fundamental research results toward understanding proactive and dynamic network defense by top researchers in related areas. It includes research results that offer formal frameworks to define proactive and dynamic network defense, and develop novel models to analyze and evaluate proactive designs and strategies in computer systems, network systems, cyber-physical systems and wireless networks. A wide variety of scientific techniques have been highlighted to study these problems in the fundamental domain. As the convergence of our physical and digital worlds grows fast pace, protecting information systems from being tampered or unauthorized access is becoming one of the most importance issues. The traditional mechanisms of network defense are built upon a static, passive, and reactive nature, which has insufficient to defend against today's attackers that attempt to persistently analyze, probe, circumvent or fool such mechanisms. It has not yet been fully investigated to address the early stage of "cyber kill chain" when adversaries carry out sophisticated reconnaissance to plan attacks against a defense system. Recently, proactive and dynamic network defense has been proposed as an important alternative towards comprehensive network defense. Two representative types of such defense are moving target defense (MTD) and deception-based techniques.

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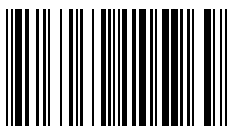
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