Message from the Chairs
MOBILESoft 2017

In recent years, the massive increase in the use of mobile applications has greatly influenced the way people go about their daily lives. The number of available mobile applications has grown enormously due to the establishment of app stores and marketplaces that enable users to download and seamlessly install apps. Mobile platforms are rapidly changing and include diverse capabilities, such as GPS, cameras, wireless communications (e.g., WLAN, 4G, and RFID), a variety of on-device memory and disk capacities, and various sensors.

Innovative mobile services and exciting mobile applications are emerging as a result of the ingenious use of these technologies. Consequently, the development of mobile applications has also been growing at a fast pace, presenting new challenges to Software Engineering. Developing versatile and robust mobile applications requires formally grounded methods, as well as advanced practices and tools.

MOBILESoft provides a working conference-style forum for the discussion and presentation of innovative contributions to the research and practice of the design, development, validation, execution, and evolution of mobile applications.

The conference has been organized around five tracks: Technical Papers, New Ideas, Tool Demos and Mobile Apps, Student Research Competition, and the Future of Mobile Software Engineering.

We received a total of 62 submissions for all tracks. Each submission went through a thorough review process that involved at least 3 reviewers.

The technical papers track received 39 submissions. 9 were accepted as full-length research papers (23%), 12 were accepted as short papers (30%) and 6 papers were accepted as posters with a 2-page paper for the proceedings.

The conference also hosted four distinguished keynote speakers on the Future of Mobile Software Engineering, invited talks from industrial practitioners, tutorials, and papers on mobile software. These focused on emerging trends and applications. To determine the topics of the distinguished keynotes, the MOBILESoft Facebook community voted for the most interesting topics to be presented. The four selected topics were: security; energy and performance; testing, verification, and validation; and mobile ecosystems and IoT.

The papers accepted to the technical track spanned many topics, but focused on four key areas of research and practice:

Architecture and design of mobile applications. This included the development of architecture styles for mobile application development to aid solving common problems including activity and preference management, configuration files, and feature models; development of practical platforms for code offloading of resource intensive tasks to the cloud; call-back analysis to identify problematic Android control flow; and comparing user perception of the same applications across different app stores and platforms. Other works leveraged log data to analyse mobile phone caller behaviour and developed a novel tree-based classification approach for mobile usage behaviours. Wearable devices and apps were also an emerging area of interest and work focused on analyzing user complaints about Google Play store wearable apps to better understand user perceptions in this growing mobile application area.

Many papers focused on new and improved development practices. Code smells manifest in both Android and iOS applications and in two contributions these were studied and compared at length.

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Related is an investigation and analysis of emergent “bad smells” in mobile applications using a set of quality metrics and a qualitative analysis of mobile app development and management practices using industry experts. These studies help us to better understand this aspect of mobile app development. Finally, we also learned about an application of low-cost mobile devices to the road management domain for intelligent transport systems, which addressed emerging issues of smart cities realization through mobile software solutions.

A number of contributions addressed energy concerns with mobile app software engineering. A new prediction approach was proposed for QoS and energy management to allow a mobile app to meet desired response times with minimum energy usage. An approach to reducing energy usage of apps via indistinguishable colour, without compromising user interface aesthetics and usability, was proposed. Progressive Web Apps were studied in regards to the impact that service workers have on the energy efficiency of the apps in different network contexts and with two generations of mobile devices. A set of new guidelines were proposed for developing energy efficient mobile apps, to complement those published that address other QoS characteristics.

Security, risk analysis and privacy concerns continued to be key themes. These were addressed by novel analysis techniques of the permissions in mobile apps to help both users and developers assess app risks based on the classification of permissions. To assist developers in identifying issues earlier in the development lifecycle, a set of static code metrics was used to predict privacy and security issues in Android apps. Apps are often secured using obfuscation techniques. An approach was presented to discover which obfuscator has been used, which can enable broader app analysis for research purposes. Permission setting is critical for app functionality and a detailed analysis of developer permission changes was made to determine who was making permission setting decisions for apps and what their expertise and experience levels were. Malicious packages pose serious threats to users and a framework was presented to determine ranked lists of potentially malicious packages based on the approaches they use to trigger malware code.

We are grateful to everyone who submitted papers, to the reviewers of those papers, and to the conference attendees. We encourage all readers of these papers to join us and engage in developing this growing discipline.

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MobileSoft 2017 Co-Chairs