Evaluation of social relationship between two persons using micro-movement in vestibular system

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ABSTRACT

The social relationship was including the interaction factor between the persons. In order to detect social relationship, it was using the unconscious response rather than conscious. The purpose of this study was to determine evaluation of social relationship using micro-movement expressed both automatic and unconscious. We used the 'vibra-image' technology based on vision as the indicator of micro-movement. The vibra-image was consisted with 10 factors such as aggression, stress, tension/anxiety, suspect, balance, charm, energy, self-regulation, inhibition, and neuroticism. 12 subjects were participated in this experiment, assigned two groups. The one group was a friend (strong social relationship), and other was a stranger (weak social relationship). Participants were required interaction of facial expression with face to face. Following the result, the stranger group was significantly increased the factor of Aggression, Suspect, Balance of vibra-image factors, and friend group was not. We found that the tension and anxiety factor could be evaluating the social relationship. Also, the proposed method was only using webcam based on micro-movement without attaching the sensor based on physiological signal.

Keywords: Vibraimage, social relationship, vision, micro-movement

1. Introduction

Recently, Social Network Service has made a new format of Social Interaction and that occurs increasing interest in research on the formation of the relationship between human social networks. With the development of IT technology, Internet environment changed wired internet to wireless internet. It became a user oriented environment and because of that cell phones, PDAs, tablet Pcs came into wide use with wireless internet. As a result, users show the phenomenon of forming a relationship with a direct participant in communication such as face book, twitter without the constraints of space-time. In other words, the social phenomenon that occurs off-line has been moved online.

SNS in occurring online is a service representative representing the social phenomenon on the Internet and Active research on the social phenomenon of the virtual space is in progress. (Bae, Y., 2005; Park J. H., 2008; Kim. Y. J., 2009; Park, H. G., 2010; Kim, M. J., 2011)
The importance of emotion recognition is emerging, emotion recognition and evaluation studies are being actively conducted. Thus, in order to recognize the sensitivity in different ways, we are accessing through a biological signal technology, images and sounds(Whang M. C. et al., 2012). By evaluating the sensitivity over the physiological mechanism, the recognition method of sensitivity based on a biological signal (EEG, Electroencephalogram) and (ECG, Electrocadigram), can be evaluated with high reliability and more objective. However, there is a limit of wearing the sensor. In the case of speech, accuracy is falling as compared with other methods. In addition, the recognition method of sensitivity using video-based is almost recognized by facial expressions and gestures. In this case, the burden on the sensor wear is less than other method. However, by recognizing with gestures or facial expressions, limit point which is not considered physiological mechanism exists. Therefore, a new