A Summary of the Fourth International Workshop on Multimedia and Enjoyable Requirements Engineering (MERE'11)

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Abstract—The 4th international workshop on Multimedia and Enjoyable Requirements Engineering (MERE'11) was held in conjunction with the 19th IEEE International Requirements Engineering Conference (RE'11). It comprised six peer-reviewed technical papers and four interactive sessions. This workshop summary outlines the goals and structure of the MERE series of workshops and provides a synopsis of the 2011 event.

Keywords: communication; creativity; entertainment technology; fun; games; improvisation; movies; multimedia; representation; requirements engineering; storytelling; training.

I. Overview of MERE

The international workshop on Multimedia and Enjoyable Requirements Engineering (MERE) strives to make requirements engineering more engaging, desirable and rewarding in order to increase its impact on the value creation chain. Improving the interactions and interactivity between stakeholders will allow requirements engineers to accommodate a more diverse audience, thereby facilitating improved input to requirements development as early and as often as practical. As communication can occur in forms other than written or spoken natural language, such as facial expression or gesture, we draw inspiration for processes and representations from domains as diverse as the movie and game industries, storytelling, improvisation theater, industrial design, marketing and media production. MERE provides an opportunity for researchers and practitioners to exchange new and innovative ideas relating to challenges in the domain.

This paper provides an overview of the MERE series of workshops and a synopsis of the 2011 event, which was co-located with the 19th IEEE International Requirements Engineering Conference (RE'11) and held in Trento, Italy. Details on the three prior workshops can be found at the following websites:

- **MeRE'06**, co-located with the 14th IEEE International Requirements Engineering Conference (RE'06), Minneapolis / St. Paul, Minnesota, USA, http://www.mere-workshop.org/RE06/.
- **MeRE'07.de**, co-located with the Conference on Software Engineering (SE'07), Hamburg, Germany, http://www.mere-workshop.org/SE07/.
- **MERE'08**, co-located with the 16th IEEE International Requirements Engineering Conference (RE'08), Barcelona, Spain, http://www.mere-workshop.org/RE08/.

II. Goals & Participants of MERE

High-quality requirements are an important precondition for successful systems development. Novel ways to produce high-quality requirements that add value to the entire systems development lifecycle are needed. One approach is to encourage a more playful and enjoyable creative process for requirements engineering, both in the training and in the conduct of its practices, thus increasing the intrinsic motivation for doing a good job. Another approach is to reflect the creativity and vision of requirements engineers in the resulting specifications, transporting ideas on many levels of abstraction and addressing a diverse audience.

We believe that more support is needed in these "softer" and more "representational" areas of requirements engineering. The MERE workshop series provides an opportunity to exchange new and innovative ideas on how to use multimedia, games or other innovative concepts to make requirements engineering activities and artifacts more engaging and effective.

The target participants for the MERE workshops are the following:

- RE researchers working on the development of media or game-based RE tools, techniques and methods;
- RE researchers and practitioners investigating the deployment of the products of the above RE research in industry;
- RE practitioners with experience in the selection of RE tools, techniques and methods for specific projects;
- RE trainers seeking to explore and gain feedback on innovative media or game-based ideas.

III. Topics of MERE

The papers accepted at MERE usually include experience papers, method descriptions, reports on emerging technologies, research proposals, and evaluations and comparisons that focus on the innovative uses of games, multimedia or other fun concepts in requirements engineering practice and training (e.g., improvisation, storytelling and play). Typical topics include, but are not limited to:

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- The role of multimedia or games in pre-requirements and post-requirements specification activities;
- Media languages and techniques for requirements engineering;
- The use of real-world physical devices for rapid prototyping in support of requirements elicitation and negotiation;
- The semiological modeling of requirements;
- Multimedia-based requirements development, analysis and specification;
- Game-oriented requirements development and analysis;
- Approaches to the teaching and training of requirements engineering using gameplay and other multimedia;
- Multimedia techniques and tools to facilitate the evolution of representations.

We also explicitly sought proposals from participants who would like the opportunity to run an interactive or gameplaying session at MERE. These sessions generally take one of the following forms:

- The demonstration of media-centric techniques or tools in requirements engineering;
- Novel techniques for the interactive exploration of a problem space among workshop participants;
- The hands-on use of emerging research techniques or technologies within the scope of the topics;
- Plans to conduct a well-formulated interactive evaluative study with workshop participants within the scope of the topics;
- A requirements engineering training exercise or game.

IV. The MERE'11 Program

The MERE workshop provides a collaborative session in which lateral thinking about requirements engineering is facilitated and some suspension of disbelief is expected. The intention is always to explore the value of enjoyment and the role of varying media forms as a way to seed high-quality efforts and results in requirements engineering. It is driven by a passion of the workshop chairs to make requirements engineering more fun and engaging for all stakeholders.

The 2011 workshop sought to further investigate the special requirements engineering needs of media-rich systems (e.g., video games, mobile applications and social media). The program was divided into four sessions, each comprising a short presentation of key concepts from a peer-reviewed paper, followed by a hands-on interactive session to demonstrate or explore the work presented. The four sessions were entitled "Storytelling", "Visualization", "Games" and "Creative Arts" and are described in more detail in the following sections.

At the beginning of the workshop, the introductions of the workshop participants were facilitated as positional play. The facilitators posed questions to the group, e.g., "Where were you born?" and "Are you more of a story teller or more of a listener?" The room was divided into positions where participants should stand depending on the answers they gave.

At the end of each session, participants were asked to write down their feedback on "Keep/Change" forms: "what worked" and "what to do differently". This feedback is reported, in extracts, in the following sections, too.

V. Storytelling

This session opened with the presentation of:

• Naoufel Boulila, Anne Hoffmann and Andrea Herrmann. *Using Storytelling to Record Requirements: Elements for an Effective Requirements Elicitation Approach* (cf. page 9).

The hands-on part of the session aimed at two goals: 1) Establishing the general theme of "travel support" as an example domain. This domain was chosen to facilitate thinking in concrete examples that most participants would be able to relate to. 2) Expose participants to the storytelling technique to spur discussions on its applicability, value, and potential in requirements engineering.

We divided the group into two teams. Both teams told stories around the general theme of "travel", with one participant taking notes (the "Indexer"). Both teams then debriefed the complete group. The results of the indexer were referred back to in later sessions, when other techniques and practices should be tried out on concrete examples.

A few selected feedback statements from the participants of the first session were: "Very good elicitation methodology which could be effectively used in requirements workshops."; "An exercise helps understanding and get a feel of the techniques. It is also enjoyable."; "Good debriefing by David (debriefing is crucial with hands-on)"; and "More time for such interesting part."

VI. Visualization

This session opened with the presentations of:

• Steve Russell and Oliver Creighton. *Virtual World Tools for Requirements Engineering* (cf. page 17).

• Deepti Savio, Anitha P.C. and Parameshwar P. Iyer. *Visualizing Requirements: A Three Dimensional Pyramid Representation* (cf. page 21).

The hands-on part of the session aimed at experimenting with the concept of a three-dimensional pyramid to structure and layer requirements into categories and types from various perspectives.

The group started out with substantial discussions of the problem area and how this concept might scale to real world problems. Some participants created prototypes out of play-doh; others created conceptual drawings on a whiteboard.

The theme of the "travel" domain was reinforced by focusing on a few examples from a baggage handling system from the perspective of an airline as well as from a passenger's perspective. The discovered categories helped to build a deeper common understanding of just how diverse the "requirements" of complex systems can be. This was helpful in later sessions, when the teams needed to quickly decide on which requirements aspects to focus on in trying to apply the introduced techniques.

Selected feedback statements from participants were: "Interesting theory, good research topic."; "I liked what Oliver said: 'Whatever they said in the paper, let's try to build together something valuable from what we have

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understood.' Not easy, but great, challenging, provocative."; and "Empirical results would be nice."

VII. GAMES

This session opened with the presentation of:

• David Callele, Eric Neufeld and Kevin Schneider. *A Report on Select Research Opportunities in Requirements Engineering for Videogame Development* (cf. page 26).

The hands-on part of the session aimed at tieing the concept of quick and informal games to the goals of requirements elicitation. For this, we provided a more general verbal introduction to games in requirements elicitation, followed by an opportunity for participants to play the game "Non-trivial Pursuit". The research questions from the paper were presented as a stack of cards that players drew and had to speak about for one minute in order to advance their animal token on a custom-designed playing board. The discussions during a single round of play resulted in many possible variations to the game play.

Selected feedback statements from participants were: "Having great discussion was great, but it cut the flow of the game."; "Keep everything, it was fun!"; and "I think more people should experience this type of session."

VIII. CREATIVE ARTS

This session opened with the presentations of:

• Steve Russell and Oliver Creighton. *Artwork for Requirements Definition* (cf. page 34).

• Harald Stangl and Oliver Creighton. *Continuous Demonstration* (cf. page 38).

The hands-on part of the session aimed at creating a video and "continuous demonstration" prototype that would show the context and use case of a mobile app for capturing expense report information *during the course of* a business trip. Participants could experience the ease with which these reusable representations of context can be created. Neither do they mandate the use of specialized teams and equipment, nor do they take a prohibitive amount of time. In many cases, low-fidelity ("quick and dirty") prototypes are already highly effective.

The group was divided into two teams. One team created the context video material [2], while the other team prepared the paper-based User Interface prototype [1]. At the end of the session, a rough cut was quickly edited on-the-fly and participants could experience a cinemaesque presentation in dimmed lights and devotional silence. The resulting video was made available online after the workshop [3].

Selected feedback statements from participants were: "Hands-on very interesting and is needed in this kind of workshop."; "Everyone who participates thinks this is wonderful. However, we are having trouble 'getting the word out'."; and "A deeper example might have led to deeper discussion and more feedback."

IX. THE FUTURE OF MERE

The MERE series of workshops has evolved over the past five years, from an initial emphasis on the use of media and entertainment in requirements engineering to more of an emphasis on the practices and values that their use can make possible. While the MERE workshops are always well received by its participants, it remains a wider challenge to persuade others that doing requirements engineering can be (or is allowed to be) fun and that alternative representations can be used for specifications.

As a complement to the more traditional and accepted techniques of the discipline, the use of games, movies, visuals, storytelling and the like can provide the potential to make the requirements engineering experience more engaging for its stakeholders. There may also be times on a project when these approaches are just what are needed to trigger creativity or to enhance productivity. Going forward, we aim to seek evidence of the role of these approaches and their value.

REFERENCES

[1] Carolyn Snyder. Paper Prototyping. Morgan Kaufmann, 2003. ISBN: 1558608702

[2] Oliver Creighton. Software Cinema: Employing Digital Video in Requirements Engineering. Verlag Dr. Hut, München, 2006. ISBN: 3899633288

[3] YouTube Video "MERE'11: Mobile Expense Reporter App". http://www.youtube.com/watch?v=tKQYeoJ1h5I

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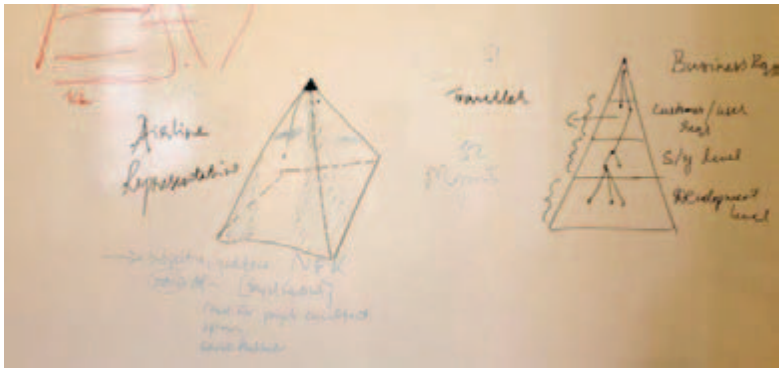
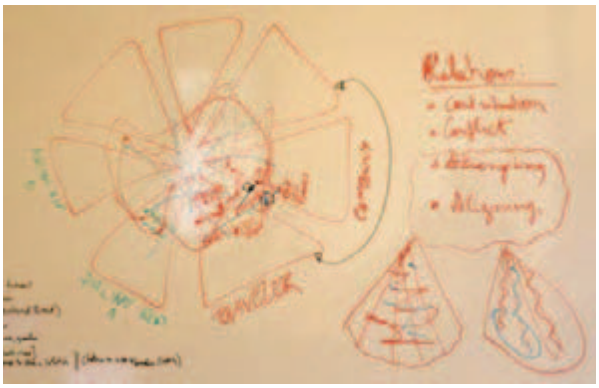
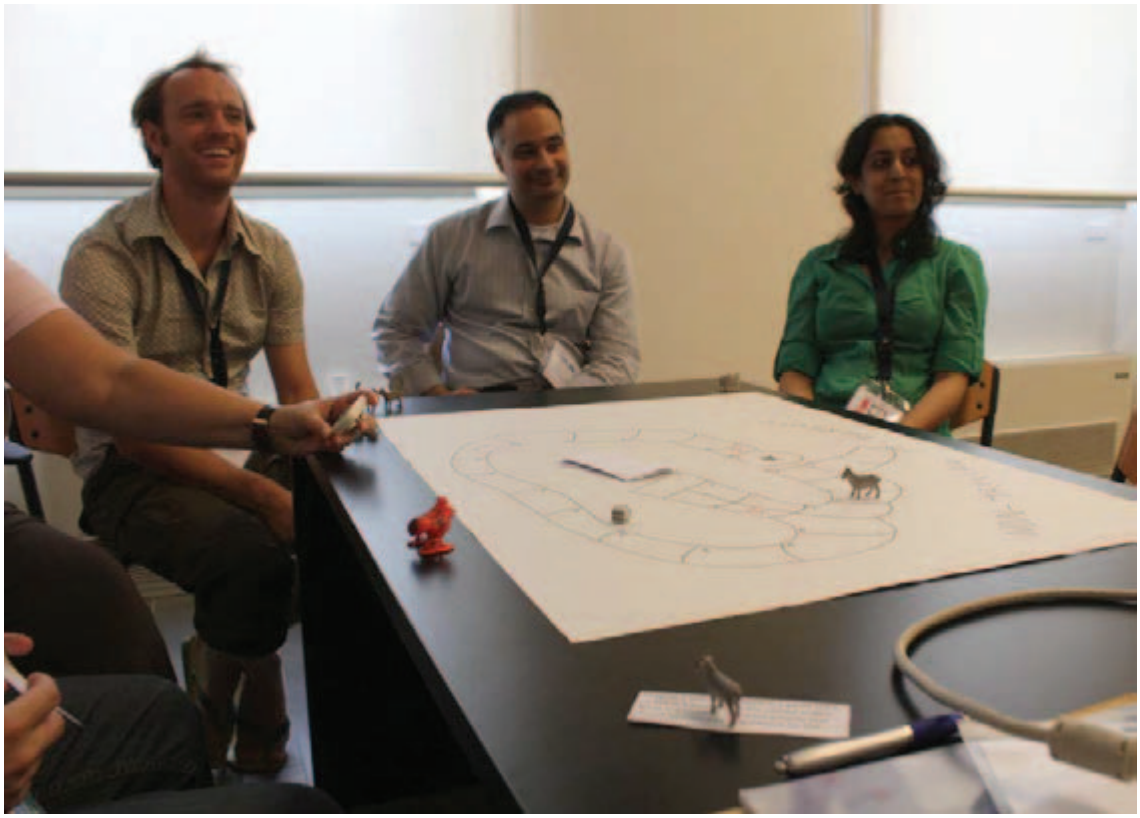
X. APPENDIX: PHOTOS FROM THE WORKSHOP





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