Review of: "Deep Learning Modeling for Prediction of Cognitive Task Related Features from Resting-state fMRI Data"

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Potential competing interests: No potential competing interests to declare.

The manuscript "Deep Learning Modeling for Prediction of Cognitive Task Related Features from Resting-state fMRI Data" focuses on using cGCN-LSTM model and leave-two-our occlusion method to identify the regions and networks in task-based fMRI experiments. The study undoubtedly holds interest to the readership and overall well-written. However, it can benefit from several improvements.

Minor edits:

1. It seems that in several places throughout the manuscript, accuracy and correlation coefficient were used interchangeably. For example, "Although the prediction results showed a sufficiently significant correlation, the scores of the Kohs block-design test did not provide a very high prediction accuracy (0.34), and further improvement is needed, as this could affect the interpretation of the model and ROIs." Please kindly clarify, as accuracy is a metric commonly used in classification problems, and without a clear definition in the manuscript, it could be misleading.

2. In Section 2.4.1, "CGCN regression," it is stated, "The final evaluation was performed using Pearson's product-moment correlation coefficient and the coefficient of determination of the actual and predicted values." Please kindly clarify why other metrics were not included in the evaluation, as these two metrics have their limitations and it is advised to use them in conjunction with other metrics like MSE, RMSE, and MAE. The correlation coefficient can provide insight into the linear relationship between the actual and predicted values, but it cannot provide a comprehensive assessment of model performance. On the other hand, the coefficient of determination assumes that every feature helps the model and will either increase or remain unchanged, but it never decreases. The adjusted coefficient of determination is generally a better alternative metric, especially when evaluating models with a different number of features.