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Angaben zur Veröffentlichung / Publication details:

André, Elisabeth. 2016. "Socially-sensitive interfaces: from offline studies to interactive experiences." In *Proceedings of the 21st International Conference on Intelligent User Interfaces - IUI '16, Sonoma, California, USA, March 07 - 10, 2016*, edited by Jeffrey Nichols, Jalal Mahmud, John O'Donovan, Cristina Conati, and Massimo Zancanaro, 305. New York, NY: ACM Press. <https://doi.org/10.1145/2856767.2856799>.

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Socially-Sensitive Interfaces: From Offline Studies to Interactive Experiences

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ABSTRACT

Recent years have initiated a paradigm shift from pure task-based human-machine interfaces towards socially-sensitive interaction. In addition to what users explicitly say or gesture at, socially-sensitive interfaces are able to sense more subtle human cues, such as head postures and movements, to infer psychological user states, such as attention and affect, and also to enrich system responses with social signals. However, most approaches focus on offline analysis of previously recorded data limiting the investigation to prototypical behaviors in laboratory-like settings. In my presentation, I will focus on challenges that arise when integrating social signal processing techniques into interactive systems designed for real-world applications. From a technical perspective, this requires effective tools able to synchronize, process, and analyze relevant signals in online mode. From a user perspective, appropriate strategies need to be defined to respond to social signals at the right moment in time without disturbing the flow of interaction.

I will discuss two interaction styles for socially-sensitive interfaces. In the area of information retrieval, the concept of *empathic stimulation* has been used to optimize the selection and presentation of data. The basic idea is to exploit sensory data on the users' emotional state to provide them with cues that inspire their curiosity during the data exploration task. In the domain of social coaching, the concept of *social augmentation* has been employed to give people ambient feedback on their behavior while being engaged in a social interaction. The presentation will be illustrated by examples from various national and international projects following these two interaction styles

Author Keywords

Social signal processing; affective computing

ACM Classification Keywords

H.5.2. User Interfaces: Interaction styles

Biography

Professor Elisabeth André is a Full Professor of Computer Science at Augsburg University, Germany, and Chair of the Research Unit Human-Centered Multimedia. She received her Diploma and Doctoral Degrees in Computer Science from Saarland University. Before joining Augsburg University, she has been working as a principal researcher at the German Research Center for Artificial Intelligence (DFKI) in Saarbrücken. In addition, she has held various visiting appointments, most recently an invited professorship at Université Paris-Sud, France. Elisabeth André has a long track record in multimodal human-machine interaction, embodied conversational agents, affective computing and social signal processing.



Elisabeth André is on the editorial board of various renowned international journals, such as ACM Transactions on Intelligent Interactive Systems (TIIS), IEEE Transactions on Affective Computing (TAC), Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS), and AI Communications. In 2013 and 2015, she was acting as Panel Chair for Systems and Communication Engineering in the Starting Grant evaluations of the European Research Council (ERC). Currently, she is serving as a General Co-Chair of the 18th ACM International Conference on Multimodal Interaction (ICMI).

In 2007, Elisabeth André was nominated Fellow of the Alcatel-Lucent Foundation for Communications Research. In 2010, she was elected a member of the Academy of Europe, the German Academy of Sciences Leopoldina, and AcademiaNet. She is also an ECCAI Fellow (European Coordinating Committee for Artificial Intelligence).