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Web Engineering

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Proceedings

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Preface

The International Conference on Web Engineering (ICWE) is the prime yearly international conference that focuses on different aspects of designing, building, maintaining, and using Web applications. Supported by the International Society of Web Engineering (ISWE), ICWE brings together researchers and practitioners representing various fields and disciplines of the challenges in the engineering of the Web as well as the problems in the associated technologies.

This year ICWE returned to Cáceres (Spain), where the conference started in 2001. This volume collects the full research papers, vision and short research papers, demonstrations, industry papers, tutorials, and extended abstracts for the keynotes presented at the 18th International Conference on Web Engineering (ICWE 2018). The previous editions took place in Rome, Italy (2017), Lugano, Swizerland (2016), Rotterdam, The Netherlands (2015), Toulouse, France (2014), Aalborg, Denmark (2013), Berlin, Germany (2012), Paphos, Cyprus (2011), Vienna, Austria (2010), San Sebástian, Spain (2009), Yorktown Heights, NY, USA (2008), Como, Italy (2007), Palo Alto, CA, USA (2006), Sydney, Australia (2005), Munich, Germany (2004), Oviedo, Spain (2003), Santa Fe, Argentina (2002), and Cáceres, Spain (2001).

The 18th edition of ICWE accepted contributions related to to different dimensions of Web Engineering: Web application modeling and engineering; Web infrastructures and architectures; execution models; human computation and crowdsourcing applications; Web application composition and mashups; social and Semantic Web applications; Web of Things applications; big data and data analytics; security, privacy, and identity on the Web; Web standards.

The main research track continued with the Program Committee (PC) organization firstly introduced at ICWE 2016, with a senior PC composed of well-known experts from the field in charge of monitoring the work and animating the discussions of the broader regular PC. This made it easier to run the virtual PC meeting of the full research papers track and the discussion about each paper.

The program for ICWE 2018 was versatile and multifaceted. For the full technical papers track, we selected 18 out of 57 submissions, resulting in an acceptance rate of 31%. In addition to the full technical papers, there were also several other tracks, including highly competitive short, vision, and industrial papers tracks, as well as demo tracks to stimulate discussions among the participants.

ICWE 2018 also accepted five tutorials on cutting-edge topics in the field of Web engineering, entitled: How to Cook an Agile Web-Based Model-Driven Environment in a Night; Interactive Web Lectures with ASQ; HTML5; Practical Design Science; and Engineering of Web Stream Processing Applications. Moreover, five workshops were also selected to be co-located at ICWE 2018, complementing the scientific program.

This excellent and comprehensive program would not have been possible without the help of those who contributed to the success of the event. We would like to thank

all the different chairs for their hard work: Carlos Canal, Florian Daniel, Oscar Diaz, Piero Fraternali, Martin Gaedke, In-Young Ko, Qing Li, Cesare Pautasso, Juan Carlos Preciado, Gustavo Rossi, Fernando Sánchez, Kari Systä, Antero Taivalsaari, Maja Vukovic, and Marco Winckler. Our thanks also go to Antti Peuhkurinen (Varjo Technologies) and Michael Papazoglou (Tilburg University), who accepted to be our keynote speakers.

Special thanks are extended to Oscar Diaz and Martin Gaedke for their advice, support, and encouragement in their role of SC liaisons for the conference. We are grateful to our local organizers Juan Manuel Murillo and the Quercus Software Engineering Group of Extremadura University for their logistical support, and to Springer for publishing this volume. In addition, we want to thank the PC members, the additional reviewers, and the student volunteers for their effort to make ICWE 2018 a very special event, both in terms of academic ambition as well as practical arrangements.

Finally, we want to thank you, authors and the ICWE community, for taking the time and effort to participate in ICWE 2018.

April 2018   Tommi Mikkonen
                                                              Ralf Klamma
                                                              Juan Hernandez

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Abstracts of the Invited Talks

Demystifying Smart Data and Smart Industrial-Strength Applications: Solving Problems and Creating Opportunities

Michael P. Papazoglou

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Abstract. Smart Data emphasize the latent value inherent in widely dispersed and unconnected data sources. The decisive criterion here is not necessarily the amount of data available, but smart content techniques that promote not only the collection and accumulation of related data, but also its context, and understanding. This requires discovering associations between the data, prioritizing results, finding useful insights, discovering patterns and trends within the data to reveal a wider picture that is more relevant to the problem in hand and react to them. Smart Industrial-Strength Applications are a new generation of software applications that combine the benefits of smart data and advanced analytics to help organisations manage their resources (including humans), data, processes and systems more efficiently.

Smart Data and Application innovations promise to bring greater speed and efficiency to industries as diverse as smart agriculture, smart cities, smart tourism, and smart health care delivery where they provide meaningful insights to decision makers and help them solve complex problems. They hold the promise of stronger economic growth, better and more job creation and rising living standards.

This talk will focus on the role, characteristics, potential of smart data and applications for diverse domains, and their enabling technologies. To illustrate the potential of smart data and applications, the talk will draw on examples that highlight the interplay of medical and technical aspects of smart healthcare applications. Smart healthcare involves deploying computing, information, service, sensor and visualisation technologies to aid in preventing disease, improving the quality of care and lowering overall cost. The talk will also examine the design and deployment requirements, particularly for point-of-care medical applications, which emerge from the interplay of the actual clinical situation and the novelty of the smart healthcare application.

Keywords: Smart data · Smart applications · Smart healthcare applications

Mixed Reality and Programmable World

Antti Peuhkurinen

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Abstract. Third computing revolution, the one after desktop computers and mobile touch screen devices, is emerging in a form of mixed reality. Mixed reality with its infinite screen and programmable world is how we might soon experience a new application paradigm. This new paradigm again reangles the development of the current technologies and will also introduce new technologies.

In this presentation we will look how current technologies can be used and what new enablers are needed for this new application paradigm.

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