



Subject: job282848

Sex

UNKNOWN

Age

81.0

Report date

24-Feb-2022

Native image orientation

Neurological

Scale factor

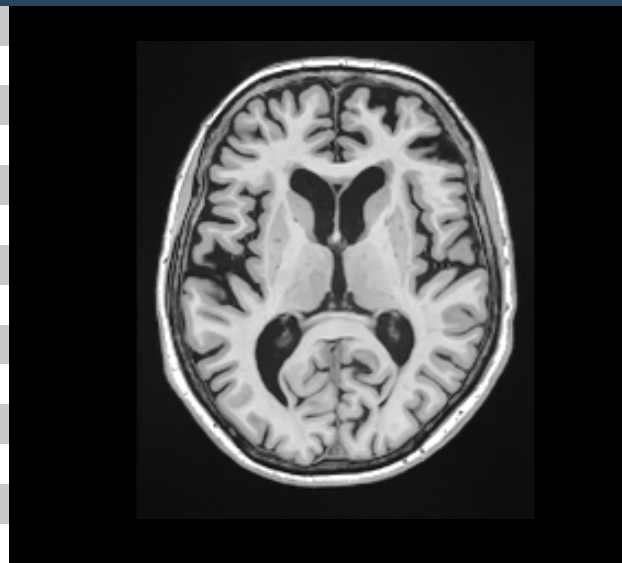
0.83

SNR

25.75

Quality control

A



Dementia diagnosis result

Feature	Dementia probability (in %)
Grading score	99.80
Atrophy score	78.01

Grading score is based on deep learning models trained to discriminate Alzheimer's disease (AD) signature [1]. The grading map provides a score for each structure that reflects the similarity of the subject under study to a population with dementia (i.e., if the T1w MRI content presents AD-like patterns).

Atrophy score called HAVAs is based on lifespan modelling score [2]. Using the volumes of hippocampus, amygdala and inferior lateral ventricle, HAVAs estimates the probability that the subject under study is closer to AD lifespan model than control lifespan model.

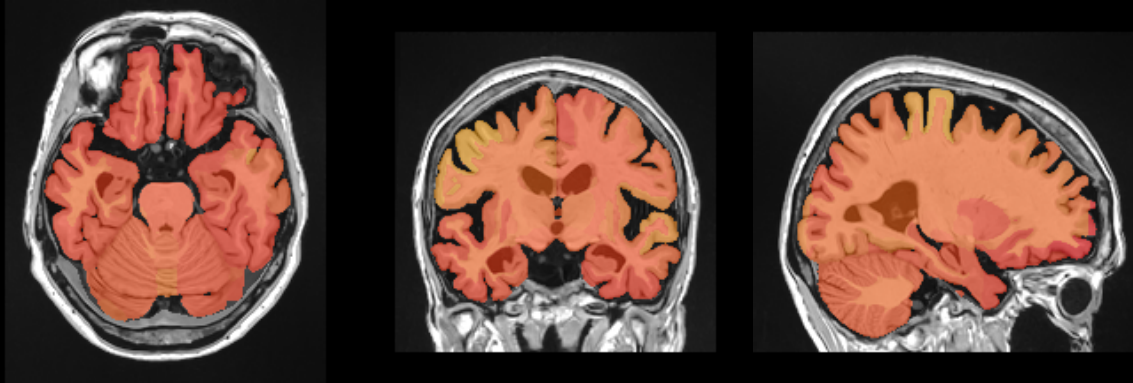
These scores have been validated on AD patients, subjects with mild cognitive impairment (MCI) who will convert to AD in 3y, and patients with frontotemporal dementia (FTD). Please do not use for other types of pathologies (e.g., Parkinson, Vascular dementia, ...).

[1] Huy-Dung Nguyen, Michaël Clément, Boris Mansencal, Pierrick Coupé, *Deep Grading Based on Collective Artificial Intelligence for AD Diagnosis and Prognosis*, Workshop on Interpretability of Machine Intelligence in Medical Image Computing at MICCAI 2021, 2021. PDF

[2] Pierrick Coupé, José V. Manjon, Boris Mansencal, Thomas Tourdias, Gwenaëlle Catheline, Vincent Planche, *HAVAs: Alzheimer's Disease Detection using Normative and Pathological Lifespan Models*, PDF

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

Grading Map



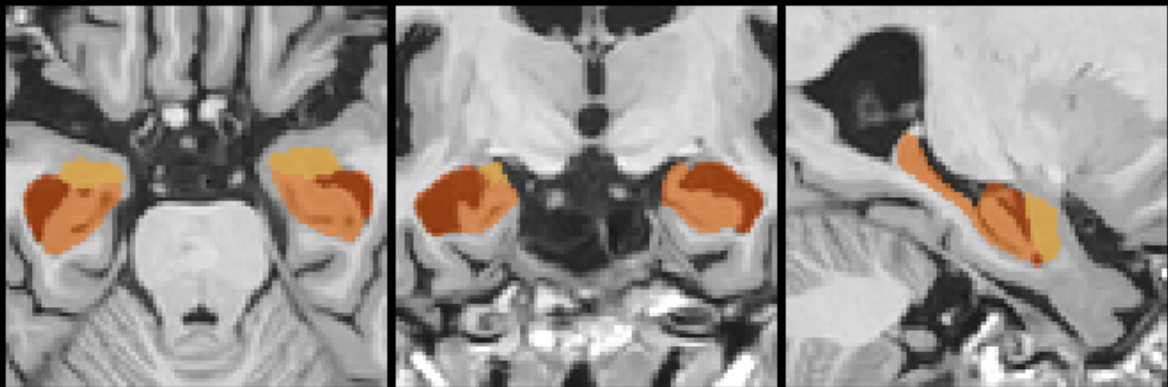
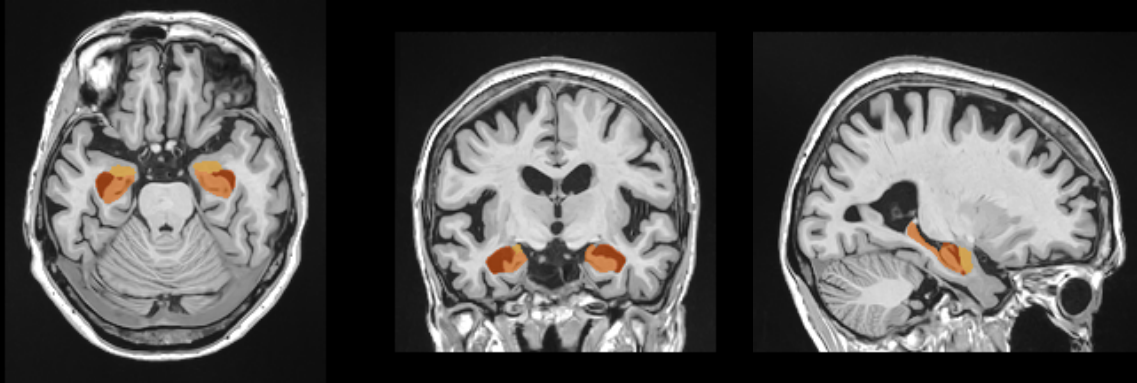
Normal

Dementia

Top 25 structures with highest grading

Structure	Dementia probability (in %)
Left triangular inf. frontal gyrus	100.00
Right triangular inf. frontal gyrus	100.00
Left frontal pole	100.00
Right anterior orbital gyrus	100.00
Right sup. parietal lobule	100.00
Right postcentral gyrus medial segment	100.00
Right frontal pole	99.99
Left anterior orbital gyrus	99.91
Left orbital inf. frontal gyrus	99.59
Left lateral orbital gyrus	99.14
Left medial frontal cortex	99.08
Right lateral orbital gyrus	98.20
Right middle occipital gyrus	97.99
Right precentral gyrus medial segment	97.89
Right medial frontal cortex	97.77
Left sup. frontal gyrus medial segment	97.52
Right precuneus	96.60
Right orbital inf. frontal gyrus	96.03
Left anterior cingulate gyrus	95.36
Left frontal operculum	95.32
Left posterior orbital gyrus	95.08
Right posterior orbital gyrus	94.89
Right supplementary motor cortex	94.78
Left gyrus rectus	94.71
Left anterior insula	94.59

Atrophy map [HAVAs]



Normal

Dementia

Structure	Dementia probability (in %)
HAVAs	78.01
Hippocampus	78.68
Amygdala	68.04
Inf. lateral ventricle	83.55

