

All ▾



ADVANCED SEARCH

Journals & Magazines > IEEE Transactions on Vehicula... > Volume: 65 Issue: 9 [?](#)

# Identification and Punishment Policies for Spectrum Sensing Data Falsification Attackers Using Delivery-Based Assessment

Publisher: IEEE

[Cite This](#)

[PDF](#)

Saud Althunibat ; Birabwa Joanitah Denise ; Fabrizio Granelli [All Authors](#)

31  
Paper  
Citations

408  
Full  
Text Views



## Abstract

### Abstract:

Spectrum sensing data falsification (SSDF) attacks represent a major challenge for cooperative spectrum sensing (CSS) in cognitive radio (CR) networks. In an SSDF attack, a malicious user or many malicious users send false sensing results to the fusion center (FC) to mislead the global decision about spectrum occupancy. Thus, an SSDF attack degrades the achievable detection accuracy, throughput, and energy efficiency of CR networks (CRNs). In this paper, a novel attacker-identification algorithm is proposed that is able to skillfully detect attackers and reject their reported results. Moreover, we provide a novel attacker-punishment algorithm that aims at punishing attackers by lowering their individual energy efficiency, motivating them either to quit sending false results or leave the network. Both algorithms are based on a novel assessment strategy of the sensing performance of each user. The proposed strategy is called delivery-based assessment, which relies on the delivery of the transmitted data to evaluate the made global decision and the individual reports. Mathematical analysis and simulation results show promising performance of both algorithms compared with previous works, particularly when then the number of attackers is very large.

## Document Sections

- I. Introduction
- II. System Model
- III. Delivery-Based Assessment
- IV. Attacker-Identification Policy
- V. Attacker-Punishment Policy

[Show Full Outline ▾](#)

[Authors](#)

[Figures](#)

[References](#)

[Citations](#)

**Published in:** [IEEE Transactions on Vehicular Technology](#) ( Volume: 65 , Issue: 9 , Sept. 2016 )

**Page(s):** 7308 - 7321

**INSPEC Accession Number:** 16316600

**Date of Publication:** 03 November 2015 [?](#)

**DOI:** [10.1109/TVT.2015.2497349](#)

**ISSN Information:**

**Publisher:** IEEE

**Funding Agency:**

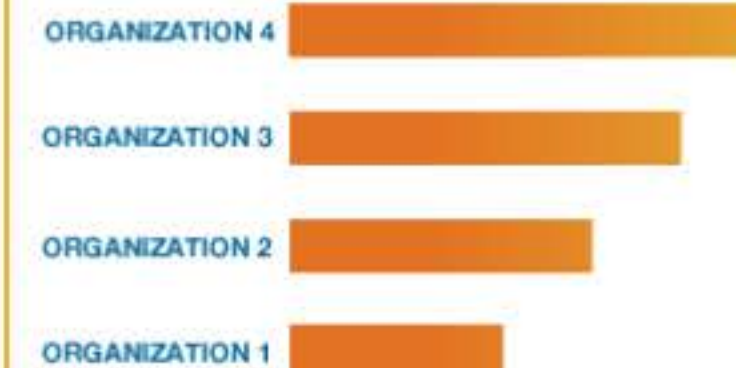
## More Like This

[A Punishment Policy for Spectrum Sensing Data Falsification Attackers in Cognitive Radio Networks](#)  
2014 IEEE 80th Vehicular Technology Conference (VTC2014-Fall)  
Published: 2014

[Bayesian-Inference-Based Sliding Window Trust Model Against Probabilistic SSDF Attack in Cognitive Radio Networks](#)  
IEEE Systems Journal  
Published: 2020

[Show More](#)

## Top Organizations with Patents on Technologies Mentioned in This Article



IEEE Xplore®

We are working on a NEW search approach and