AGENT BASED SOLUTION TO IDENTIFY THE PREDOMINANT FACTOR FOR MENTAL DISTURBANCE

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Declaration

I declare that this dissertation does not incorporate, without acknowledgment, any material previously submitted for a Degree or a Diploma in any University and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organization.

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Abstract

Literature shows that cultivation of cognitive capacities are negatively affected by five major mental factors, namely, Sensory desire, Anger or Ill will, Sloth torpor, Restlessness and Doubt. In many instances they do not appear in isolation, yet as a combination of one or more such factors. Sometimes a factor or more can cause to arise another. This complex behavior results in not being able to exactly determine which one of the factor is dominant. Identifying the dominant mental factor for the disturbance of a person had been a hard task to accomplish since it needs a proper mechanism and a criteria. Yet, it's essential to treat and overcome the disturbance. Identifying the dominant mental factor for the disturbance is a vital lead and kind of a initiative to few other research areas as well. Therefore research into identification of the mental factor that predominantly disturbs a person in his/her studies, daily life and career has become a paramount research interest. A research has been carried out to identify the predominant mental factor for disturbance of an individual by capturing and analyzing Electroencephalography (EEG) brain waves. The research has been conducted to capture EEG wave signals and to train an Artificial Neural Networks for sessions where we exactly know the dominant mental factor. The trained ANN has integrated with a Multi Agent Systems which receives output from ANN for a given EEG waves from of a person in a particular session as percentage values of above mentioned major mental factors, and deliberate on the output generated by the ANN to decide on the most probable. ANN has fourteen inputs which aligns with the sensors of Emotiv EPOC EEG headset and has five outputs which gives percentage values of each mental hindrance that was available in the fed brain wave. Multi agent system consist of five agents representing each mental factor. MAS enhances the result given by ANN and finally come up with the most dominant mental factor for the disturbance of the given brain wave based on mental hindrances. Accuracy of the final result thoroughly depend on data sets which has been used to train ANN and ontology of the agents.

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