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Preface

Preface to the special issue on Software Support for User Interface Description Languages (UIDL 2011)

This issue of the journal Science of Computer Programming (SCP) includes extended and revised versions of six papers selected from the UIDL 2011 – Software Support for User Interface Description Language workshop [1], which was held on September 5th, 2011, in Lisbon, Portugal.

This workshop aimed at discussing contributions related to user interface description languages, with a special focus on the tools that support them.

User interface description languages (UIDLs) [2] are closely related to model-based user interface development environments [3]. The term ‘model-based user interface development environment’ (MB-UIDE) was coined at the end of the 80’s, when some researchers in the human–computer interaction community identified this approach as a means for addressing the lack of a systematic approach in the development of user interfaces.

The main cornerstone of the MB-UIDE has been the specification of the user interface by using a set of models that describe those features of the user interface design considered relevant. The ultimate goal of MB-UIDE is to reason about user interfaces being designed, in areas such as, but not limited to, the automatic generation of user interfaces.

The MB-UIDE approach has been reinforced during the last decade by the growing adoption of the model-driven engineering (MDE) discipline in the software engineering community, which aims at producing software also following a systematic approach out of a set of models. Actually, MDE and MB-UIDE are currently two approaches that are closely related to each other.

UIDLs are the underlying support for MB-UIDE; they describe what should be specified for a user interface to be designed. Therefore, they describe the metamodels of the models used to build the user interface. These metamodels include the entities and their attributes, and the relationships between the entities, that support the specification of the various facets of a user interface.

In this special issue, six papers are covering some important aspects related to user interface description languages. The paper entitled “A graphical editor for the SMUIML multimodal user interaction description language” by Bruno Dumas, Beat Signer and Denis Lalanne addresses how to design multimodal user interfaces by relying on a UIDL. More concretely, how to use the UIDL language SMUIML for this aim is described, along with a set of tools that support the required development activities.

One important issue, among others, in user interface development nowadays is the poor accessibility support. In the paper entitled “An approach to the integration of accessibility requirements into a user interface development method”, Raul Miñon, Lourdes Moreno, Paloma Martinez and Julio Abascal discuss how the navigational requirements from WCAG 2.0 accessibility guidelines can be considered in model-based user interface development.

As the user interface becomes more complex, the workflow of the application requires more attention to deal with that complexity. In the paper entitled “Evolutionary design of user interfaces for workflow information systems”, Josefina Guerrero describes a method for model-based user interface design relying on a workflow model to address the aforementioned issue.

The paper entitled “Bridging the gap between a behavioural formal description technique and user interface description language: Enhancing ICO with a graphical user interface markup language” by David Navarre, Eric Barboni, Célia Martinie de Almeida, Philippe Palanque and Marco Winckler addresses the specification of the behaviour of the user interface by integrating the ICO formal model for the specification of behaviour into a UIDL, namely UsiXML.

Every user interface should be assessed to make sure that it meets the usability goals specified in the requirements, including those created by using a UIDL. In the paper entitled “Automated UI evaluation based on a cognitive architecture and UsiXML” by Juan Manuel Gonzalez-Calleros, Jan-Patrick Osterloh, Rene Feil and Andreas Lüdtke, a tool is presented that automatically checks a graphical user interface against a set of usability guidelines by using a UIDL.

One of the drawbacks when using UIDLs is usually the poor support for model usability features. In the paper entitled “A proposal for modelling usability in a holistic MDD method” Ignacio Panach, Nathalie Aquino and Oscar Pastor demonstrate how usability features can be modelled in this method using an UIDL in order to contribute to solving this issue.

Finally, we would like to thank all the reviewers who contributed to improving the original submissions from the authors. We would like also to thank the UsiXML project for support [4] and the Spanish Government, Department of Science and Innovation, for the insPIre (TIN2012-34003) grant.

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