



# Defense Countermeasures for DoS Attacks in WSNs Using Deep Radial Basis Networks

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## Abstract

Wireless sensor networks (WSNs) are inclusive of tiny sized battery dependent autonomous gadgets which are deployed in the decentralized manner in order to monitor physical conditions. Deployed nodes are connected with routers and gateways to support much kind of real-time applications. In the prevailing open access situation, to secure authentication, nodes can be verified by securing authentication. To achieve secured communication, in real-time applications, many lightweight authentication mechanisms are introduced. But owing to lack of synchronization, WSNs become highly susceptible to DoS attacks. Deep learning based Radial basis networks have been proposed in this paper for detection and isolation of attacks. In this article DRBN algorithm is described for efficient detection of DoS attacks, such as exhaustion, jamming, flooding and so on. Extensive modeling tests are carried out in order to reliably isolate the malicious nodes, and they are discovered to be more resistant to DoS attacks. Apart from a decrease in energy consumption and FPR of 2.8%, the proposed simulation result reveals that 94.6% detection rate and 98% accuracy can be achieved.

**Keywords** Countermeasures · Dynamic key management · Deep learning · Radial basis function · Wireless sensor networks

## 1 Introduction

Recently, an extensive series of applications has been introduced by WSNs which play a important role in current research. The Internet of Things (IoT) [1] has recently been a major component of information technology. WSNs are spatially dispersed tiny-sized minimal energy sensors with a transceiver that detect a variety of phenomenon and gather information in a variety of scenarios. In comparison to other wired and wireless networks, WSNs can respond to a difficult environment (e.g. WLAN). It entails data processing and

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