Introduction to the HICSS-52 Software Development for Mobile Devices, Wearables, and the Internet-of-Things Minitrack

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Applications for mobile devices (apps) have facilitated the success of smartphones and tablets. By using apps, the multi-purpose hardware of modern devices can be utilized to the full extent. Despite much progress with regard to development methods, software development kits, and frameworks, app development poses many challenges. This is even truer for novel mobile devices such as wearables and for the hardware that constitutes the Internet-of-Things (IoT). Compatibility, performance, battery-saving, security, and testing are only some of the issues that are mainly driven by the quality of the used software. A satisfying level of this quality in many cases is very hard to achieve.

Experiences and methods from classical software development can only be utilized to some degree. Moreover, the inherent challenges of the respective new devices ask for novel solutions. The above-sketched issues are worsened by the conditions that development activities meet. Typical particularities include the need for multi-platform development, device fragmentation, context-sensitivity, low computational power, little memory, energy conservation requirements, and the heterogeneity of users. With the emergence of multi-platform and multi-device, the new golden standard are applications not only across software ecosystems, but across hardware platforms such as laptop, mobile, tables, sensors and wearables. Therefore, new threads of research are needed to tackle these issues and to pave the way for improved software standards, better business producibility and an improved customer experience.

This minitrack extends the former Mobile App Development minitrack (of HICSS-49 [1] and HICSS-50 [2]) beyond the core app realm, which was limited to apps for devices for smartphones and tablets. It keeps the focus on software development but broadens the scope of applicable hardware to reflect the increasing interconnectedness. After its successful introduction at HICSS-51 [3], it now goes into its second year. The minitrack is devoted to the technological background of mobile computing while keeping an eye on business value, user experience, and domain-specific issues.

The minitrack will span over two sessions. The first session covers three papers:

1. *Successful Mobile Application Development: Towards a Taxonomy of Domain-Specific Process Models and Methodologies* by Oliver Werth, Nadine Guhr, and Michael H. Breitner

2. *The Influence of Design Updates on Users: the Case of Snapchat* by Daniel Franzmann, Lukas Fischer, and Roland Holten

3. *Examining User-Developer Feedback Loops in the iOS App Store* by Kendall Bailey, Meiyappan Nagappan, and Danny Dig

The second session contains four papers:

1. *Offloading for Mobile Device Performance Improvement* by Dagnachew Temesgene, Jari Porras, and Janne Parkkila

2. *A Model-Driven Cross-Platform App Development Process for Heterogeneous Device Classes* by Christoph Rieger and Herbert Kuchen

3. *Automated Testing of Motion-based Events in Mobile Applications* by Seyedeh Sepideh Emam and James Miller

4. *Software Development for Mobile Computing, the Internet of Things and Wearable Devices: Inspecting the Past to Understand the Future* by Tor-Morten Grønli, Andreas Biørn-Hansen, and Tim A. Majchrzak

We are glad that we again had many helping hands. We are proud that all authors that submitted papers to our track got at least three – most even four – constructive reviews as well as an additional meta review. We think that we outperform many journals

with this effort in giving authors advice, be their papers accepted or not. Therefore, we would like to thank (and explicate!) our program committee for their arduous work:

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Moreover, one review was provided by Thomas Rathfux, Technische Universität Wien.

When this foreword is published, we will already be looking forward to the fifth edition of the minitrack at HICSS-53 in 2020!

References

[1] T. A. Majchrzak and H. Heitkötter, "Introduction to the mobile app development minitrack," in *Proceedings 49th Hawaii International Conference on Systems Science (HICSS-49)*, p. 5682, IEEE Computer Society, 2016.

[2] T. A. Majchrzak and T.-M. Grønli, "Introduction to the mobile app development minitrack," in *Proceedings 50th Hawaii International Conference on Systems Science (HICSS-50)*, p. 6161, AIS Electronic Library (AISeL), 2017.

[3] T. A. Majchrzak and T.-M. Grønli, "Introduction to the HICSS-51 software development for mobile devices, wearables, and the internet-of-things minitrack," in *Proceedings 51th Hawaii International Conference on Systems Science (HICSS-51)*, p. 5686, AIS Electronic Library (AISeL), 2018.