Supplementary Material: Explainable Early Detection of Alzheimer's Disease Using ROIs and an Ensemble of 3D Vision Transformers

In this supplementary material, we present a detailed analyses through three figures (Fig. S1 to Fig. S3), demonstrating the Area Under the Receiver Operating Characteristic (AUROC) for the comprehensive list of Regions of Interest (ROI) using our developed 3-Dimensional Vision Transformer (3-D Vit) model. Each figure is dedicated to a specific diagnostic task.

Fig. S1 illustrates the AUROC values for the task of distinguishing between Alzheimer's Disease (AD) and Cognitive Normal (CN) individuals. Fig. S2 showcases the AUROC for differentiating AD from Mild Cognitive Impairment (MCI). Lastly, Fig. S3 details the AUROC in the context of discriminating CN from MCI.

These figures provide a comprehensive overview of our model's performance across various classification tasks. These results can be used to reveals the relative importance of these brain regions in addressing the complexities associated with these three classification problems.

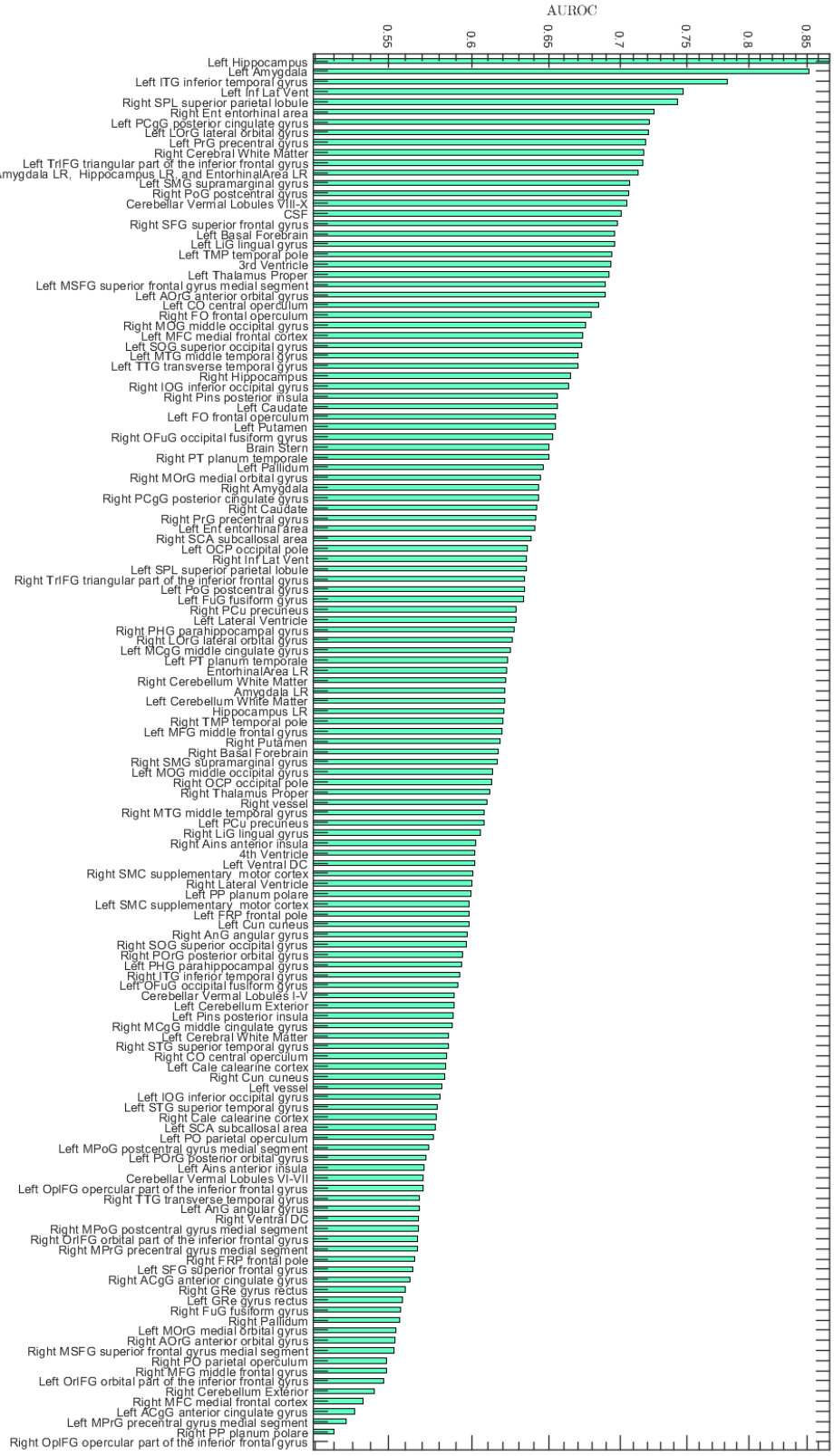

Figure 1. The complete list of ROIs ordered by their AUROC scores for the prediction task AD vs. CN (Fig. S1).

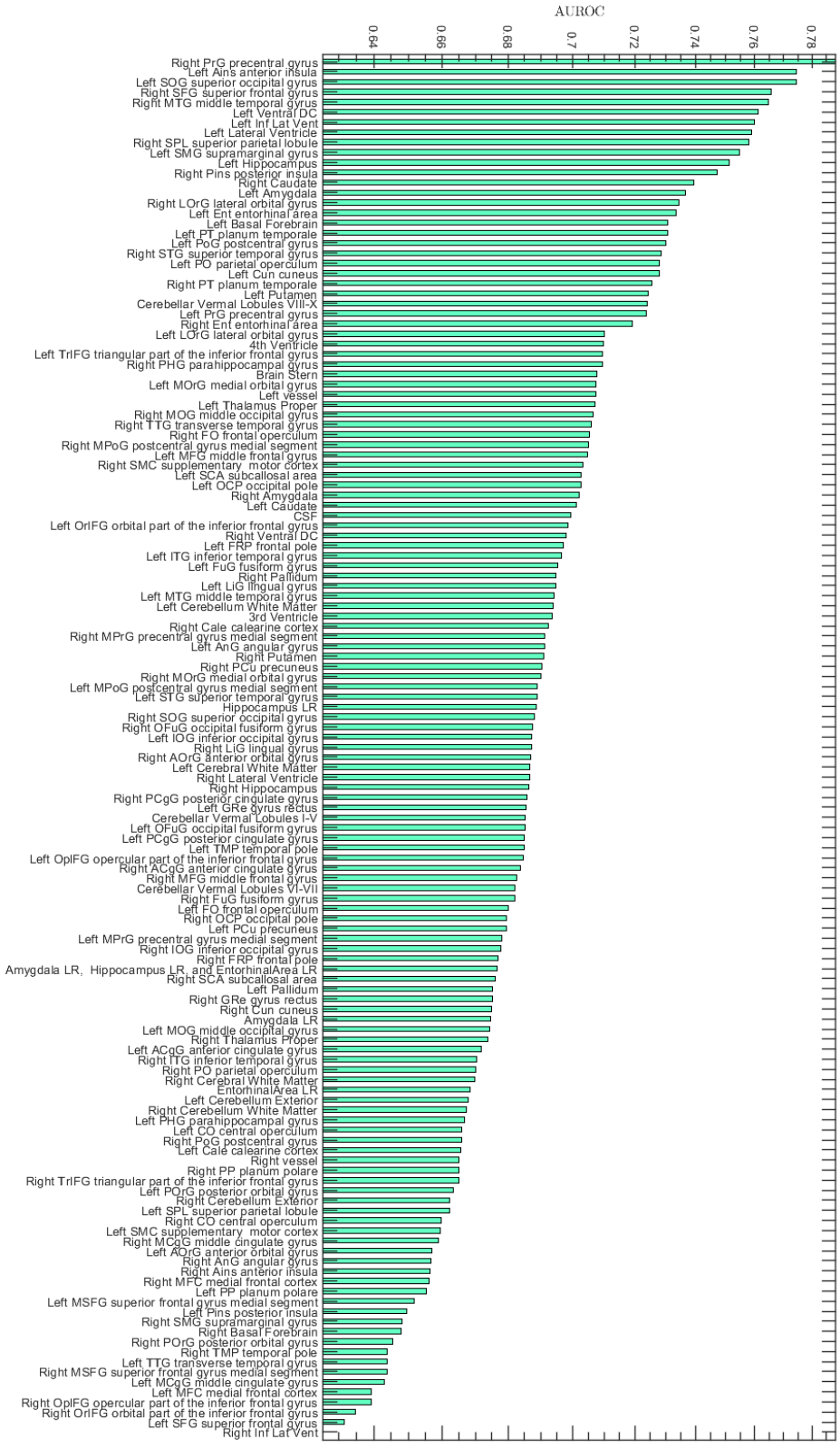

Figure 2. The complete list of ROIs ordered by their AUROC scores for the prediction task AD vs. MCI (Fig. S2).

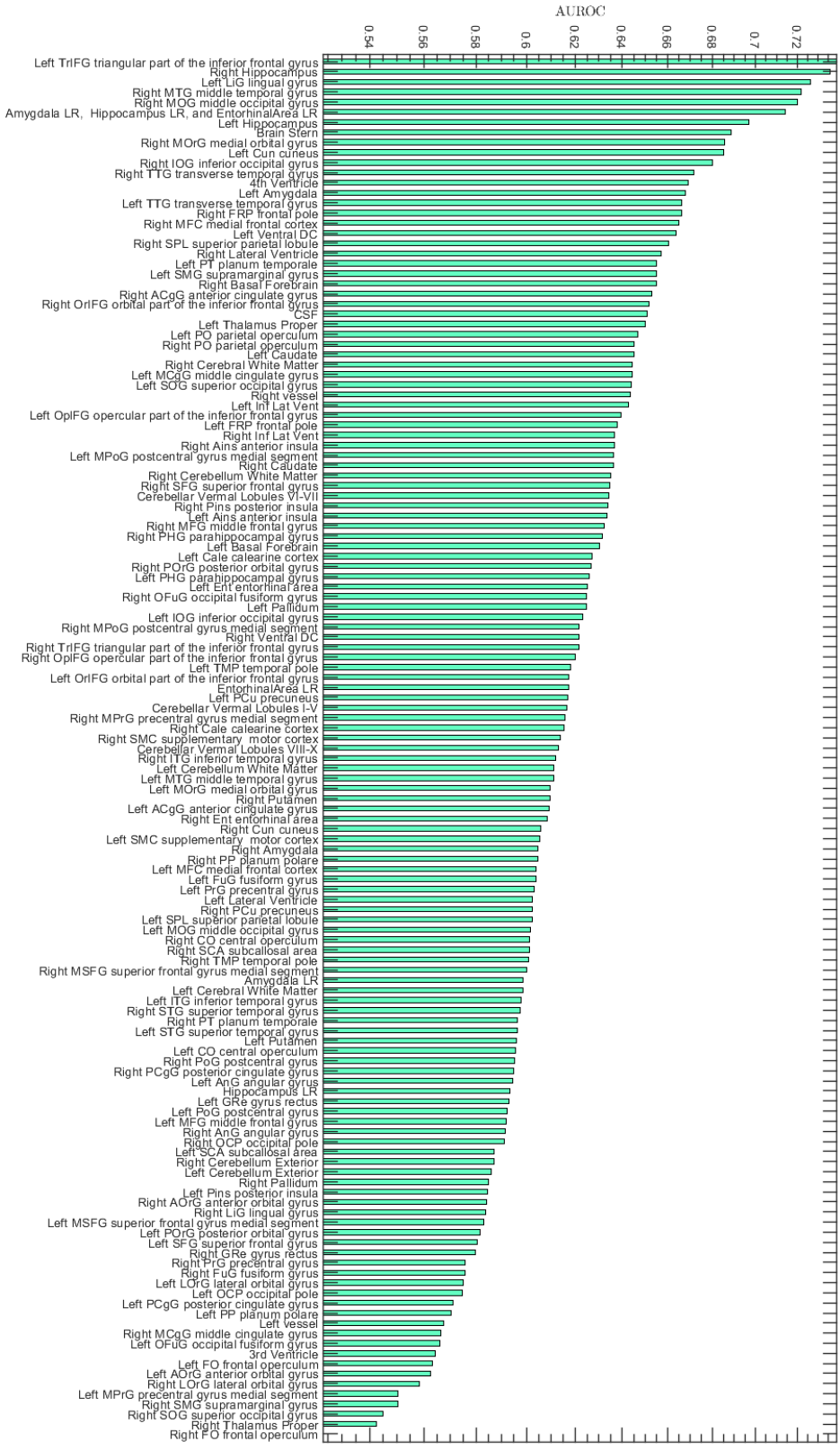

Figure 3. The complete list of ROIs ordered by their AUROC scores for the prediction task CN vs. MCI (Fig. S3)