Twelfth International Workshop
Modelling and Reasoning in Context

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MRC 2021 took place 19-20 August 2021 at IJCAI 2021, the 30th International Joint Conference on Artificial Intelligence, the world's premier AI Research venue. Like so many events for the last year and a a half, the conference was affected by the ongoing COVID-19 pandemic. IJCAI 2021 was a virtual conference "in Montréal-themed virtual reality".

MRC always aims to bring together researchers and practitioners from different communities, both industry and academia, to study, understand, and explore issues surrounding context and to share problems, techniques and solutions across a broad range of areas. By working together we can get a better understanding of context to be able to model and formalise it, to make it computable and to work towards a human-centric contextual AI.

The call for papers for the workshop invited original submissions that were not previously published or accepted for publication elsewhere. At least three members of the program committee reviewed each submission. A review form directed committee members to evaluate submissions for appropriateness, technical strength, originality, presentation, and to provide an overall score.

The workshop attracted ten submissions. We were able to accept six papers outright and accepted one additional paper after the authors made recommended changes. Therefore, the final lineup consisted of seven papers, which left ample time for the interactive discussions for which MRC is known.

To accommodate the different time zones of the participants in the best possible (or least worse) way, the workshop was divided in two half-day parts. The first (half) day was devoted to presenting the accepted papers in order to introduce the work of the participants.

In their paper, Mishra, Kaushik and Dey (this volume) describe a mechanism for detecting sarcasm in user-generated short texts. They propose a deep learning architecture that uses a bidirectional inter-sentence contextual attention mechanism to capture inter-sentence dependencies using only the conversational context.

Tsitsipas and Schubert (this volume) make use of the increasing availability of sensor devices monitoring our environment to find distinctive patterns denoting physical activities. A physical activity has an impact on a variety of sensor modalities, and the authors demonstrate the power of Markov Logic Networks for encoding uncertain knowledge to discover interesting situations from observed evidence.

Representing personal context is complex, but essential to improve the help machines can give to humans for making sense of the world, and the help humans can give to machines to improve their efficiency. Giunchiglia, Rodas Britez, Bontempelli and Li (this volume) introduce a novel model representation of the personal context and design a learning process for better integration with machine learning.

Explainable Artificial Intelligence (XAI) is a very active research domain, partially due to the extensive development of opaque models. Chraibi Kaadoud, Fahed and Lenca (this volume) present a narrative review of research in two domains, focusing on Knowledge Discovery and Representation on the one side and Representation Learning on the other.

Wegener and Cassens (this volume) look at how to decide whether explanations actually work as intended and introduce intrinsic, dialogic, and impact measures of success for XAI. They separate these measures because each type has different methods for testing and they cover distinct aspects of what "explanatory success" can mean. They argue that it is only by combining these different perspectives that we can get a full picture of the explanatory performance of a system.

Last, but not least, we have two papers around gaming. In the first one, Żuchowska, Kutt and Nalepa (this volume) present the design of a game that is intended as a research environment for further experiments around using affective and personality computing methods to develop methods for interacting with intelligent assistants. A key aspect is grounding the game design on a taxonomy of player types designed by Bartle.

The second paper on gaming, by Kutt, Żuchowska, Bobek and Nalepa (this volume), provides insights into two main threads of analysis of the BIRAFFE2 dataset. The authors look at the associations between personality and physiological signals and as well as the game log generation and processing. They propose the generation of event-marked maps as an important step in the exploratory analysis of game data and introduce a set of guidelines for using games as a context-rich experimental environment.

The second (half) day of the workshop was devoted to discussions on several topics of interest. Room for such discussion is always needed since the mere mention of context is as likely to start a debate as it is to solve a problem. Context is one of those concepts that always seem to be broad and ill-defined partly because that is the nature of context. Context is, by definition, that which is around and about the object of our research. Each research project arrives at their own working definition and model of context that works for them, for their particular problem, leaving us with a multitude of small snapshots of context. To move beyond this, we need some means by which to step back and see how all of these snapshots connect with each other, to see the broad picture of context.

The organisers would like to thank all the authors for submitting their papers and the members of the program committee for their valuable review contribution.

Workshop website
mrc.kriwi.de

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Workshop Chairs

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