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 14 January 2015, Article number 7010199, Pages 1-5  
 2014 IEEE Symposium on Computer Applications and Industrial Electronics, ISCAIE 2014; Penang; Malaysia; 7 April 2014 through 8 April 2014; Category numberCFP1489L-ART; Code 110067

## Non-invasive non-contact based affective state identification (Conference Paper)

Ghazali, A.S. [✉](#), Sidek, S.N. [✉](#)

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## Abstract

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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  
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Ghazali, A.S. , Sidek, S.N.  
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Emotion embodiment in robot-assisted rehabilitation system using hybrid automata

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