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COSMO: Code Coverage Made Easier for Android

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The degree of code coverage reached by a test suite is an important indicator of the thoroughness of testing. Most coverage tools for Android apps work at the bytecode level and provide no information to developers about which source code lines have not yet been exercised by any test case. In this paper, we present COSMO, the first fully automated Android app instrumenter publicly available that operates at the source code level in a completely transparent way, making it fully compatible with existing system level testing technologies and Android test generators. The experiments that we have conducted on a large benchmark of Android apps show that COSMO can successfully instrument most apps without altering their execution traces, introducing a small, acceptable runtime overhead.



BIO

Andrea Romdhana is a second-year Ph.D. student in Computer Science in collaboration with Fondazione Bruno Kessler (FBK). He obtained a BSc in Computer Engineering at the University of Genoa in 2017 and a MSc in Robotics Engineering at the University of Genoa in 2019. He is now working under the supervision of prof. Alessio Merlo (UNIGE), prof. Paolo Tonella (USI), and prof. Mariano Ceccato (UNIVR). His research interests include Mobile Security and Security Testing.