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Adaptive 3DCNN-Based Interpretable Ensemble Model for Early Diagnosis of Alzheimer’s Disease

METHOD:

3-D convolutional neural network (3DCNN) and genetic algorithm (GA)

DATASETS USED:

1)Data partially used in this article were obtained from the ADNI database.

2)MRI datasets.

CONCLUSIONS:

1) More accurate disease classification (AD versus NC, MCIc versus NC, and MCIc versus MCInc).

Alzheimer's Disease (AD)
Mild Cognitive Impairment (MCI)
Normal Control (NC).

2) The identification of discriminative brain regions that could be the biomarkers for early detection in AD progression.

FUTURE WORK:

Since some brain regions are too small to effectively train corresponding base classifiers, they could be inevitably excluded by the proposed method here. This could result in the loss of important features for the classification to some degree. The possible solution to this problem warrants further investigation.