

ERM4HCI 2013 – The 1st Workshop on Emotion Representation and Modelling in Human-Computer-Interaction-Systems

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ABSTRACT

This paper presents a brief summary of the first workshop on Emotion Representation and Modelling in Human-Computer-Interaction-Systems. The ERM4HCI 2013 workshop is held in conjunction with the ICMI 2013 conference. The focus is on theory driven representation and modelling of emotions in the context of Human-Computer-Interaction.

Categories and Subject Descriptors

H.1.2 [User/Machine Systems]: Human factors, Human information processing; H.5 [INFORMATION INTERFACES AND PRESENTATION]: Multimedia Information Systems, User Interfaces

General Terms

Multimodal Inputs, Emotion Representation, Emotion Modelling, Human-Computer-Interaction, User Adaptation, Individualisation

Keywords

Multimodality, Emotion Representation, Emotion Modelling, Human-Computer-Interaction, User Adaptation, Individualisation, Workshop, Summary

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1. INTRODUCTION

¹To develop user adaptable Human-Computer-Interaction (HCI), the role of emotions occurring during interaction gained in attention over the past years. Emotions, being widely accepted as essential to Human-Human-Interaction, became increasingly interesting for system designers of affective interfaces in order to provide natural, user-centred interaction. However, to adequately incorporate emotions in modern HCI-Systems, results from varying research disciplines must be combined.

An affective system must be able to detect, identify, process and respond to emotions occurring during HCI in realtime. Hence, the methods involved in emotion processing must be reliable, efficient and well-defined throughout the systems abstraction layers. In order to fulfil these requirements conceptual work is needed to define suitable technical models on emotion, disposition and behaviour. To allow technical systems to automatically process and respond to emotions, the defined models must link machine-detectable, physical, human characteristics to abstract strategic algorithms and be consistent with the predominant emotion theories and observations.

Emotions occurring during HCI are detected feature-based, depending on the modalities provided and implying the necessity of identifying significant features. Furthermore, these features must be processed in an adequate way to allow the automatic distinguishing of emotions. In multi-modal systems sufficient fusion techniques must be defined to maximize the correctness of the emotion detection and synthesis. To respond to the detected emotions the system should be provided with an artificial emotional intelligence, which in turn requires a combination of knowledge databases, history

¹The text is taken in parts from the workshop's website (cf. [1]).

processing, plan construction, coping strategies, user models, emotion and behaviour theories.

Currently, several solutions on incorporating emotions in technical systems exist, depending on the scope, application and modalities used. The applied concepts tend to be highly specific and layer dependent, often lacking universality and interoperability. However, to allow cognitive technical systems to become truly affective and user adaptable, all methods used must have a reliable theoretic foundation and cooperate.

This workshop offers a platform focusing on emotion representation and modelling in HCI-Systems. Providing a forum for discussions on emotions in HCI shall encourage researchers from all disciplines involved to exchange on the topic and improve their models and understanding of affective HCI through interdisciplinary discourse.

The main topics of the workshop are

- Theoretic models of emotion in affective computing
- Role and models of emotion for cognitive modelling
- Best practice representations of emotions in HCI-Systems
- Processing of emotions during HCI
- Role and models of emotion in user modelling
- Learning emotions - strategies and representations
- Models on the perception of emotions and emotion synthesis
- Studies on emotion representations and their implications
- Applications

2. ORGANISERS, PROGRAM COMMITTEE, AND REMARKS

2.1 Workshop Organisers

Kim Hartmann, Otto von Guericke University Magdeburg, Germany

Ronald Böck, Otto von Guericke University Magdeburg, Germany

Christian Becker-Asano, Albert-Ludwigs-Universität Freiburg, Germany

Jonathan Gratch, University of Southern California, USA

Björn Schuller, Imperial College London, UK

Klaus R. Scherer, University of Geneva, Switzerland

2.2 Program Committee

Jonas Beskow, KTH Stockholm, Sweden

Nadia Bianchi-Berthouze, University College London, UK

Carlos Busso, University Texas Dallas, USA

Antonio Camurri, University Genova, Italy

Nick Campbell, Trinity College Dublin, Ireland

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Roland Göcke, University Canberra, Australia

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Dirk Reichardt, DHBW Stuttgart, Germany

Jianhua Tao, Chinese Academy of Sciences, China

Khiet Truong, University Twente, The Netherlands

Michel Valstar, University Nottingham, UK

Karla Welch, University Louisville, USA

Andreas Wendemuth, Otto von Guericke Magdeburg, Germany

2.3 Review Process

All accepted papers received at least three double-blind reviews.

For this, we would like to thank all PC members for their time and helpful contributions.

2.4 Invited Speakers

The workshop is also enriched by two invited talks presenting ideas of emotion representation and modelling under various aspects of psychology and technical realisation. The invited speakers are

- Klaus R. Scherer and
- Björn Schuller.

3. REFERENCES

- [1] K. Hartmann, R. Böck, C. Becker-Asano, J. Gratch, B. Schuller, and K. R. Scherer. Erm4hci website. <http://erm4hci.kognitivesysteme.de/>, October 15 2013.