Preface

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The papers in this collection came out of work and ideas presented and discussed at a workshop co-located with EICS 2013, the 5th ACM SIGCHI Symposium on Engineering Interactive Computing Systems, held at City University, London, UK in June 2013.

As for the four previous editions, this fifth edition of the International Workshop on Formal Methods for Interactive Systems (FMIS 2013) is a forum for the presentation and discussion of research into the interface between formal methods and interactive system design. As we see, small medical devices have become something of a theme in much current work. This is unsurprising since they are clearly safety critical, and they are also very, very common and the focus of much current concern by licensing bodies like the FDA in the USA. This, then, is a timely set of papers.

The paper by Harrison et al. explores how formal techniques can be used, as a better alternative to testing, when comparing the interface properties of two safety critical devices. One important point here is that the analysis, being formalised, can be done systematically on both devices, giving a more uniform comparison of them since it judges them both against the same model.

Masci et al. use a case study to explore predictability in the use of medical devices. What counts as predictable is specified formally and then formal techniques and tools are used to automatically show whether or not the devices are, in

the defined terms, indeed predictable. When failure to show predictability occurs the formality allows the reasons to be pin-pointed and design changes can be brought to bear, thus improving the systems under consideration.

A second paper by Masci et al. brings together the formal and informal in an important way. They introduce a conceptual framework called distributed cognition which allows them to model the information in a user's environment that drives their interactions with systems. They also show how the formal modelling language PVS (and its associated tools) can systematise and help to investigate hazards in the environment with reference to the information model. They make the point that this is a good example of how both the informal and formal are both needed for success.

Finally, the paper by Calder et al. looks at two ways of modelling a home care monitoring system with the aim of seeing which model was most effective. Along the way they are able to draw conclusions about the role of formal modelling and design methods and make some recommendations about ways of talking about meaning and context for use of systems.

Previous workshops in this series were held in Limerick (at LERO, and as part of FM 2011, the 17th International Symposium on Formal Methods, June 2011), Eindhoven (November 2009), Lancaster (September 2007) and Macau (October 2006).

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