

Methods and approaches on inferring human emotional stress changes through physiological signals: A review

Abstract

Emotional stress is kind of stressful state which is developed due to the continuous occurrence of negative emotions such as sad, disgust, angry and fear over a long period of time. In this work, a detailed investigation has been carried out to identify the relation between negative emotions and stress through previous works. Different types of physiological signals have been investigated by previous researchers on assessing emotions and stress. However, very limited numbers of research works are discussed about the emotional stress assessment using physiological signals. Most of the literatures have been considered the questionnaires and interview-based approaches for estimating the human emotional stress, but these methods are suffers on getting the original or internal state of the subject and giving erroneous solutions in most of the times. Identifying and reducing the level of emotional stress is one of the major factors for preventing the subjects from any kind of medical illness. As result of this review, we have proposed a new data acquisition protocol and signal processing methods for effectively assessing the level of emotional stress through physiological signals.

Keywords

ECG; Electrocardiogram; Electromyogram; EMG; Emotional stress; Galvanic skin response; GSR; Physiological signals