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Affect and Emotion in Human-Computer Interaction

From Theory to Applications

Springer

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Preface

Interacting with computers is ever changing; the activities computers are used for, the domains they are used in, the people who use them, and the way that they are used have been constantly evolving. But over the past few years an additional dimension has been added to this interaction, which considers the utility and effectiveness of incorporating emotion into the interface. Over ten years ago, Rosalind Picard coined the phrase "affective computing" for computing that relates to, arises from, or deliberately influences emotion or other affective phenomena[1]. Since then, numerous researchers all over the world have devoted themselves to studying the role affect and emotion play in our interactions with technology. The affective computing community is growing rapidly. A number of workshops, symposia, and even conferences make emotion in HCI their subject. This book actually developed out of some of those events. When Springer approached us to compile a book on the subject, we were just organizing the third workshop on emotion in HCI at the British HCI Group's annual conference, held in the UK. While the workshop had numerous contributions from the traditionally very active British and European community, we also received contributions from overseas.

We decided early on not to make this merely a book about the workshops, but to broaden it: this book is intended to give a wider overview on the developments in the field. We hence decided to also issue an open call for contributions. We aimed for a balanced report with as wide a spectrum of research presented as possible, addressing the topics

- Theoretical foundations (e.g., emotion representations, ethical and legal issues)
- Emotion and affect as input (e.g., sensor systems, multimodal sensor networks, sensor fusion, data enhancement and analysis)
- Emotion and affect as output (e.g., desktop applications and agents, Web-based services and applications, presence and smart environments, mobile applications, robots)
- User experience studies, usability, and design issues
- Community reports (e.g., on related research networks, national and international research programs, or standardization efforts)

This list evolved out of our experiences at the workshops, reflecting the topics people were most interested in. Looking at the contributions and comparing them with the list above, many of our experiences at the workshops are confirmed, namely that people show an interest for many aspects of this young discipline as well as awareness of its challenges and risks. There is somewhat of a bias towards applications and studies, rather fewer on sensing, and actually none on ethics (although at each workshop all participants agree this is a very important subject!). The community section was also mainly ignored, which might be interpreted as the affective computing research

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[1] Picard, R.W. (1997). Affective Computing. M.I.T. Press, Cambridge, MA.

landscape being fairly fragmented at present—but this scattering of work reflects the fact that this area is a relatively young, fast-moving field.

We got numerous high-quality submissions covering most of the themes, which made it very difficult for us to decide on which should be included in the book and which not. All papers were extensively refereed, and revised by the authors, and if we had accepted all submissions that were suggested for inclusion by the scientific committee members, the book would nearly be twice as big as it is now. So we had to decide against many very good papers, from known and (as yet) unknown authors.

Finally, based on the accepted contributions, we restructured the book as follows:

– *Theoretical Considerations:* with contributions raising awareness on typical pitfalls and shortcomings of currently common approaches, suggesting new views, and working on well-known problems or open issues
– *Sensing Emotions:* namely, on speech-related issues and multimodal data fusion
– *User Experience and Design:* with interesting studies and suggestions on how to motivate and make use of affect and emotion in real-world applications
– *Affective Applications:* the largest section, showcasing a wide range of projects across diverse domains

We hope this fine selection of the state of the art will make its contribution to providing solid foundations for this fast-growing research field, making it less fragmented, and giving up-to-date orientation on the developments in the domain.

We would like to thank all members of the Scientific Committee for their valuable assistance, feedback, and suggestions, and all authors who took the time to write about their fascinating ideas, projects, and results. Thanks also to the Springer team, for giving us the opportunity to compile this volume as well as for their highly professional support. And finally: thanks to you for considering this book worth reading!

June 2008   Christian Peter
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