

Seminar

Department of Computer Science

Dr. Amiangshu Bosu

Assistant Professor, Department of Computer Science

Large-scale Threat Analysis of Inter-app Communications using DIALDroid

Date: Thursday, February 9, 2017

Time: 11:00 AM – 12:00 Noon

Location: EGRA 309C, CS Conference Room

Abstract

Inter-Component Communication (ICC) provides a message passing mechanism for the data exchange between Android applications. It has been long believed that inter-app ICCs can be abused by malware writers to launch collusion attacks using two or more apps. However, because of the complexity of performing pairwise program analysis on apps, the scale of existing analyses is too small (e.g., up to several hundred) to produce concrete security evidences.

In this presentation, I will report our findings in the first large-scale detection of collusive and vulnerable apps, based on inter-app ICC data flows among 110,150 real-world apps. Our system design aims to balance the accuracy of static ICC resolution/data-flow analysis and run-time scalability. This large-scale analysis provides real-world evidences and deep insights on various types of inter-app ICC abuse. Besides the empirical findings, we make several technical contributions, including DIALDroid, a new open-source ICC resolution tool with improved accuracy over the state-of-the-art, and a large database of inter-app ICCs and their attributes.