

To be held at CHI 2007, on Monday, April 30 4:30-6 pm, in room C4

Let's get emotional: Emotion research in human computer interaction

Elizabeth Crane

University of Michigan
Division of Kinesiology
401 Washtenaw Ave.
Ann Arbor, MI 48109-2214 USA
bcrane@umich.edu

N. Sadat Shami

Information Science Program
Cornell University
Ithaca, NY 14850 USA
ns293@cornell.edu

Christian Peter

Fraunhofer Institute for
Computer Graphics
Joachim Jungius Str. 11
18059 Rostock, Germany
cpeter@igd-r.fraunhofer.de

Abstract

Emotion is a topic of growing interest in the HCI community. Studying emotion within the HCI discipline is an exciting interdisciplinary task. This can be facilitated by the exchange of thoughts and ideas with others working on related projects. The aim of this SIG is to bring together an interdisciplinary group of researchers and practitioners actively working on projects where emotion is an essential component. The goals of the SIG are to identify current themes related to emotion specific HCI work and discuss strategies for moving forward.

Keywords

Emotion, HCI, Affective Computing, Emotion Detection, Affective Applications

ACM Classification Keywords

H.1.2 [Models and Principles]: User/Machine Systems – human factors; H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Emotion plays an important role in our interactions with people and computers in everyday life. Emotions, some believe, are what make our interactions human. Rosalind Picard's fundamental publications [2, 3, 4, 5] on affective computing increased awareness in the HCI community of the important role of emotion in human-

Copyright is held by the author/owner(s).

CHI 2007, April 28 – May 3, 2007, San Jose, California, USA.

ACM 978-1-59593-642-4/07/0004.

computer interactions. Since then, researchers have also become increasingly aware of the importance of emotion in the design process [7]. This recent affective awareness is leading designers and HCI researchers to try and understand the subtleties of emotion and its effect on our behaviors. This is encouraging for a young field of research, and there exists many exciting directions where this field may be expanded.

Emotion theory, however, is not grounded in the HCI discipline. Studying emotion within the HCI discipline is an inherently interdisciplinary task. For example, the organizers of this SIG are all in different domains (information science, computer graphics / interfaces, and kinesiology / biomechanics) and have active projects in emotion and HCI. The specific areas of interest span recognition and synthesis of emotion in face and body, emotion sensors and speech, and the influence of emotion on information processing and decision-making. Despite these different areas of interest, there are common obstacles each of us face in our work. Given that we ask similar questions about emotion and could benefit from learning about solutions others have devised, it would be helpful to have a format for discussion. The challenge to sharing our solutions and discussing questions is the lack of a common vocabulary and research framework that a mature discipline requires.

Different methods also exist for studying emotions. Some prefer the experimental tradition of the research laboratory, while others prefer to probe the field through the lens of critical technical practice. Some prefer numbers while others focus their evaluation on how evocative and configurable the system was for causing engagement and reflection [8]. We believe

these traditions are complementary and there is enormous benefit to be derived from conversations of the two.

The aim of this SIG is to bring together an interdisciplinary group of researchers and practitioners actively working on projects where emotion is an essential component. The purpose is to identify current themes related to emotion specific HCI work and discuss strategies for moving forward. An additional goal of this SIG is to identify opportunities for collaboration.

SIG community

We expect the academics and practitioners attending our SIG are addressing the following types of questions:

- Theoretical fundamentals such as emotion models and emotion representation.
- Methods of emotion elicitation and assessment.
- Emotion detection including sensing technologies and data analysis.
- Affective applications including why, what, and how to implement them.
- Design and evaluation of affective interfaces.
- Emotion at the individual, dyad, group, and culture level of analysis.
- Ethical and legal issues.

The specific SIG communities we expect to be most interested in these questions are the research and design communities. There is a growing conversation in the HCI community around broadening computer design to move beyond the 'completion time and error rates' school of usability and more towards the way we experience things as emotional beings [1, 6]. Our interaction with computers can be fun, exciting, enthralling, thrilling, compelling, self-realizing and a whole host of other emotional states.

However, there is still little consensus on how emotion could be put on as firm a footing as established HCI approaches to design and evaluation. There are only a few constructs to guide theory and design. As media and communications become pervasively digital, asynchronous and interactive, this promises to be an area that will interest researchers and practitioners with a flair for aesthetics and cultural analysis.

CHI 2007 provides a unique venue to bring together scientists and researchers from psychology, educational sciences, cognitive science, communication, and computer science with interface and interaction designers from industry. The hope is that the interaction between these two communities at the SIG will provide a strong avenue for identifying common interests and creating opportunities for future collaboration.

SIG Session Plan

The session plan for the 90 minute SIG is:

- Introduction of the SIG goals and the organizers. The organizers will provide an example of the diversity of emotion in HCI by briefly describing

questions they are pursuing within their emotion related research. (10 minutes)

- Participant introductions. The purpose of the introductions is to meet other academics and practitioners actively working on and thinking about emotion related HCI projects. Because numerous issues arise when working with emotion we will ask participants to briefly describe the top issue they face in their project. (20 minutes)
- Synopsis by organizers of emotion-related HCI issues identified in the introductions. It is expected that common categories of issues will present themselves. (5 minutes)
- Interactive small group discussions to address a question each in one of the themes identified above. (20 minutes)
- Presentation of small group findings. (15 minutes)
- Discussion of future plans. At the end of the SIG the group will define the next steps and review strategies for moving forward. This could be plans for workshops, collaborations, formation of expert groups, creation of a wiki or mailing list or other collaboration means to support further interdisciplinary discussion. (20 minutes)

References

- [1] Dourish, P. Where the Action Is: The Foundations of Embodied Interaction. MIT Press, Cambridge, MA. (2001).
- [2] Picard, R.W. Affective Computing. M.I.T. Press, Cambridge, MA. (1997).
- [3] Picard, R. W, Healey, J. Affective Wearables, Personal Technologies Vol 1, No. 4 , (1997), 231-240.
- [4] Picard, R.W. Affective Computing for HCI. Proc. of the 8th International Conference on Human- Computer

Interaction: Ergonomics and User Interfaces-Volume I.
Lawrence Erlbaum Associates, Inc. (1999).

[5] Picard R.W., Vyzas E., Healey J. Toward Machine Emotional Intelligence - Analysis of Affective Physiological State. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol 23 No. 10. (2001).

[6] McCarthy, J. & Wright, P. *Technology as experience*. MIT Press, Cambridge, MA. (2004).

[7] Norman, D.A. *Emotional Design: Why we love (or hate) everyday things*. Basic Books. (2003).

[8] Sengers, P., Boehner, K., David, S., & Kaye, J. Reflective Design. *Proc. Critical Computing*, (2005).