
Special Issue on Advanced Practices in Web Engineering

EDITORIAL

Technological disruption is causing great changes and impact in our society in the way we live, work and how we relate to each other. This is due to the fact that Internet is a great communication tool as a means of influence is reflected in the advances and the continuous adaptation of users, practitioners and researchers to it. As soon as we implement intelligent technologies in our homes, factories or workplaces, the machinery and systems connected to the Internet are interacting, processing information and making decisions autonomously. Increasing new technologies and paradigms such as Artificial Intelligence or the Internet of Things and System of Systems, together with technologies such as Cloud Computing or Big Data, make the Fourth Industrial Revolution that we are living developing towards the optimization of processes and resources through the collection, use, and an intelligent analysis of processing of data.

This revolution represents new forms of integration of technology in societies, and even in humans. In this sense, the Web Engineering research community occupies a very important place because it has to provide new methods, techniques and tools to solve, in a systematic, efficient and effective way, the current problems and challenges faced by their practitioners. Then, there are many research areas of interest where Web Engineering can be applied in this Fourth Industrial Revolution. In this context, this Special Issue is aimed at discussing *Advanced Practices in Web Engineering*, including interesting topics related to information and data management, Model-Driven Engineering, System of Systems, Systems as a Service in real business experiences and development of methodologies directly involved in Web Engineering.

A very important characteristic in Web Engineering is how information and data are processed, stored and managed. In the paper presented by Suárez-Otero et al., authors propose a method to ensure the data integrity when there is

a modification of data by using a conceptual model that is directly connected to the logical model that represents the Cassandra tables. This method identifies which tables are affected by the modification of the data and also proposes how the data integrity of the database may be ensured. A case study is executed, and results are presented.

The paper presented by Goy et al., shows how an ontology-based approach can be beneficial for enhancing the access to cultural resources, and in particular, historical documents. Specifically, the paper describes the computational ontologies supporting the approach, and then focuses on two case studies showing that our framework provides better results if compared with standard access systems.

Figueira et al. identify and summarize some of the most prevalent works on the strategies to fight back the spread of false information. In addition, authors discuss the methods applied to deceive users and what are the next main challenges of this area.

Model-Driven is one of the key aspects of the Web Engineering. The paper presented by Balderas et al., aims to address a computer supported assessment of the user's generic skills from the perspective of Model-Driven engineering. Authors present a systematic mapping study to understand the state-of-the-art and finally, they describe the proposal validating through an organizational learning process model.

The paper presented by Vu et al., propose a Model-Driven Testing (MDT) approach for hypermedia systems. On this work discuss challenges and results of hypermedia testing for RESTful APIs using MDT techniques that were discovered within our research.

In the paper presented by Buzzi et al., accessibility of web interfaces while interacting with Home Automation Systems components via screen reader assistive technology is investigated to propose potential suggestions to the practitioners. Web interfaces are particularly considered in this study to keep a certain continuity for those screen reader users who are not yet so skilled to use touch-screen devices.

A Model-Driven approach in the context of the biological sample management in the assisted reproductive treatment process, is the future work proposed by the paper presented by Morales-Trujillo et al. In this paper, authors conduct an exhaustive systematic literature review both in the research community and in the commercial field to identify and analyze System of Systems (SoS) solutions and theoretical proposals applied to this context. Current web applications are increasingly tending to become applications

composed of other, in fact, SoS. Web-based technologies are a trending topic to achieve SoS user interaction.

Distributing software as a service (SaaS) has become a major trend for web-based systems. One of the challenges that it poses is feature variability, that is, some features of the system may be required by some users, but not necessarily by all of them. Paper presented by Pedreira et al., present a real experience applying feature-oriented software development (FOSD) in the context of SaaS web-based systems development. In addition, an empirical evaluation of the feature model of the system based on data obtained from its real deployment after two years of use is described.

Web Engineering requires of methods and techniques that allow researchers and practitioners to build web applications in an orderly, systematic and simple way. In this context, the paper presented by Gutiérrez et al., introduces PLEC, a participative process for designing Graphical User Interfaces (GUI) with the collaboration of the final users of the system and stakeholders. With this process participants do not need technical knowledge for GUI prototype. Finally, authors describe a case study to test the viability of their proposal.

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