QoSA’15
Proceedings of the 11th International ACM SIGSOFT Conference on Quality of Software Architectures

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Welcome from the CompArch 2015 Chair

It is our great pleasure to welcome you to the 2015 Federated Events on Component-Based Software Engineering and Software Architecture (CompArch 2015), held in Montréal, Canada on May 4 to 7, 2015.

This year CompArch is co-located with the 12th Working IEEE/IFIP Conference on Software Architecture – WICSA 2015. CompArch and WICSA jointly feature keynote speeches, tutorials, four workshops addressing a broad spectrum of topics of great interest in the field, and a dedicated Industry Day with a rich program especially conceived to attract practitioners, and create new links and collaboration opportunities for academia and industry. The joint conference also features a doctoral symposium (WCOP), a poster exhibition and tool demos.

The call for papers attracted submissions from Asia, Canada, Australia, Europe, Africa, and the United States. The program committees reviewed and accepted the following:

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<th>Track</th>
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<tr>
<td>Component-based Software Engineering (CBSE)</td>
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<td>14</td>
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<td>28</td>
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We also encourage attendees to attend the keynote and invited talk presentations. These valuable and insightful talks can and will guide us to a better understanding of the future:

- **Keynote Talk** by Jan Bosch (who is currently professor at Chalmers University, Sweden)
- **Keynote Talk** by Steve Mellor (who is currently at Industrial Internet)

Putting together CompArch 2015 was a team effort. We first thank the authors for providing the content of the program. We are grateful to the program committees of the many events and their respective chairs, who worked very hard in reviewing papers and providing feedback for authors. Finally, we thank the hosting engineering school: the Ecole de Technologie Supérieure (part of the Université du Québec à Montréal), and our key sponsor: ACM SigSoft.

We hope that you will find this program interesting and thought-provoking and that the symposium will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world. And enjoy your stay in the Belle Province!

Philipppe Kruchten  
CompArch'15 General Chair  
UBC, Vancouver, Canada

Roger Champagne  
CompArch'15 Local host  
ETS, Montréal, Canada
Welcome to the 11th International ACM Sigsoft Conference on the Quality of Software Architectures – QoSA 2015. For more than a decade, QoSA has strived to advance the state of the art of quality aspects of software architecture, focusing broadly on its quality characteristics and how these relate to the design of software architectures. Specific issues of interest are defining and modeling quality measures, evaluating and managing architecture quality, linking architecture to requirements and implementation, and preserving architecture quality throughout the system lifetime. Past themes for QoSA include Architecting for Adaptivity (2014), The System View (2013), Evolving Architectures (2012), Quality throughout the Software Lifecycle (2011), and Research into Practice – Reality and Gaps (2010).

QoSA 2015’s theme is “Software Architecture for the 4th Industrial Revolution”. After mechanization, mass production, and electronics, the Internet is about to enable a new level of productivity in manufacturing. This shall be enabled by smart cyber-physical systems connected to cloud computing services and communicating using standardized semantics. In the near future, industrial big data analytics on monitored sensor data shall improve the efficiency and individualization of production facilities. This year’s QoSA conference solicited contributions that explore the various implications of this upcoming industrial revolution on software architecture. This included reference architectures, software architectures adapting at run time, architecture styles and patterns for cyber-physical and distributed systems.

The call for papers attracted 42 initial submissions from Asia, North America, Africa, and Europe and 28 final submissions were considered during the review process. The program committee accepted 11 full papers and 2 short papers that cover topics, such as new architecture modeling approaches, architectural tactics for mobile computing, cloud computing architectures, and cyber-physical systems. QoSA’s 2015 proceedings also include 2 papers from the WCOP 2015, the 20th International Doctoral Symposium on Components and Architecture.

QoSA 2015 is part of the federated events on component-based software engineering and software architecture (CompArch 2015), which include WICS 2015 (12th Working IEEE / IFIP Conference on Software Architecture) and CBSE 2015 (18th International ACM SIGSOFT Symposium on Component-Based Software Engineering).

Putting together QoSA 2015 was a team effort. We first thank the authors for providing the content of the program. We are grateful to the program committee, who worked very hard in reviewing papers and providing feedback for authors, as well as to the steering committee, who provided guidance in organizing the program. We thank the QoSA and CompArch steering committees for their guidance. We also thank the WICS/CompArch’15 general chair Philippe Kruchten and his organization team for their excellent work in coordinating the federated events and making a great conference possible.

We hope that you will find this program interesting and thought-provoking and that the conference will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

Ipek Ozkaya  
QoSA 2015 Program Co-Chair  
Carnegie Mellon University,  
Software Engineering Institute,  
Pittsburgh, US

Heiko Koziolek  
QoSA 2015 Program Co-Chair  
ABB Corporate Research,  
Ladenburg, Germany
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