

## Supplementary Material

Table 1: Accuracy Measures and associated SNPs and Genes

Models	Training AUC	Testing AUC	SNPs	Genes
Whole-brain	0.88	0.72	149 SNPs at $5 \times 10^{-6}$	APOE
Logistic Regression	0.78	0.59	GWAS Not Performed	
SVM	0.79	0.61	GWAS Not Performed	
ResNet50 AlexNet VGG16	0.84-0.87	0.69-0.72	GWAS Not Performed	
Augmentation with respect to whole-brain	0.85	0.75	3 SNPs at $5 \times 10^{-8}$ <i>rs2075650, rs11580593</i> <i>rs823955</i> 38 SNPs at $5 \times 10^{-6}$	APOE
AD vs CN	0.96	0.90	2 SNPs at $5 \times 10^{-8}$ 53 SNPs at $5 \times 10^{-6}$	ADCY8, ADK, APOE
Multibranch CNN (27 Models)	0.86	0.76	8 SNPs at $5 \times 10^{-8}$ 87 SNPs at $5 \times 10^{-6}$ <i>rs1397645, rs10490381</i>	NDNF
Whole-image GM	0.82	0.70	No Significant genes were found	
Whole-image WM	0.88	0.68	No Significant genes were found	
Whole-image CSF	0.87	0.54	No Significant genes were found	
Multibranch GM	0.84	0.74	35 SNPs at $5 \times 10^{-6}$ <i>rs173754, rs9257694</i>	APOE, OR14J1
Multibranch WM	0.82	0.70	35 SNPs at $5 \times 10^{-6}$	No Significant genes were found
Multibranch CSF	0.77	0.66	21 SNPs at $5 \times 10^{-6}$	No Significant genes were found

## Relevant Plots

Coming Soon