Wichita State University
College of Engineering
Department of Electrical Engineering and Computer Science

CANDIDATE PRESENTATION:

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Monday, April 22

10:00 am – 11:00 am

RSC 262 (Herrman Room)

Location-restricted Service Access Control Leveraging Wireless Physical Layer Design

Abstract

With the rapid development of wireless technologies, it is highly desirable to enforce location restricted service access control that provides wireless services to users at eligible locations only. For example, governments or companies may allow wireless network access only to employees working in selected office cubicles, in order to comply export control policies. In this work, I've developed a novel and practical wireless system that achieves the location-restricted
service access control to support emerging wireless requirements. In addition, I also implemented a real-time video streaming service to validate the proposed scheme. Compared to traditional access control techniques, this work allows the system to securely deliver the service to eligible locations without incurring expensive cryptographic encryption operations. In the second part of the talk, I will share my research on web security. Today's web applications feature the proliferation of third-party JavaScript inclusion, which incurs a range of security risks. Although attack strategies by manipulating third-party JavaScript files have been widely investigated, the adverse impact caused by third-party JavaScript inclusion and caching does not receive much attention. Specifically, when a malicious script is cached, it can revive and bite every time when a user visits any website that includes it, leading to a much worse
effect of the attack. In this talk, I will present my study on Alexa top one million websites to demonstrate how likely third-party JavaScript inclusion and caching can make an attack largescale and long-lasting, and further to uncover insecure practices that carelessly or inadvertently exacerbate the attack impact.

Biography

Tao Wang is a Ph.D. candidate in the Department of Computer Science and Engineering, University of South Florida. His research focuses on network and cyber-physical security with an emphasis on designing defense methods that can protect emerging wireless technologies from being undermined by adversaries. Specifically, his major research areas lie in access control, device authorization, attack analysis, and countermeasure design in emerging networks (e.g.,IoT, 5G network). Recently, he has been working on the adversary machine learning towards secure resource allocation in Multi-user MIMO systems. His research is also related to web security, specifically, on discovering security threats against existing Internet. His recent research focuses on exploring and evaluating vulnerabilities of external dependencies existing on today's Internet.