An Explainable Convolutional Neural Network for the Early Diagnosis of Alzheimer's Disease from 18F-FDG PET Supplementary Materials

CNN Architecture

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Layer	**Kernel**	**n° units**	**Stride**	**Output Shape**	**n° params**
Input				160 x 160 x 96 x 1	0
Conv 3D + ReLU	3 x 3 x 3	8	1 x 1 x 1	160 x 160 x 96 x 8	224
Conv 3D + ReLU	3 x 3 x 3	8	1 x 1 x 1	160 x 160 x 96 x 8	1736
Max Pool 3D	3 x 3 x 3		1 x 1 x 1	53 x 53 x 32 x 8	0
Batch Norm				53 x 53 x 32 x 8	32
Conv 3D + ReLU	3 x 3 x 3	16	1 x 1 x 1	53 x 53 x 32 x 16	3472
Conv 3D + ReLU	3 x 3 x 3	16	1 x 1 x 1	53 x 53 x 32 x 16	6928
Max Pool 3D	3 x 3 x 3		1 x 1 x 1	17 x 17 x 10 x 16	0
Batch Norm				17 x 17 x 10 x 16	64
Conv 3D + ReLU	3 x 3 x 3	32	1 x 1 x 1	17 x 17 x 10 x 32	13856
Conv 3D + ReLU	3 x 3 x 3	32	1 x 1 x 1	17 x 17 x 10 x 32	27680
Max Pool 3D	2 x 2 x 2		1 x 1 x 1	8 x 8 x 5 x 32	0
Batch Norm				8 x 8 x 5 x 32	128
Conv 3D + ReLU	3 x 3 x 3	64	1 x 1 x 1	8 x 8 x 5 x 64	55360
Conv 3D + ReLU	3 x 3 x 3	64	1 x 1 x 1	8 x 8 x 5 x 64	110656
Max Pool 3D	2 x 2 x 2		1 x 1 x 1	4 x 4 x 2 x 64	0
Batch Norm				4 x 4 x 2 x 64	256
Global Avg Pool 3D				64	0
FC + ReLU		64		64	4160
Dropout, p=0.3				64	0
FC + ReLU		32		32	2080
Dropout, p=0.3				32	0
FC + Softmax		3		3	99

Table 1: Convolutional Neural Network architectures