Abstract

Android is the dominant mobile platform worldwide. My group has developed a variety of analyses aimed at improving Android’s reliability and security. First, we will show how “software repository mining” can reveal common classes of errors in mobile apps. Second, we describe VALERA, a record-and-replay approach that helps developers or users with a variety of tasks, e.g., reproducing executions, finding and fixing concurrency bugs, and app profiling. Third, we present a static analysis that has found a new class of Android app errors we named ”resume/restart errors”. Finally, we show how static and dynamic techniques can be used to find and reduce the security risks posed by Android apps.

Bio

Iulian Neamtiu is an Associate Professor in the Department of Computer Science at the New Jersey Institute of Technology. He received his Ph.D. from the University of Maryland, College Park in 2008, and between 2008-2015 he was an Assistant, then Associate Professor at the University of California, Riverside. His research areas span programming languages, security, software engineering, and smartphones, with an overarching goal of making software and smartphones more secure, efficient, dependable, as well as easy to maintain and modify. He is a recipient of the NSF CAREER award, the UCR Regents’ Fellowship award, as well as two Google Research Awards. He is part of the 10-year Cyber-Security Collaborative Research Alliance (CRA), a joint effort between the Army Research Laboratory and five universities, whose goal is to advance the theoretical foundations of cyber science in the context of Army networks. His research has been funded by NSF, ARL, DARPA, Intel, and Google.