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Title: Digital Emotions: the potential and issues of Affective Computing systems

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Year: 2018

Abstract:

The last decade has witnessed a rapid evolution of the internet and an increased flow of information, which have encouraged the development of systems that try to distinguish between useful and non-useful information for users. If this growth has benefited society, then by offering computers the opportunity to adapt their content to individuals' needs, systems based on information filtering have also facilitated the access to personal data, allowing computers and smartphones to *know* their users. The field of Affective Computing aims to use human emotions as a means to communicate preferences to machines, in order to lead to a more natural and efficient communication between humans and computers. The biggest challenge for Affective Computing is to understand how computers, which are supposed to be rational and precise, can understand, react and eventually express emotions. This research paper includes an analysis of the process of Affective Generation, namely the capacity for a device to understand the affective state of its user. It examines Affective Computing systems able to detect facial expressions, speech, body movements, and physiological information, with the purpose of evaluating which method has the greatest potential for improving the human-computer interaction. The limits of Affective Computing systems are dictated by technical issues, and especially by privacy threats, since emotional machines would be able to collect a much higher amount of information about their users than computers do at this stage. The purpose of this research paper is to identify and discuss the ethical issues concerning Affective Computing devices, and to assess if and how those issues can be overcome.