Non-invasive non-contact based affective state identification

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Abstract
This paper discusses a study on detecting affective states of human subjects from their body's electromagnetic (EM) wave. In particular, the affective states under investigation are happy, nervous, and sad which play important roles in Human-Robot Interaction (HRI) applications. A structured experimental setup was designed to invoke the desired affective states. These states are induced by exposing the subject to a specific set of audiovisual stimulations upon which the EM waves are captured from ten different regions of the subject's body by using a handheld device called Resonant Field Imaging (RFI™). Nine subjects are randomly chosen and the collected data are then preprocessed and trained by Bayesian Network (BN) to map the EM wave to the corresponding affective states. Preliminary results demonstrate the ability of the BN to predict human affective state with 80.6% precision, and 90% accuracy. © 2014 IEEE.

Author keywords
Affective state  Electromagnetic (EM) wave  Human-Robot Interaction (HRI)

Indexed keywords

Engineering controlled terms:  Bayesian networks  Electromagnetic waves  Industrial electronics  Man machine systems  Robots

Affective state
Audio-visual stimulation
Hand held device
Human robot Interaction (HRI)
Human subjects
Non-contact
Resonant fields

Engineering main heading:  Human robot interaction

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