Improving Android’s Reliability and Security

Prof. Iulian Neamtiu
NJIT

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Core A (Room 301)

Abstract
Android is the dominant mobile platform worldwide. My group has deve-
loped 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 main-
tain 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.

Faculty Host: Santosh Nagarakatte