Abstract

The modern world where humans live today is dominated by computing machines due to vast evolution of science and technology. Human-Machine interaction has taken a higher precedence than the Human-Human interaction in this so called modern era. People have started to give more importance to computing machines than fellow human beings. But Human-Machine interaction is more complicated than Human-Human communication since machines do not understand human emotions or feelings. Therefore people get irritated and stressed while dealing with computing machines. Yet it is nearly impossible to overcome this and say no to the technology in this modern era. Therefore, the aim of this research is to develop algorithms to infeed human emotions in to computing machines and classify them in order to reduce the complexity in Human-Machine interaction. One of the main ideas of this project is to infeed and classify the emotions through responses which respond without human consciousness in order to predict the real emotional state. Researchers and developers have discovered solutions for this complication. However, studies show these solutions have not addressed the problem properly and mostly the solution were restricted only to one sort of response at a time. Therefore this research proposes two separate algorithms (Emotion Awareness System) to classify human emotions into seven basic emotions through two different types of responses which are facial response and physiological response. The system extracts physiological responses through sensor panel and classifies facial responses with a graphical user interface. Several methods have been tested and evaluated to identify the most efficient algorithm for both the responses. Emotion Awareness System works with 93.80% accuracy for facial responses and 83.37% accuracy for physiological responses. Both the systems can be trained with rich number of data to increase the accuracy more. This shows the ability of the system to understand the human emotion patterns.

Key Words

Emotions; Facial responses; Physiological responses; Machine learning algorithms; Data mining algorithms; Artificial Neural Network; Fuzzy Inference System; Adaptive Neuro Fuzzy Inference System; Emotion Awareness System