Table 1. **Model summaries and metrics**.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Layers** | **Loss** | **Accuracy** | **CI\_ADNI** | **CI\_NACC** | **BS\_ADNI** | **BS\_NACC** | **Note** |
| SCNN | 2 | Surv | N/A | 0.693 ±  0.043 | 0.566 ±  0.028 | 0.245 ±  0.057 | 0.173 ±  0.038 |  |
| SCNN\_T | ~ | ~ | ~ | 0.716 ±  0.047 | 0.616 ±  0.032 | 0.288 ±  0.114 | 0.139 ±  0.015 | Transfer learning |
| SCNN\_T\_F | ~ | ~ | ~ | 0.769 ±  0.053 | **0.682 ±**  **0.007** | 0.210 ±  0.050 | 0.112 ±  0.010 | last layer unfrozen; ~25% faster |
| SCNN\_T\_F | ~ | ~ | ~ | 0.703 ±  0.051 | 0.590 ±  0.026 | 0.350 ±  0.114 | 0.145 ±  0.018 | last 2 layers unfrozen |
| CNN | 3 | CE | 0.72 | N/A | N/A | N/A | N/A |  |
| CNN\_P | 5 | ~ | 0.98 | ~ | ~ | ~ | ~ |  |
| ***SCNN\_5\_T*** | **~** | **Surv** | **N/A** | **0.776 ±**  **0.032** | **0.643 ±**  **0.015** | **0.187 ±**  **0.057** | **0.138 ±**  **0.014** |  |
| SCNN\_5 | *~* | *~* | *~* | 0.784 ±  0.009 | 0.660 ±  0.019 | 0.194 ±  0.035 | 0.150 ±  0.025 |  |
| SCNN\_Res | ~ | ~ | ~ | 0.585 ±  0.067 | 0.486 ±  0.016 | 0.235 ±  0.054 | 0.164 ±  0.026 |  |
| ViT | N/A | ~ | 0.72 | N/A | N/A | N/A | N/A |  |
| **SViT\_Conv** | **~** | **~** | **N/A** | **0.672 ±**  **0.052** | **0.541 ±**  **0.003** | **0.267 ±**  **0.080** | **0.174 ±**  **0.018** | **Best of Conv** |
| SViT\_Linear | ~ | ~ | ~ | 0.625 ±  0.046 | 0.520 ±  0.042 | 0.267 ±  0.083 | 0.173 ±  0.018 | Best of Linear |
| **MLP\_PV** | **~** | **~** | **~** | **0.738 ±**  **0.023** | **0.708 ±**  **0.015** | **0.192 ±**  **0.056** | **0.108 ±**  **0.010** |  |
| MLP\_C | ~ | ~ | ~ | 0.759 ±  0.050 | N/A | 0.171 ±  0.049 | N/A |  |
| MLP\_PVA | ~ | ~ | ~ | 0.733 ±  0.035 | ~ | 0.192 ±  0.042 | ~ |  |
| MLP\_PVM | ~ | ~ | ~ | 0.753 ±  0.040 | ~ | 0.182 ±  0.054 | ~ |  |
| MLP\_PVAM | ~ | ~ | ~ | 0.743 ±  0.036 | ~ | 0.169 ±  0.046 | ~ |  |

S-CNN – survival convolutional neural network; T – utilizes transfer learning; F – incorporates frozen layers; P – the convolutional neural network used for pre-training, with CN and AD MRIs as training data; 5 – five layer S-CNN (five convolutional layers and one dense layer); ViT – vision transformer; S-ViT – survival vision transformer; MLP – multilayer perceptron; PV – parcellations without ventricles; C – CSF; PVA – PV and age; PVM – PV and MMSE; PVAM – PV, MMSE, and Age.

Bold – indicates models that were used to construct survival curves in Supplementary Fig. 6.