



**932/E3/Poster**

**Use of electroencephalography-based brain computer interfaces in the virtual classroom**

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Collaborative virtual environment–based learning systems facilitate participation in lectures from different geographical locations. These kinds of environments provide more interactivity over conventional distance learning methods such as message boards and chat capabilities, where input of the participants is partially ignored. Unlike in real classroom, the virtual classroom allows the participant to hide the real affective state and real participation. The proposed study will implement a prototype to express affective states of the participants as facial expressions and gestures of avatars, which represent participants in the virtual classroom. Electroencephalography (EEG)-based Brain Computer Interfaces (BCI) will be used to capture the brain signals. Brain signals will be preprocessed using Independent Component Analysis (ICA) and classification will be done using Linear Discriminant Analysis (LDA). The extracted affective states will be fed to the avatars of the virtual classroom. Second Life, a popular 3D virtual environment will be used for modeling virtual classrooms.

Keywords: EEG, BCI, virtual classroom, second life

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