Review Comments

The presented model proposed a novel approach that utilizes Heterogeneous Adversarial Transfer Learning (HATL) to synthesize ElectroEncephaloGraphy (EEG) data from various other signal modalities, reducing the need for lengthy calibration phases. Authors benchmark the efficacy of three Generative Adversarial Network (GAN) architectures, such as Conditional GAN (CGAN), Conditional Wasserstein GAN (CWGAN), and CWGAN with Gradient Penalty (CWGAN-GP) within this framework. The proposed framework is rigorously tested on two conventional open sourced datasets, SEED-V and DEAP. Additionally, the framework was applied on the immersive three-Dimensional (3D) VR dataset named GraûtiVR that collected the emotional and behavioral reactions of individuals experiencing urban graûti in a VR environment. However, the following major corrections can be considered by the authors to further improve the quality of the manuscript.

I have some major corrections and suggestions below:-

1. Authors must show explain the novel contribution of the work with proper justification of the outcomes. Novel Contribution of the proposed work can be added at the end of Introduction.

2. The abstract can be improved and the outcome of the work in terms of achieved performance calculations must be included in the abstract.

3. Literature survey is missing and need to be modified based on current state of art methods. Some more paper based on current study in deep learning model multimodal emotion recognition.

4. The computational complexity of the algorithm must be discussed. Also, compare the proposed method in terms of computational complexity?

5. Future work and limitations of the proposed work can be added and discussed.

6. Comparative analysis with respect to various performance metrics is missing? The comparison can be a bit unfair if different data is not used for comparative analysis.

7. Has the Author implemented the architecture from scratch and identified the novel condition in deep networks.

8. Specification of the implementation platform is missing.

9. Precision vs. recall curves of the proposed algorithms with respect to data sets must be included.

10. Comparative analysis of various performance parameters with respect to data sets and ground truth data sets must be discussed.

11. Limitations of the proposed work can be added and discussed.

12. In all results tables' utilized datasets like in table 5 must be cited with proper and specific citations.

13. Various abbreviations also must be included.

14. How much data should be considered for training and testing for architecture implementation? Details of training and testing data sets must be tabulated.

15. Comparative analysis with respect to inference/fps and real-time time analysis is missing?

16. Layers details of proposed architecture must be included.

17. Loss vs. epochs and Accuracy vs. epoch's graphs for various tested model must be added.