

International Workshop on Multimodal Analyses Enabling Artificial Agents in Human-Machine Interaction (Workshop Summary)

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ABSTRACT

In this paper a brief overview of the third workshop on Multimodal Analyses enabling Artificial Agents in Human-Machine Interaction. The paper is focussing on the main aspects intended to be discussed in the workshop reflecting the main scope of the papers presented during the meeting. The MA3HMI 2016 workshop is held in conjunction with the 18th ACM International Conference on Multitmodal Interaction (ICMI 2016) taking place in Tokyo, Japan, in November 2016. This year, we have solicited papers concerning the different phases of the development of multimodal systems. Tools and systems that address real-time conversations with artificial agents and technical systems are also within the scope.

CCS Concepts

•Human-centered computing → Human computer interaction (HCI); Interaction design; •Computer systems organization → Real-time system architecture;

Keywords

Human-Computer-Interaction; Real-Time Systems; Multimodality; Artificial Agents; Workshop; Summary

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1. INTRODUCTION

One of the aims in building multimodal user interfaces and combining them with technical devices is to make the interaction between user and system as natural as possible. The most natural form of interaction may be how we interact with other humans. Current technology is far from human-like, and systems can reflect a wide range of technical solutions.

Transferring the insights for analysis of human-human communication to human-machine interactions remains challenging. It requires that the multimodal inputs from the user (e.g., speech, gaze, facial expressions) are recorded and interpreted. This interpretation has to occur at both the semantic and affective levels, including aspects such as the personality, mood, or intentions of the user. These processes have to be performed in real-time in order for the system to respond without delays ensuring that the interaction is smooth.

The MA3HMI workshop brings together researchers working on the analysis of multimodal data as a means to develop technical devices that can interact with humans. In particular, artificial agents can be regarded in their broadest sense, including virtual chat agents, empathic speech interfaces and life-style coaches on a smart-phone. More general, multimodal analyses support any technical system in the research area of human-machine interaction (HMI). We focus on the real-time aspects of HMI and further the development and evaluation of multimodal, real-time systems is addressed.

The MA3HMI workshop builds on the foundation of two previous workshops and one Special Issue over these topics, and establishes itself as the agora for an ongoing scientific discussion on the topic within the community.

The first workshop was held in conjunction with IVA 2012 and the second one in conjunction with INTERSPEECH 2014. In both cases, the workshop provided the community with an interesting outcome fostering discussions and

solutions over three diverse areas: Multimodal Annotation, Multimodal Analysis as well as Applications and Systems. While the first edition concentrated on *virtual agents*, complementary the focus of the 2014th edition has been on *speech*. We were particularly interested in papers investigating speech technologies for HMI, and the combination of speech and natural language processing with the analysis of other modalities. We encouraged researchers to present and discuss their papers that concern the different development phases of HMI, including the recording and online analysis of multimodal conversations, the modeling of the dialog, and the user evaluation of such systems.

This year, for the third edition of the MA3HMI workshop held in conjunction with the ICMI 2016, we have solicited papers concerning the different phases of the development of multimodal systems. Tools and systems that address real-time conversations with artificial agents and technical systems will be also within the scope of the workshop.

We received a good number of submissions that were reviewed by the experts from the technical program committee. We have finally selected ten papers (among long and short paper) that will be presented during the workshop, divided in three sessions: Gesture and Body Analyses, User Interest and Attitude, and Multimodal Interaction. The workshop will be enriched by the keynote of Helmut Prendinger discussing aspects of real-time interaction systems in either gamification situations or situations with unique characteristics like vehicle traffic or disaster management.

We would like to thank all the members of the program committee for their efforts, Helmut Prendinger for accepting our invitation to give a keynote and the ICMI workshop co-chairs for the organization.

Looking forward to a successful third edition of MA3HMI in 2016.

2. ORGANISERS, PROGRAM COMMITTEE, AND REMARKS

2.1 Workshop Organisers

Ronald Böck, Otto von Guericke University Magdeburg, Germany

Francesca Bonin, IBM Research Ireland, Dublin, Ireland

Nick Campbell, Trinity College Dublin, Ireland

Ronald Poppe, Utrecht University, The Netherlands

2.2 Program Committee

Christian Becker-Asano, Bosch R&D, Germany

Kirsten Bergmann, Bielefeld University, Germany

Joao Cabral, Trinity College Dublin, Ireland

Nick Campbell, Trinity College Dublin, Ireland

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Dirk Heylen, University Twente, The Netherlands

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Maria Koutsombogera, ILSP, Greece

Jill Lehman, Disney Research, USA

Björn Schuller, Imperial College London, UK and University Passau, Germany

Merlin Teodosia Suarez, De La Salle University, Philippines

Jianhua Tao, Chinese Academy of Sciences, China

Jürgen Trowain, Saarland University, Germany

Carl Vogel, Trinity College Dublin

Andreas Wendemuth, Otto von Guericke Magdeburg, Germany

2.3 Review Process

All accepted papers received three double-blind reviews. For this, we would like to thank all PC members for their time and helpful contributions.

2.4 Invited Speaker

The workshop is enriched by an invited talk of Helmut Prendinger entitled “Building and Testing Real-time Interactive Systems and Networked Simulation Environments”.