
Abstract

Emotions are an important part of all motivated human behaviour. They are intimately connected with our memory, thinking, mental and physical health, and they have an important role in coordinating our interactions with other people. Consequently, the level of competence in regulating the content and intensity of emotions can have effects far and wide, ranging from one's daily well-being to general success in life. Similar to the deep-seated meaning of emotions for our daily functioning, technology has recently become a pervasive and unavoidable aspect of our modern lives. We interact daily with some kind of technology. These ubiquitous interactions could provide an opportunity to affect and regulate emotions virtually anywhere and at anytime.

The aim of the present thesis was to create a theoretical and empirical basis for constructing systems for computer-assisted emotion regulation. First, a theoretical framework for studying and developing such systems was defined. This framework identified artificial perceptual and expressive intelligence as essential capabilities for technology that aims to support the regulation of emotions. Then, the practicality of developing and more widely applying perceptual and expressive technology was studied using constructive and empirical methods. For this purpose, an unobtrusive method for perceptual intelligence was developed and experimentally validated by using a special office chair to measure body movement responses to artificial social and emotional cues. Feasible tools for expressive intelligence were developed in experiments investigating the experiential and physiological effects of virtual bodily distance (i.e., proximity) and facial expressions of humanlike computer characters. Finally, a platform was constructed for studying the effectiveness of voluntary facial activations in regulating emotion related experiences and physiological processes during human-technology interaction.

The empirical results suggest that perceptual and expressive intelligence can provide practical methods for regulating human emotional responding. The developed unobtrusive method for body movement