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Bayesian signaling game based efficient security model for MANETs

(Book Chapter)

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Abstract

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Game Theory acts as a suitable tool offering promising solutions to security -related concerns in Mobile Ad Hoc Networks (i.e., MANETs). In MANETs , security forms a prominent concern as it includes nodes which are usually portable and require significant coordination between them. Further, the absence of physical organisation makes such networks susceptible to security breaches, hindering secure routing and execution among nodes. Game Theory approach has been manipulated in the current study to achieve an analytical view while addressing the security concerns in MANETs . This paper offers a Bayesian - Signaling game model capable of analysing the behaviour associated with regular as well as malicious nodes. In the proposed model , the utility of normal nodes has been increased while reducing the utility linked to malicious nodes. Moreover, the system employs a reputation system capable of stimulating best cooperation between the nodes. The regular nodes record incessantly to examine their corresponding nodes' behaviours by using the belief system of Bayes-rules. On its comparison with existing schemes, it was revealed that the presented algorithm provides better identification of malicious nodes and attacks while delivering improved throughput and reduced false positive rate. © Springer Nature Switzerland AG 2020.

SciVal Topic Prominence ⓘ

Topic: Mobile ad hoc networks | Routing protocols | Hole attacks

Prominence percentile: 96.378 ⓘ

Author keywords

(Bayesian signaling model) (Bayesian -Equilibrium game theory) (MANETs) (Secure routing protocol)

Funding details

Funding sponsor	Funding number	Acronym
Ministry of Higher Education, Malaysia	P-RIGS19-020-0020	

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   View at Publisher

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