

Beam Stealing Attackers Detection and Localization Without Training: An Image Processing Viewpoint

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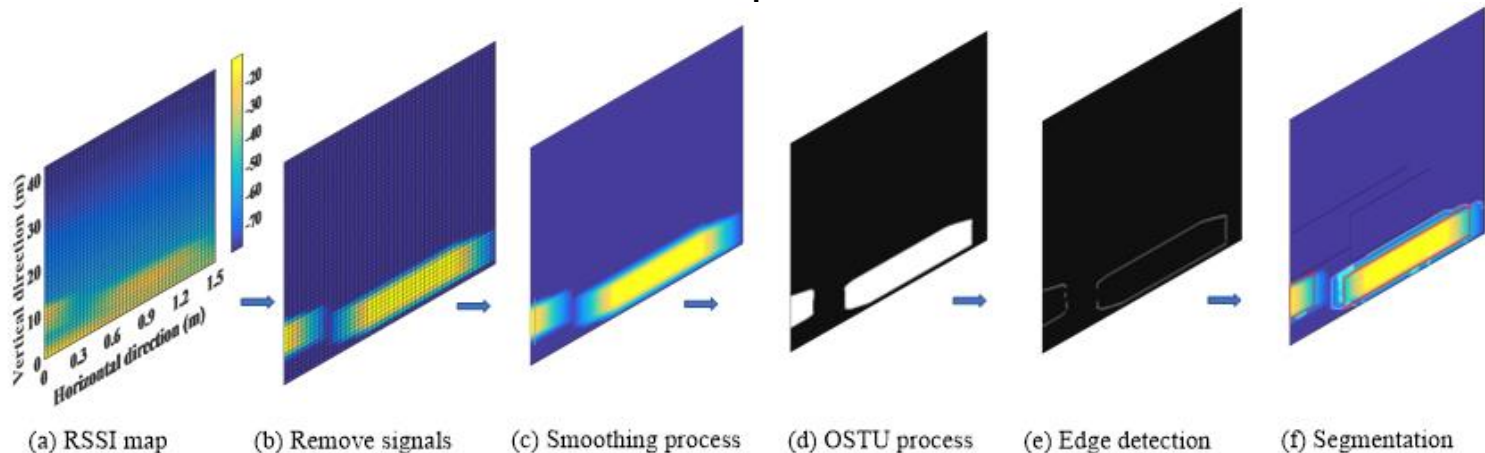
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Problems & Ideas

- Challenges for detecting and localizing the beam-stealing attackers:
 - Firstly, it is difficult for the attackers to collaborate with the monitors to conduct the training task.
 - Secondly, it is not only costly but time-consuming to derive all the possible fingerprints.
 - Thirdly, the fingerprint matching process is error-prone.

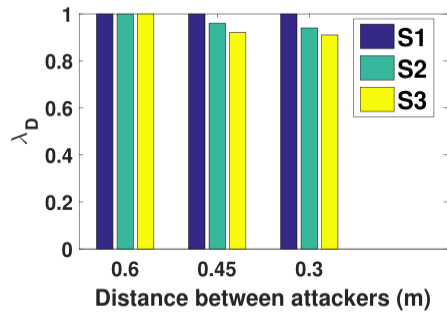
- Basic idea of detecting and localizing the beam-stealing attackers:

We treat the collected RSSI values by the monitors in an interested area as an image; and then a series of image processing methods are adopted to derive the number of attackers as well as their respective locations.

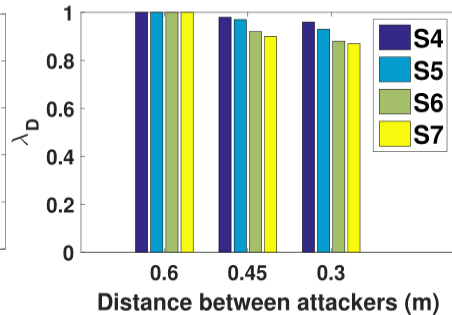


Beam Stealing Attackers Detection and Localization with image processing

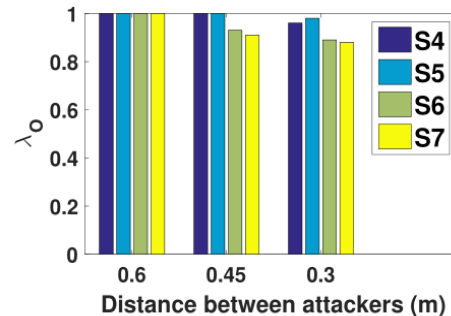
Experimental results



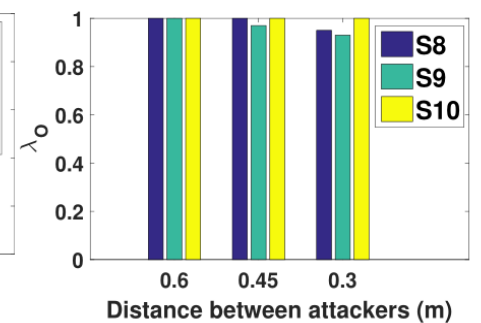
(a)



(b)

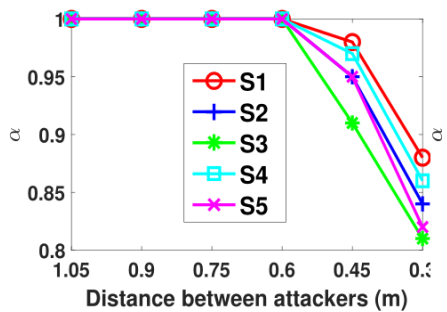


(c)

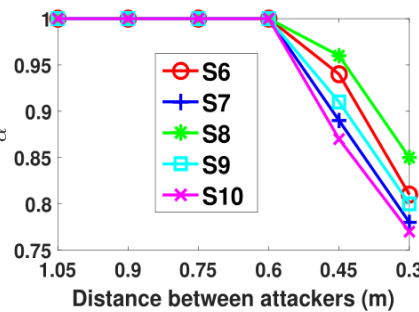


(d)

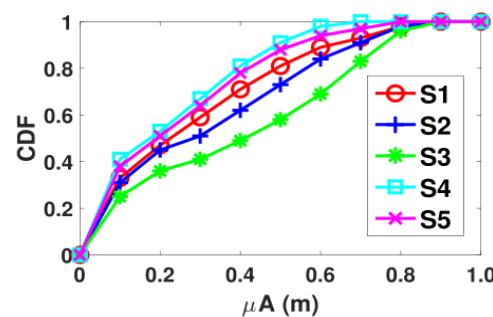
The attackers' identification performance



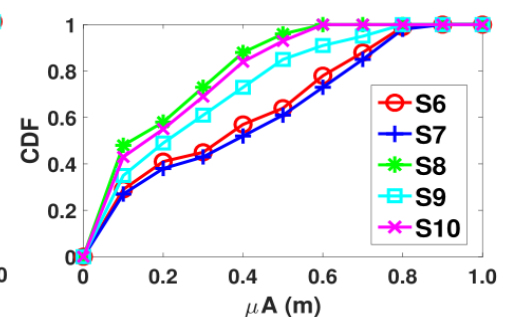
(a)



(b)



(a)



(b)

The attackers' detection performance

The attackers' positioning performance