Training a Gaming Agent on Brainwaves

The paper has been improved. IMO, there are still areas that need further attention to improve the paper further.

Page 1
The abstract still reads like an introduction until the last sentence.
I would begin with sentence: "Error-related potential (ErrP) are a particular type of ERP that can be elicited by a person who attends a recognizable error."
Expand the results of the paper as this is the contribution.
"Results show that there is an effective transfer of information and that the agent learns successfully to solve the game efficiently.
Both the underlined terms need to cite evidence from the paper.

Line 40 "This information is used to make a gaming agent <that> improves …."

Line 11 col 2 "how biological agents learn from ~~its~~ <their> environment by exploring it and getting feedback rewards, either negative or positive."

Line 17 col2 "~~Nonneglected~~ is the influence of DeepBrain's AlphaGo project," // Re-word

Line 24 col 2 "The papers [8], [9], [10] have successfully demonstrated that a robot can be controlled by obtaining a reward signal from a person's brain activity, ~~which~~ who is observing the robot, <to> solve a task."

Line 58 Put in a reference number from ethics committee from which approval was sough (e.g. University committee)

Page 2
Line 56 "Data ~~is~~ <are> handled and processed with the OpenVibe Designer," // datum-data

Line 37 col 2 "This dataset has been published on the IEEE DataPort initiative [15]." // I would move this to the end of next paragraph (or possibly end of paper)

Page 4
Lin 24 This allows ~~to learn~~ the Q-Table <to learn> based on the subject's feedback from the movements the agent
took, which are chosen pseudo-randomly, while executing the brainwave session.

Line 50 "The best overall performance is obtained using Logistic Regression." // also need to discuss the significance of the overall levels of accuracy in Discussion. Is a best performance of 0.672 useful/acceptable? How does it compare to other researchers (if a comparison is possible).

Line 42 col 2 "These results are also consistent with their classification ROC curves, shown ~~on~~ <in> Figures 6 obtained for both subjects, where the area under the curve are close to chance level." // Why didn't you show one good ROC curve and one bad one. This would provide the basis for comparison.

Page 5
Figure 5 "Y axis shows the averaged number of steps, while x axis show the number of experiences used to cumulative train the Q-Table."
// Why does Fig5 E only have 2 sets of data? Some discussion of the (smaller) change from 1 – 2 would be appropriate (e.g. I Discussion)

Line 51 "No~~t~~ performance gain is evidenced, the agents learn nothing which implies that the reward information is useless." // useless is not a good choice of wording –provides no value

Line 55 “It can be seen that the overall performance of the agent improves as long as there are more experiences to be used to train it, regardless if they were generated from the brainwaves classification from different subjects.” // more explanation/discussion needed. Is this an average effect from positive learners?

This work aims to state whether ErrP signals could be used to train a gaming agent using reinforcement learning. The collected data show that ErrP signals can in fact be classified and used to train an agent effectively. // Can you link these findings to confirm/challenge other recent research in Err potentials

Page 6

Fig 8 – why use data from subject 6 (a non-learner)?

Line 42 “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” //

Line 20 col 2 Despite that, the rewards generated from different subjects can be used to train the same Q-Table to improve its performance, which may lead to strategies where the overall performance is improved based on the information from different human critics at the same time.

//These are key findings, worth more discussion/interpretation and inclusion in abstract.