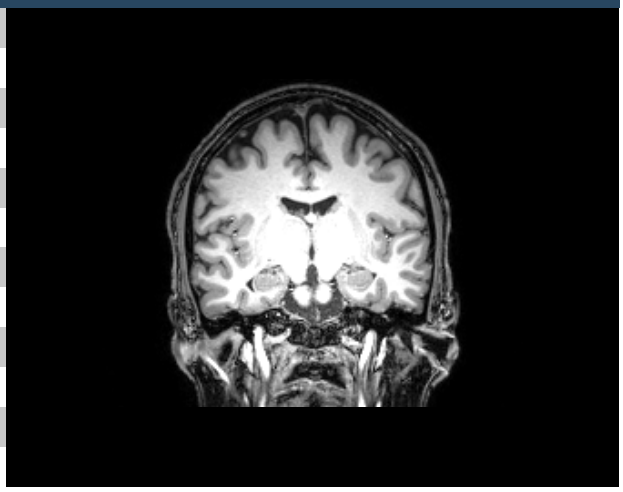
For research only

DeepThalamus volumetry report

version 1.0 release 15-Jun-2024

Subject: job1234567

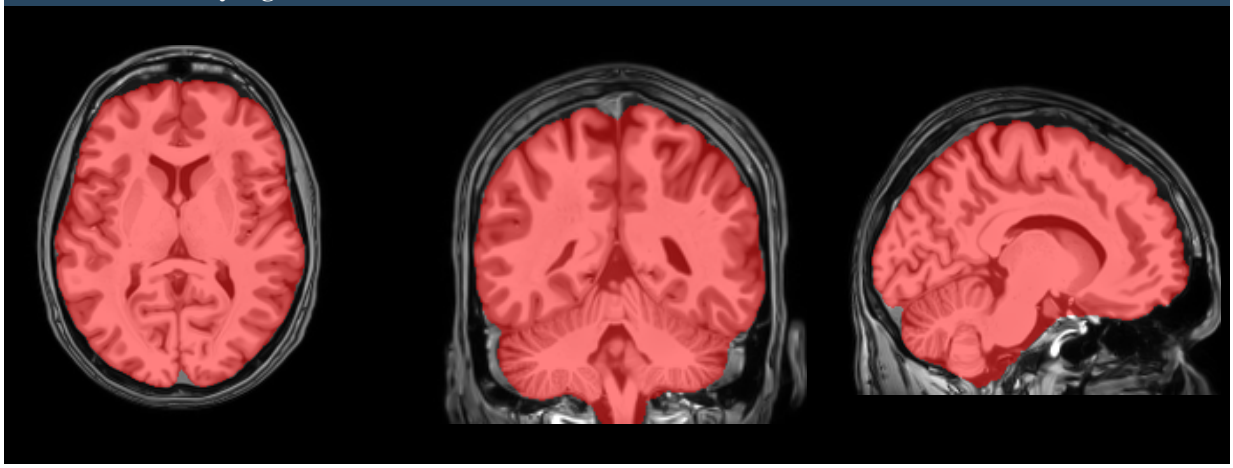
Sex
Male
Age
35.0
Report date
18-Jun-2024
Image orientation
Neurological
Scale factor
0.86
Total Intracranial Volume (cm^3)
1575.71



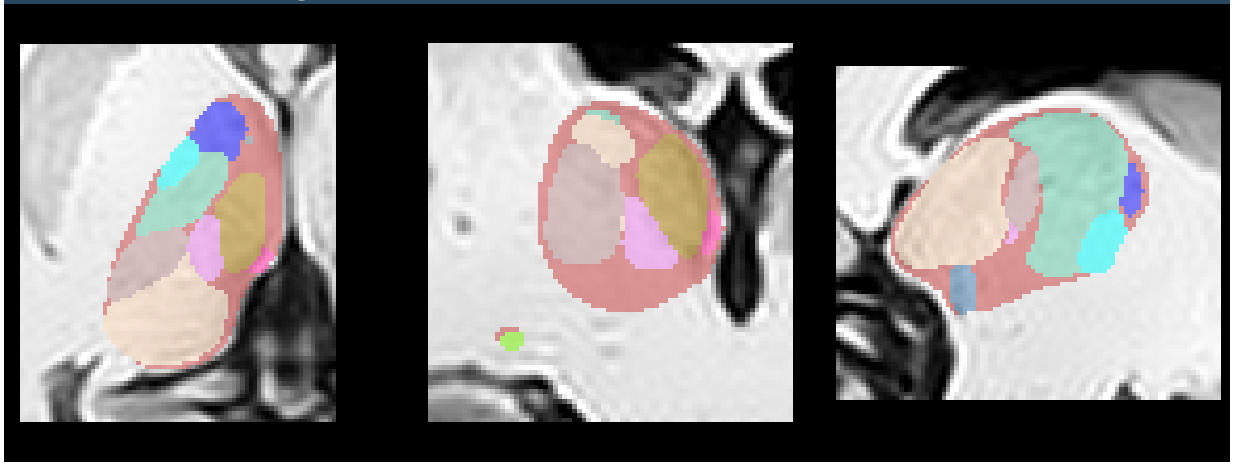
Nuclei segmentation

Nuclei*	Total (cm^3/%)	Right (cm^3/%)	Left (cm^3/%)	Asymmetry (%)
Thalamus	13.50 / 0.857 [0.813, 0.972]	6.82 / 0.433 [0.404, 0.484]	6.68 / 0.424 [0.408, 0.489]	2.0300 [-428.925, 197.873]
AVN	0.24 / 0.015 [0.012, 0.018]	0.12 / 0.007 [0.006, 0.009]	0.12 / 0.008 [0.006, 0.009]	-4.3770 [-1868.723, 2121.785]
VAN	0.54 / 0.034 [0.036, 0.047]	0.25 / 0.016 [0.016, 0.024]	0.29 / 0.018 [0.019, 0.025]	-11.7507 [-2474.746, 747.724]
VLAN	0.22 / 0.014 [0.012, 0.017]	0.11 / 0.007 [0.006, 0.009]	0.11 / 0.007 [0.006, 0.009]	2.7397 [-2027.762, 1365.919]
VLPN	2.12 / 0.134 [0.114, 0.145]	1.04 / 0.066 [0.057, 0.073]	1.08 / 0.068 [0.057, 0.073]	-3.4920 [-696.678, 871.047]
VPLN	0.88 / 0.056 [0.043, 0.058]	0.44 / 0.028 [0.021, 0.029]	0.44 / 0.028 [0.021, 0.029]	0.9305 [-1383.750, 933.038]
PN	2.69 / 0.170 [0.173, 0.221]	1.32 / 0.084 [0.084, 0.108]	1.37 / 0.087 [0.087, 0.114]	-3.8974 [-1329.838, 336.499]
LGN	0.15 / 0.010 [0.009, 0.015]	0.05 / 0.003 [0.004, 0.008]	0.10 / 0.006 [0.004, 0.008]	-60.8079 [-3957.800, 1490.223]
MGN	0.14 / 0.009 [0.010, 0.014]	0.07 / 0.004 [0.005, 0.007]	0.07 / 0.005 [0.005, 0.007]	-4.0268 [-1317.493, 1697.147]
CN	0.33 / 0.021 [0.016, 0.022]	0.17 / 0.011 [0.008, 0.011]	0.16 / 0.010 [0.008, 0.011]	7.2321 [-1189.498, 1217.582]
MN	1.31 / 0.083 [0.082, 0.106]	0.67 / 0.043 [0.041, 0.054]	0.64 / 0.041 [0.041, 0.053]	5.3815 [-472.013, 797.828]
HN	0.05 / 0.003 [0.003, 0.004]	0.02 / 0.001 [0.001, 0.002]	0.03 / 0.002 [0.001, 0.002]	-26.3374 [-3354.588, 1294.365]
MTN	0.01 / 0.000 [0.001, 0.003]	0.00 / 0.000 [0.000, 0.002]	0.01 / 0.000 [0.000, 0.002]	-106.8493 [-9577.814, 6500.100]
ISN	4.82 / 0.306 [0.270, 0.340]	2.41 / 0.153 [0.135, 0.171]	2.41 / 0.153 [0.134, 0.169]	-0.2007 [-390.417, 549.366]

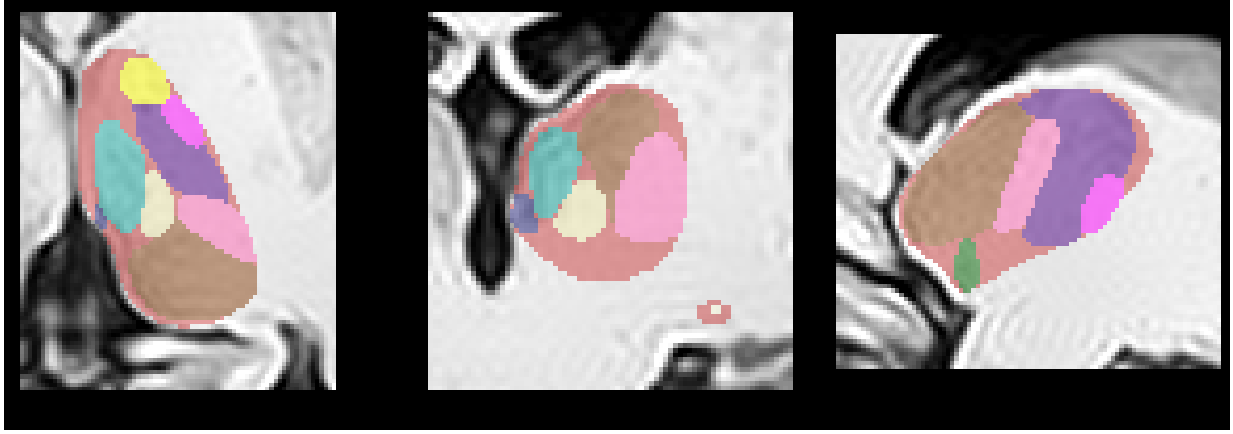
Intracranial cavity segmentation



Left Thalamus Nuclei segmentation



Right Thalamus Nuclei segmentation



All the volumes are presented in absolute value (measured in cm^3) and in relative value (measured in relation to the IC volume).

The Asymmetry Index is calculated as the difference between right and left volumes divided by their mean (in percent).

All the result images are located in the MNI space (neurological orientation).

Values between brackets show expected limits (95%) of normalized volume in function of sex and age for each measure for reference purpose. Values outside the limits are highlighted in red.

***Acronyms list**

AVN	Anterior Ventral Nuclei	**LGN**	Lateral Geniculate Nuclei
VAN	Ventral Anterior Nuclei	**MGN**	Medial Geniculate Nuclei
VLAN	Ventral Lateral Anterior Nuclei	**CN**	Centromedian Nuclei
VLPN	Ventral Lateral Posterior Nuclei	**MN**	Mediodorsal Nuclei
VPLN	Ventral Posterior Lateral Nuclei	**HN**	Habenular Nuclei
PN	Pulvinar Nuclei	**MTN**	Mammillothalamic Tract Nuclei
		ISN	Intermediate Space Nuclei

Marina Ruiz-Perez, Sergio Morell-Ortega, Marien Gadea, Roberto Vivo-Hernando, Gregorio Rubio, Fernando Aparici, Mariam de la Iglesia-Vaya, Thomas Tourdias, Pierrick Coupé, José V. Manjón, *DeepThalamus: A novel deep learning method for automatic segmentation of brain thalamic nuclei from multimodal ultra-high resolution MRI*, arXiv Preprint arXiv:2401.07751 PDF