Third International Workshop on Human Factors in Modeling (HuFaMo'18)

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I. INTRODUCTION

Modeling is an intrinsically human endeavour. While concerned with foundations and technologies, the model-driven engineering (MDE) community has been somehow neglecting the issue of human factors in modeling. However, there is a growing need from the community concerned with quality factors to understand the best practices and systematic approaches to improve the modeller's experience and confirm the claims of productivity. A particularity of these aspects is that many related questions can only be answered by empirical studies.

The HuFaMo workshop is aimed at creating a space for discussion being a get-together of researchers and practitioners from different communities including MDE, Usability/UX, Human Computer Interaction and Empirical Software Engineering.

We perceive MODELS to be a high-quality venue that has however not sufficiently reflected on human factors in modeling in the past. This workshop is an attempt to compensate for what we deem is a major aspect of modeling, as other venues (such as ICSE) have already acknowledged.

HuFaMo expressly focuses on human factors, in order to raise the awareness for these topics and the associated research questions and methods in the modeling community, providing an outlet for research of this type, guaranteeing high quality reviews by people that apply these research methods themselves. Along with fully complete empirical evaluations, the workshop organizers explicitly encouraged researchers to discuss study designs before conducting their empirical evaluations. The rationale was to create a constructive environment where the HuFaMo participants could contribute to improving the proposed study designs so that stronger (and more easily replicable) empirical designs and results can be obtained. Ultimately, we aim to congregate a community of researchers and practitioners that promotes (possibly independently replicated) empirical assessments on claims related to human factors in modeling.

MODELS hosted the first two editions of HuFaMo in 2015 and 2016. The number of participants, which were between 20 and 30, indicates a significant interest on this growing community. The third edition will thus continue to consolidate and strengthen it.

II. THE THIRD EDITION OF HUFAMO

The third edition of this workshop series (HuFaMo 2018) took place in Copenhagen, Denmark, in October 15, 2018. HuFaMo 2018 was held in conjunction with the ACM/IEEE 21st International Conference on Model Driven Engineering Languages and Systems (MODELS 2018), which is the premier conference on systems and software modeling. In this third edition, HuFaMo attracted a considerable number of participants, including researchers and practitioners. The workshop included the discussion of 6 papers and a working session on the setup of an empirical evaluation and its replication at different places thanks to the HuFaMo community.

III. PAPER PRESENTATIONS

The HuFaMo Program Committee selected 6 papers for presentation in the workshop, representing a spectrum of views on human factors in software modeling. Here below we briefly outline some of the main contributions of each of those papers and our reflections on them.

Selviandro et al. presented a systematic method to define the concrete syntax of modeling concepts based on the inheritance structure of their meta-model. The underlying principle is named Visual Inheritance. It consists in keeping the visual representation of a property - the exact representation or its design principle - for each subclass (if any) of the class where the property is defined. This approach provides a valuable support for creating notations to existing metamodels since it could help the user of the notation inferring the semantic

meaning of the classes and reduce the cognitive overload in memorising the number of the notations" [3].

Silva et al. [6] presented the experimental protocol of an empirical study that compares two multi-agent systems domain specific languages (DSLs). Generally, people use the Cognitive Dimensions of the Physics of Notations framework to assess the usability of DSLs. Differently, the underlying motivation of this experiment is to show that the abstract syntax of modeling languages should be evaluated as well.

Klünder et al. [1] presented an initial attempt to add quantitative analysis capability to FLOW diagrams. This aims to substantiate the results of primarily subjective analyses provided by FLOW, with the more objective results drawn from qualitative analyses. A tool was implemented extending the FLOW method, used to analyse and improve the communication in software projects. One interview was done in the industry in a particular case.

Liaskos and Tambosi [2] presented a study design to empirically compare qualitative and quantitative contribution links in goal models according to their intuitiveness and efficiency. The underlying research questions are how to optimize the understanding, the learnability and/or the perception of a contribution link. Coming from the requirements engineering community, this work strongly emphasizes human factors and shows that a bigger synergy can be established with the HuFaMo community.

Renaux et al. presented a software prototype for automatically capturing UML diagrams from hand-made sketches. A lot of knowledge is stored in such sketches because they are produced in the middle of a brainstorming session, or while explaining parts of the system to some other stakeholder. Rather than wasting it (generally lost, or thrown away), the goal of this work is to benefit from it. Ultimately, the goal is to "capture efficiently the mental model of the author without asking her/him to transcribe her/his sketch". [4].

Finally, Lopes et al. [5] presented a software prototype called ModelByVoice that uses voice synthesis and recognition to support visually impaired users in performing modeling tasks. The authors have conducted a preliminary evaluation with blind users to evaluate the effectiveness of the tool. The ultimate goal of ModelByVoice is to improve the accessibility of users by allowing blind people to deal with model-driven development and domain specific modelling languages the same way it is already done with diagrammatic languages in the existing modelling workbenches.

IV. Program Committee

- Vasco Amaral, Universidade Nova de Lisboa, Portugal
- Arnaud Blouin Insa, INSA Rennes, Inria/IRISA, Diverse Team, France
- Michel Chaudron, Chalmers Gothenborg University, Sweden
- Cédric Dumoulin, CRIStAL - Centre de Recherche en Informatique, Signal et Automatique de Lille, France
- Emilio Insfran, Universitat Politècnica de València, Spain
- David Socha, University of Washington, USA
- Bran Selic, Malina Software Corp., Canada
- Jean-Claude Tarby, CRIStAL - Centre de Recherche en Informatique, Signal et Automatique de Lille, France
- Juha-Pekka Tolvanen, MetaCase
- Jean Vanderdonckt, Université catholique de Louvain, Belgium

References

[1] J. Klünder, O. Karras, N. Prenner and K. Schneider, Modeling and Analyzing Information Flow in Development Teams as a Pipe System, In *Third International Workshop on Human Factors in Modeling (HuFaMo 2018). CEUR-WS*, pages 3-10, 2018.

[2] S. Liaskos and W. Tambosi, Comparing the comprehensibility of numeric versus symbolic contribution labels in goal models: an experimental design, In *Third International Workshop on Human Factors in Modeling (HuFaMo 2018). CEUR-WS*, pages 11-18, 2018.

[3] N. Selviandro, T. Kelly and R. Hawkins, Visual Inheritance for Designing Visual Notation Based on a Metamodel, In *Third International Workshop on Human Factors in Modeling (HuFaMo 2018). CEUR-WS*, pages 19-26, 2018.

[4] E. Renaux, T. De-Wyse and J. Mennesson, Using sketch recognition for capturing developer's mental models, In *Third International Workshop on Human Factors in Modeling (HuFaMo 2018). CEUR-WS*, pages 27-34, 2018.

[5] J. Lopes, J. Cambeiro and V. Amaral, ModelByVoice - towards a general purpose model editor for blind people, In *Third International Workshop on Human Factors in Modeling (HuFaMo 2018). CEUR-WS*, pages 35–42, 2018.

[6] J. Silva, A. Barisic, V. Amaral, M. Goulão, B. Tekin Tezel, O. F. Alaca, M. Challenger and G. Kardas, Comparing the Developer Experience with two Multi-Agents Systems DSLs: SEA ML++ and DSML4MAS - Study Design, In *Third International Workshop on Human Factors in Modeling (HuFaMo 2018). CEUR-WS*, pages 43–50, 2018.