Welcome Message from the Chairs

MOBILESoft 2016

Mobile application usage and development is experiencing exponential growth. Billions of applications have been installed. The mobile domain presents new challenges to software engineering. Mobile platforms are rapidly changing, including diverse capabilities such as GPS, sensors, and multiple input modes. Applications must be omni-channel and work on all platforms. Activated on mobile platforms, modern applications must be elastic and scale on demand according to the hardware abilities. Bring your own device (BYOD) policies introduce new challenges for security and management. Applications often need to support and use third-party services. Therefore, during development, security and authorization processes for the dataflow must be applied. Developing such applications requires suitable practices and tools, e.g., architecture techniques that relate to the complexity at hand; improved refactoring tools for hybrid applications using dynamic languages and polyglot development; and testing techniques for applications that run on different devices. This conference aims to establish a community of researchers and practitioners to share their work and lead further research into mobile software engineering. Among the goals for the conference are establishment of relationships to create a vibrant research community around the topic of mobile software development and identification of the most important research problems for this topic.

The conference hosts 3 distinguished keynote speakers, invited talks from industrial practitioners, tutorials and papers on mobile software, including some perspectives on emerging trends and applications.

Each submission went through a thorough review process that involved at least 4 reviewers. This year we received 89 submissions for all tracks. 57 submissions were papers submissions. 19 were accepted as full-length research papers (33%), and 5 were accepted from the remaining papers as short papers (14%). Three reviewed papers were accepted as posters with a 2-page paper for the proceedings. The poster session includes also 23 invited posters with a 2-page invited paper for the proceedings. In addition we have 2 tutorials, 10 students in our student research competition and 19 demos in our Mobile Applications Track.

Among the new challenges and directions, there are the following five areas of interest:

- **Management of mobile applications.** This item refers to the technical capabilities to create, deploy, and manage a suite of applications for multiple heterogeneous devices (e.g., iOS, Android, BlackBerry, Windows Mobile) that connect securely to enterprise back-end servers or servers hosted in the cloud.
- **Hybrid applications versus native applications.** A native application is an application designed to run in a specific environment written in a specific language. A hybrid mobile application, however, is developed using web technologies such as HTML, CSS, and JavaScript activated by a native wrapper. Building native applications requires comprehensive knowledge in the specific environment, such as Objective C (iOS), Java (Android), and C# (Windows mobile and BlackBerry). However, hybrid applications based on web technologies require widespread knowledge.
- **User experience.** Applications must provide different user experiences depending on the target environment. For example, an iOS application provides a different user experience than an Android application, even though the functionality of the application must be the same.
- **Battery life.** How can developers write software that uses up as little battery life as possible?
- **Migrations to mobile.** As more users access and use mobile-based tools, developers need to enable and support migration from legacy software such as web applications to mobile.
• Mobile security. Mobile devices have strong networking capabilities, in addition to the importance of security and privacy at all levels of the mobile software stack, from the underlying operating system to the applications themselves.

Moreover, the development of mobile applications includes the following aspects that extend existing software engineering practices:

• Software characteristics. 1) Software is distributed on several platforms that link between them over the network. For example, one part of an application could be on mobile phone browsers, another part might be on the cloud, and both of them are reading data from some legacy systems. 2) Mobile applications need to be elastic and scale on demand according to their environments' abilities. Functionalities need to be easily removed, added, or moved to or from the cloud. 3) Many hardware platforms exist for an application and the platforms are rapidly changing, including flexible capabilities such as GPS, sensors, and input modes. Development, however, should be for all platforms.

• Architecture. Mobile application development also includes several architectural challenges, such as how to support omni-channel communications and how to support updates from a server, e.g., notifications about new mail or software updates. Applications must be able to easily communicate with new systems. Traditional solutions enable software to be easily designed and modified to communicate with new environments. However, the environments with which applications need to communicate are rapidly changing. As a result, traditional solutions do not fit modern software and we cannot modify applications using traditional architectural approaches to support all channels.

• Testing. Another aspect of mobile application development concerns software testing. How can applications be tested on arbitrary and unknown hardware? And how can we develop test-driven software without being able to run the test itself?

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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