

A Fuzzy Physiological Approach For Continuously Modeling Emotion During Interaction With Play Technologies

**Regan L. Mandryk, M.Stella Atkins
(2007)**

**İrem Gökçe AYDIN
1550268
GATE 508 – Week 8**

In this paper, there is a new method introduced to evaluate emotion which can be used in evaluation of games or other play technologies. In this method, emotion of a user is modeled using physiological data. A fuzzy logic model is used to transform physiological data, which is extracted by GSR, HR, EMG and HCI, into arousal and valence, and then a second fuzzy logic model is used to transform arousal and valence into five emotional state: fun, challenge, boredom, frustration and excitement. The advantages of this quantifying process are; being as an alternative for traditional usability measures, being a more objective assessing tool with respect to subjective self-reports or user experience evaluations, being a continuous observing tool to evaluate the 'process' not just 'outcome' of playing by not disturbing the game play, being a time saving tool for applying observational analysis and lastly being a quick tool to specify the moments of changes in emotion and so to ensure and improve the balance between skill and challenge in game. Beside of these advantages, according to the authors, the concerned issues in this method are; mapping physiological data and arousal/valence to emotions fairly, consistency of the results day-to-day, pattern differentiation user-to-user and scaling of emotion in terms of predefined set of maximum -minimum possible values(despite normalization attempts). However, it is revealed that there is a correlation with the result of experiments and subjectively reported emotion. I believe, the method seems a more objective evaluation tool, because some concrete data is measured, however, the formation of this data is the key point. Because the reaction of the body to subjects and conditions are differentiate and we cannot base the whole pattern levels to a predefined frame, we should think of a **calibration process** before continuing the experiments instead of normalization to improve this method. In calibration process, we can collect a default baseline for the level of different emotions of a user, and then evaluate the changes in emotion and compare with other users to end up with a generalized conclusion.