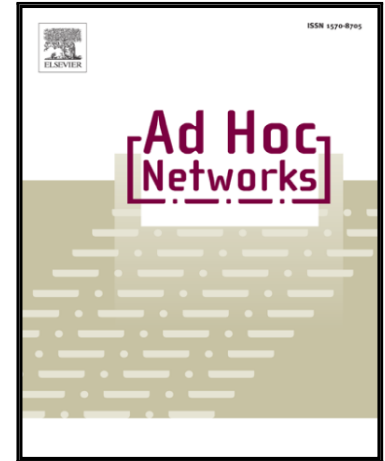


## Accepted Manuscript

Securing Multi-channel Selection using Distributed Trust in Cognitive Radio Ad hoc Networks

Jingyu Feng, Xu Du, Guanghua Zhang, Wei Shi

PII: S1570-8705(17)30065-3  
DOI: [10.1016/j.adhoc.2017.03.009](https://doi.org/10.1016/j.adhoc.2017.03.009)  
Reference: ADHOC 1533



To appear in: *Ad Hoc Networks*

Received date: 4 August 2016  
Revised date: 23 February 2017  
Accepted date: 25 March 2017

Please cite this article as: Jingyu Feng, Xu Du, Guanghua Zhang, Wei Shi, Securing Multi-channel Selection using Distributed Trust in Cognitive Radio Ad hoc Networks, *Ad Hoc Networks* (2017), doi: [10.1016/j.adhoc.2017.03.009](https://doi.org/10.1016/j.adhoc.2017.03.009)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Securing Multi-channel Selection using Distributed Trust in Cognitive Radio Ad hoc Networks<sup>☆</sup>

Jingyu Feng<sup>\*a,b</sup>, Xu Du<sup>a</sup>, Guanghua Zhang<sup>c</sup>, Wei Shi<sup>a</sup>

<sup>a</sup>*Department of Communication Engineering, Xi'an University of Posts and Telecommunications, Xi'an 710121, China*

<sup>b</sup>*State Key Laboratory of Information Security (Institute of Information Engineering), Chinese Academy of Sciences, Beijing 100093*

<sup>c</sup>*College of Information Science and Engineering, Hebei University of Science and Technology, Shijiazhuang 050000, China*

---

### Abstract

Cognitive radio ad hoc networks (CRAHNs) which are independent with infrastructure and fixed spectrum allocation policy, have been developed rapidly in the environment of scarce spectrum resources. However, the nature of multi-channel makes CRAHNs offers opportunities for malicious SUs. Cooperative spectrum sensing (CSS) is the key function of CRAHNs to identify the idle spectrum as the available channel by aggregating sensing data. Malicious SUs can launch spectrum sensing data falsification (SSDF) attack against CSS, and thus causing the disturbance of finding multi-channel. Recently, a lot of efforts with trust schemes have been paid to combating SSDF attack in central cognitive radio environments, but little attention to the distributed environments. In this paper, we propose a distributed trust evaluation (DTE) scheme from the perspective of direct experience and neighbor help to counter SSDF attack, which can be implemented at each SU in CRAHNs rather than a central authority. To secure multi-channel selection fully, it is very important to avoid the conflict among

---

<sup>☆</sup>This research was supported in part by the National Science Foundation of China (61301091), the Open Foundation of State Key Laboratory of Information Security (2015-MS-14), the Industrial Science and Technology Project of Shaanxi Province (2016GY-113), the Science Foundation of Shaanxi Provincial Education Office (15JK1649), the University Scientific Research Foundation of Hebei Province of China (YQ2014036), the China Postdoctoral Science Foundation (2015M582622), the New Star Team of X'an University of Posts & Telecommunications.

\*Corresponding author: Jingyu Feng, E-mail: fju1984@163.com

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات