

# Fourth International Workshop on Human Factors in Modeling (HuFaMo'19)

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## I. INTRODUCTION

Modeling is an intrinsically human endeavour. While concerned with foundations and technologies, the Model-Based Engineering (MBE) 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. Studying human factors and experiences in modeling helps to gain knowledge on the process and use of modeling in practice. We believe MODELS is a high quality venue that should reflect the human factors in modeling, as other venues (such as ICSE) have already acknowledged for other areas of Software Engineering. The HuFaMo workshop was established in 2015 to promote this form of research by creating a venue where these topics can be discussed and disseminated. The workshop encourages the sharing of experience, and invites new researchers into the field. Thanks to the previous editions of HuFaMo, a community of researchers and practitioners is formed and broadened the foothold of human factors research in the MBE community. With the 2019 edition, we strengthen this community by maintaining the principle of sharing experiences through proposals and reports on human factors in modeling.

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, 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 three editions of HuFaMo in 2015, 2016, and 2018. The number of participants, which were between 20 and 30, indicates a significant interest on this growing community. The fourth edition will thus continue to consolidate and strengthen it.

## II. THE FOURTH EDITION OF HUFAMO

The fourth edition of this workshop series (HuFaMo 2019) took place in Munich, Germany, in September 16, 2019. HuFaMo 2019 was held in conjunction with the ACM/IEEE 22nd International Conference on Model Driven Engineering Languages and Systems (MODELS 2019), which is the premier conference on systems and software modeling. In this fourth edition, HuFaMo attracted a considerable number of participants, including researchers and practitioners. The workshop included the discussion of three 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 three 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.

Stegmaier et al. [1] conduct an empirical qualitative study involving 34 participants to identify how diagram editing can be improved by investigating how people model on whiteboards. Stegmaier et al. ask two questions; Q.1. How do people

model on the whiteboard? and Q.2. What do people wish from modeling tools?.

As a result of their empirical investigation, Stegmaier et al. gain eight insights into how modeling tools can be improved: preferences for text behavior (enable users to setup their preference for text behavior), sketching (support for drawing sketches concurrently and complementary to models), consistency (making shapes in models look consistent), highlighting (enable highlighting different parts of a model), bad automation (reduce aggressiveness on automation, tools cannot predict all adjustments a user wants), education fields (knowing that people from different education fields use different modeling shapes and notations), colors (make use of colors to distinguish different semantics for similar looking shapes or to visually group labels with the same semantics), and undo (should be essential and well established feature).

Stegmaier et al. state that these insights should be implemented in modeling tools. Furthermore, they call for further evaluations to understand whether or not these insights can help to improve the usability of the modeling tools.

In a position paper, Lethbridge [2] proposes how *UmpleOnline* (a widely used modeling tool that allows practitioners to create class diagrams, state diagrams and several other model types textually, with the option to edit class diagrams graphically) can be used as a tool to conduct modeling empirical studies. Lethbridge states that using *UmpleOnline* as a testbed for modeling empirical studies would help researchers in answering research questions relating to model quality, modeling strategies, modeling errors, etc. By advancing and discussing this proposal with HuFaMo audience, Lethbridge aims to improve the planned infrastructure of *UmpleOnline*, and also solicit collaborators in the initial studies.

In their position paper, Jolak and Liebel [3] claim that the effectiveness of collaborative modeling is largely hampered by social barriers. In particular, they argue that despite the technological advances in collaborative modeling, effective collaboration can only be achieved if the modeling research community understands how to account for distances in culture, personality and beliefs. For this, they outline two research directions: (i) *Encouraging knowledge sharing* and (ii) *Overcoming distances*. The first research direction invites the community to investigate why people are not able or eager to share knowledge, and develop methods that trigger knowledge sharing. The second research direction calls the community to investigate the effect of distances in geography, culture, personality, and beliefs on team behavior, and develop methods to account for these distances.

We think that the topic of collaborative modelling and the effect of distance and social barriers on model quality is important and adequately captures the socio-technical nature of software modeling. Moreover, like Jolak and Liebel, we believe that overcoming social and cultural barriers in collaborative modeling can maximize the benefits thereof.

#### IV. HUFAMO ORGANIZERS

**Silvia Abrahao** (General Co-Chair): Silvia is an Associate Professor at the Universitat Politècnica de Valencia in Spain. <https://sabrahao.wixsite.com/dsic-upv>

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**Emmanuel Renaux** (Web & Publicity Chair): Emmanuel is an associate professor of the Computer Science and Network of IMT Lille Douai and associated researcher at CRISTAL laboratory at the University of Lille.

#### V. PROGRAM COMMITTEE

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- [2] T. Lethbridge. "UmpleOnline as a Testbed for Modeling Empirical Studies: A Position Paper." In *Fourth International Workshop on Human Factors in Modeling (HuFaMo@ MoDELS)* 2019.
- [3] R. Jolak and G. Liebel. "Position Paper: Knowledge Sharing and Distances in Collaborative Modeling." In *Fourth International Workshop on Human Factors in Modeling (HuFaMo@ MoDELS)* 2019.