

Development, Testing and Maintenance of Android Apps: Challenges, Tools, and Future Directions

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ABSTRACT

Mobile devices have become a permanent fixture in modern society. As such, it is of critical importance that the mobile development process is made as frictionless as possible to facilitate the creation of high-quality apps for end users. This keynote offers a brief introduction to mobile development paradigms, surveys the major categories of research conducted to date towards improving mobile software engineering, examines open challenges, and outlines a roadmap of future work aimed to support mobile developers.

CCS CONCEPTS

• **Software and its engineering** → **Software notations and tools**;

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1 KEYNOTE OVERVIEW

Smartphones and tablets have facilitated new categories of engaging software that aim to improve the ease of use and utility of computing tasks. Additionally, commodity smartphones are ushering in a completely new population of users from developing markets. These factors, combined with the ease of distributing mobile apps on marketplaces like Apple's App Store or Google Play have made the development of mobile software a major focus of engineers around the world. While the importance and prevalence of mobile in the modern software development ecosystem is clear, many of the unique attributes that make mobile platforms attractive to both developers and users contribute a varied set of challenges that serve as obstacles to producing high-quality software.

This keynote provides an overview of current open problems in mobile software engineering, the research conducted to date, and promising directions for future work. The content of this keynote is based on the last several years of academic research from the SEMERU group at the College of William & Mary [1–8].

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2 KEYNOTE PRESENTER

Denys Poshyvanyk is an Associate Professor and a Graduate Director in the Computer Science Department at William and Mary where he leads SEMERU research group. He received his Ph.D. from Wayne State University, where he was advised by Dr. Andrian Marcus. His current research lies in several areas of software engineering, including several topics in mobile software engineering. His papers received several Best Paper Awards at ICPC'06, ICPC'07, ICSM'10, SCAM'10, ICSM'13 and ACM SIGSOFT Distinguished Paper Awards at ASE'13, ICSE'15, ESEC/FSE'15, ICPC'16 and ASE'17. He also received the Most Influential Paper Awards at ICSME'16 and ICPC'17. He is a recipient of the NSF CAREER award (2013). He currently serves on the editorial board of IEEE Transactions on Software Engineering (TSE), Empirical Software Engineering Journal (EMSE, Springer) and Journal of Software: Evolution and Process (JSEP, Wiley).

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