
Early emotional modulations beyond human faces

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Abstract

Considering that faces are the main conveyers of human emotion is only one step to state that there is an emotional facilitation bias towards human faces. To test for this potential bias, we have designed event-related potentials studies using a set of prototypical emotions displayed by non-humanoid robots. These robotic heads were made out of complex metallic arrangements from which emotional signals had to be extracted. We compared ERP early responses to these non humanoid robots expressing happiness and a neutral emotion, and sadness in a separate study.

At the behavioral level emotion shortened Reaction Times similarly for robotic and human stimuli. Early P1 wave was enhanced in response to emotional - both happy and sad- compared to neutral expressions for robotic as well as for human stimuli. Congruent with their lower faceness properties compared to human stimuli, robots elicited a later and lower N170 component than human stimuli, and did not produce an inversion effect when put upside-down.

These results emphasize the idea that early perceptual modulations in response to emotional expressions go beyond human faces. They also raise questions about the dissociation between affective properties and physical properties of the stimulus at the level of perceptual encoding. Besides examining the properties of the stimuli that contribute to emotionality at the level of the P1 component, our results show that positive stimuli may as well as negative ones trigger early emotional effects. A special focus will be put on the idea that positive emotion conveys high impact information.

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