

## Training a Gaming Agent on Brainwaves

There are too many grammatical errors to list individually.

//Does the header refer to a general template?

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//The abstract read more like an introduction, rather than an indication of the work undertaken for the paper.

25 “Results show that there is an effective transfer of information and that the agent learns successfully to solve the game efficiently.”

//This is too vague. What are the outcomes of the study?

39 This information is used to make a gaming agent improves its operational performance using electroencephalography (EEG) signals as feedback of the performed task, obtained from an observational human critic.

//There is a grammar issue. I don't understand this sentence.

54 RL should be defined in main body of the paper. Also the term 'agent' needs to be defined/clarified. How does it relate to the Game Manager from Figure 1?

17 col 2 Recently, this technique has seen a come-back.

//this is not scientific language

58 col 3 The precision of 25.125 is inappropriate

P2, 46 col 2 What is “state information”?

P3, 2 red normally indicates an error

P3, 11 I assume that the “observational human critic” is the player/participant/subject/human observer. This role should be clarified and terminology used consistently.

P3, 41 define MNE

P3, 56 Thus, each epoch is composed of a matrix 500 x 8. // add channels

P4, 32 Hence, following the iterative procedure based on Equation 1, the Q-Table is updated in each iteration. After the algorithm finishes iterating through all the training episodes, the Q-Table is stored to test the performance of the agent.

// Will the game always terminate? How long does the game take? Does smooth progression toward finish affect the err potential?

P4 Fig 3. Is the chance score = 0.5?

P4 the labels referred to in Fig 5 should correlate with the test here, i.e., A= subject 1 etc.

P4 referring to Fig 6; a comparison ROC curve with subject 1 would be more interesting

P5, 34 what is meant by “experiences”?

P5, 29 col 2 – remove Average steps per Q-Table legend.

P5 50, col 2 The collected data show that ErrP signals can in fact be classified and used to train an agent effectively.

// how has effectiveness been determined here?

Page 6 Fig 10 the text is not legible, it should be improved.

Page 6, 40

“However, even though this implies that the agent misses frequently that an action taken is wrong, this is not hindering the overall performance and the agent is still learning.”

// Your results show that this is subject dependent

P6, 56

Results show that training a classifier with data of one subject, but using it to classify the events of experiences of another subject does not lead to an improvement on the performance of the agent.

// could a pre-trained generic classifier provide a better initial state, subsequently trained with observer data to converge more quickly?

Are there differential err potential for up, down, left, right?