CAREER: A Pathway towards Channel Camouflage and Manipulation Techniques for Wireless Security

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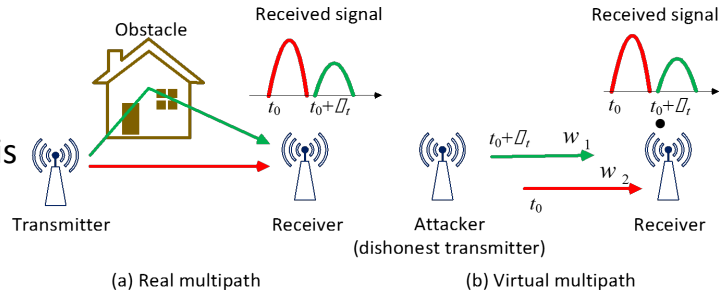
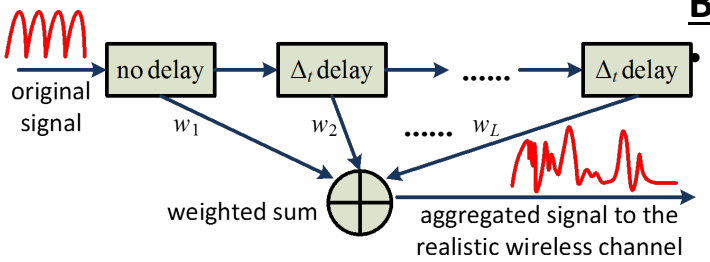
Challenge:

- Due to the prevalence of applying spatial uncorrelation property for wireless security, an important question will be naturally raised. What will happen if this property is compromised? The answer to this question will impact wireless security in fundamental ways.



Solution:

- We discovered virtual multipath channel technique that can break the uniqueness of the wireless channel characteristic
- On the other hand, this technique leads a pathway to the significant security advancement of various wireless applications.



Scientific Impact:

- The project can improve the security of existing channel based authentication and location distinction approaches by creating techniques that can effectively detect virtual multipath attacks;
- The project can enable the general security research community to gain further understanding about how to advance security using wireless features.

Broader Impact:

The proposed research has the potential to substantially improve the security of existing channel based authentication and location distinction approaches, and accordingly impacts wireless security research due to the wide adoption of these approaches in the design of wireless systems.

- The research outcome will be integrated to the PI's network security course at USF.

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