

Preface

Human conversational partners are able, at least to a certain extent, to detect the speaker's or listener's emotional state and may attempt to respond to it accordingly. When instead one of the interlocutors is a computer a number of questions arise, such as the following: To what extent are dialogue systems able to simulate such behaviors? Can we learn the mechanisms of emotional behaviors from observing and analyzing the behavior of human speakers? How can emotions be automatically recognized from a user's mimics, gestures and speech? What possibilities does a dialogue system have to express emotions itself? And, very importantly, would emotional system behavior be desirable at all?

Given the state of ongoing research into incorporating emotions in dialogue systems we found it timely to organize a Tutorial and Research Workshop on Affective Dialogue Systems (ADS 2004) at Kloster Irsee in Germany during June 14–16, 2004. After two successful ISCA Tutorial and Research Workshops on Multimodal Dialogue Systems at the same location in 1999 and 2002, we felt that a workshop focusing on the role of affect in dialogue would be a valuable continuation of the workshop series.

Due to its interdisciplinary nature, the workshop attracted submissions from researchers with very different backgrounds and from many different research areas, working on, for example, dialogue processing, speech recognition, speech synthesis, embodied conversational agents, computer graphics, animation, user modelling, tutoring systems, cognitive systems, and human-computer interaction. Overall, ADS 2004 embodied 23 long papers, and 12 short and demonstration papers, not only from 10 Western and Eastern European countries, but also from Canada, Japan and the US. The papers cover the following seven topic areas:

- emotion recognition
- affective user modelling
- affective conversational agents and dialogue simulation
- emotional databases, annotation schemes and tools
- synthesis of emotional speech and facial animation
- affective tutoring systems
- evaluation of affective dialogue systems

The main characteristic of the papers in this volume is their endeavor to go beyond pure task-oriented approaches to dialogue processing to also address conversational aspects as well as psychological and social concerns. For example the volume includes a number of empirical studies that investigate in what sense the human user could benefit from the imitation of social behaviors.

A theme that came up in a number of contributions in this volume is the important role of emotional factors in the development of embodied conversational agents. Many authors are convinced that the integration of an affective component can significantly enhance an agent's believability.

For an agent to behave human-like, appropriate synchronization of speech, mimics and gestures is highly important and is a major concern in research on affective dialogue systems. But also research on the individual output components is crucial to the advances in such systems. In this volume this is witnessed by a number of papers, not least on emotional speech synthesis.

The work on tutoring systems presented in this volume indicates that agents that attend to and attempt to influence the motivational state of students may aid the learning process.

In addition to work on the expression of emotions, papers on the recognition and interpretation of the user's emotional state are presented in this volume. Interestingly, the authors approach this topic from various perspectives. One group focuses on the signal-processing level, aiming to recognize typical emotional patterns from biosensors, facial expressions and speech. Another group extends traditional work on user modelling with an affective component.

Finally, the volume includes papers on the evaluation of affective dialogue systems. Not least on the usability side, this is an area with many open ends.

We would like to thank all authors for the effort they spent on their submissions, and the program committee – more than 30 distinguished researchers from industry and academia – who worked very hard to tight deadlines and selected the best contributions for the final program. We are also grateful to the invited speakers for enriching our workshop.

In addition, we would like to express our thanks to several people who assisted us in organizing the workshop. Torben Kruchov Madsen took care of the Web page for uploading papers. Angela Rittinger and Brigitte Waimer-Eichenauer provided worthwhile administrative support. A number of organizations supported ADS 2004 including ACL Sigmedia, ACL/ISCA Sigdial, Gesellschaft für Informatik (GI), and ISCA. In particular, we gratefully acknowledge GI for their valuable assistance in handling the financial matters. Last, but not least, we are grateful to Springer-Verlag for publishing the proceedings in their LNCS/LNAI series.

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Elisabeth André
Laila Dybkjær
Paul Heisterkamp
Wolfgang Minker

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André, E.; Dybkjaer, L.; Minker, W.; Heisterkamp, P.

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