Towards a novel biometric facial input for emotion recognition and assistive technology for virtual reality

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ABSTRACT

Preliminary work using facial EMG to identify facial expressions is reported in this paper. Ten subjects performed 14 different facial expressions following an agreed protocol. Facial EMG signals, measured from surface electrodes were processed and analysed using a machine learning algorithm. Our system is able to differentiate facial expressions for assistive input to a high degree of accuracy (99.25%) and posed emotional responses with 100% accuracy. We conclude facial EMG technology has the potential for both assistive input and emotion detection and could replace conventional assistive input devices or video based techniques for use with VR technologies.