Wednesday, May 5, 2021

ARSpy: Breaking Location-based Multi-player Augmented Reality Application for User Location Tracking (1:00 - 1:50 pm EST)

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Date: Wednesday, May 5, 2021

Time: 1:00 - 1:50 pm EST

Location: https://caecommunity.zoom.us/my/caeforum

Just log in as "Guest" and enter your name. No password required.

Title/Topic: ARSpy: Breaking Location-based Multi-player Augmented Reality Application for User Location Tracking

Audience: Students, Professors, Govt.

Presenter(s): Dr. Si Chen, West Chester University

Description: Augmented reality (AR) applications that overlay a user's perception of the real world with digitally generated information are on the cusp of commercial viability. AR has appeared in several commercial platforms like Microsoft HoloLens and smartphones. They extend the user experience beyond two dimensions and supplement a user's normal 3D world. A typical AR application works through a three-step process, wherein the system collects sensory data from the real world, identifies objects based on their context, and finally, renders information on top of the user's senses. However, because AR applications frequently exchange data with users, they have exposed new individual and public safety issues.

In this presentation, the presenter will demonstrate the threat of user privacy leaking by presenting the ARSpy, a user location tracking system solely based on network traffic information of the user, and they test it on location-based AR applications. They demonstrate the effectiveness and efficiency of the proposed scheme via real-world experiments on 12 volunteers and show that they could obtain the geolocation of any target with high accuracy. They also propose three defense methods to mitigate these side channel attacks. Their

results reveal a potential security threat in current location-based AR applications and serve as a critical security reminder to a vast number of AR users.

A recording of the live presentation will be available within 48 hours of the presentation at: https://www.caecommunity.org/content/cae-forum-resources

Contact us at: caeforum@caecommunity.org