

Study file	Feature	Columns	Encoding
Demographics	Race	"RAWHITE", "HISPLAT", "RAINDALS", "RABLACK", "RAASIAN", "RAHAWOPT", "RANOS"	7 features, encoded as 1 if the participant was considered from this ethnic origin, 0 if not.
	Sex	"SEX"	Encoded as 0 if the participant was a woman, 1 if it was a man.
	Handedness	"HANDED"	3 features: "RIGHT_HANDED", "LEFT_HANDED" and "AMBIDEXTROUS" with 0 or 1 depending on the handedness of the participant.
Social	Years of education	"EDUCYRS"	Float corresponding to the n. of years of education of the participant.
Age	Age	"AGE"	Float corresponding to the age of the participant.
Parkinson's features	Presence of tremor, rigidity, or postural instability at baseline	"DXTREMOR", "DXRIGID", "DXBRADY", "DXPOSINS"	4 features encoded as 0 if the participants didn't have this symptom, 1 if so. Bradykinesia was not mentioned in the paper but was used in the code, so we added this feature in our model.
	Dominant disease side	"DOMSIDE"	"DOMSIDE" feature column was used and split into 3 features: "DOMSIDE_LEFT", "DOMSIDE_RIGHT" and "DOMSIDE_BOTH" with 0 or 1 depending on the dominant side of disease for the participant.
	Symptom duration and disease duration	"INFODT", "SXDT", "PDDXDT"	Symptom duration and disease duration: we respectively computed the number of days between the columns "INFODT" and "SXDT" and between the columns "INFODT" and "PDDXDT". Dates were first converted to "Month-Year" before computing the number of days between the two dates.
MoCA scores file	Baseline MoCA score	"MCATOT"	Integer value corresponding to the score of the participant. Missing values were replaced by the mean value across other participants. This information was not mentioned in code or paper.
GDS score file	Baseline GDS total score	"GDSSATIS", "GSDSDROPD", "GDSEMPY", "GDSBORED", "GDSGSPR", "GDSAFRAD", "GDSHAPPY", "GDSHLPLS", "GDSHOME", "GDSMEMRY", "GDSALIVE", "GDSWRTLS", "GDSENRGY", "GDSHOPLS", "GDSBETER"	We computed the total score by summing all the columns containing "GDS" in the GDS short version study file. Missing values were replaced by the mean value across other participants.

Table 1. Demographics and clinical features set as input for the machine learning models. For baseline MDS-UPDRS scores included for prediction at 1 year, 2 years and 4 years, see section Outcome measurement.

Experiments	Cohort	Image preprocessing	ALFF/ReHo computation	Selection of input features	Workflow name
Reproduction	Closest-to-paper: n=82	Reproduction with AFNI segmentation	Z-score	All	Reproduction pipeline closest-to-original cohort
Variations of cohorts	Ours: n=102	Reproduction with AFNI segmentation	Z-score	All	Reproduction pipeline replication cohort
Variations of image pre-processing	Closest-to-paper: n=82	Reproduction with FSL segmentation	Z-score	All	Reproduction pipeline FSL segmentation
	Closest-to-paper: n=82	Reproduction without anatomic priors	Z-score	All	Reproduction pipeline no anatomic priors
	Closest-to-paper: n=82	fMRIPrep pipeline	Z-score	All	fMRIPrep pipeline
Variations of image feature processing	Closest-to-paper: n=82	Reproduction with AFNI segmentation	Not z-scored images	All	Reproduction pipeline no z-score
	Closest-to-paper: n=82	Reproduction with AFNI segmentation	ALFF instead of fALFF, Z-score	All	Reproduction pipeline ALFF
Variations of sets of input features	Closest-to-paper: n=82	Reproduction with AFNI segmentation	Z-score	No dominant disease side	Reproduction pipeline no domside
	Closest-to-paper: n=82	Reproduction with AFNI segmentation	Z-score	No baseline UPDRS	Reproduction pipeline no UPDRS
	Closest-to-paper: n=82	Reproduction with AFNI segmentation	Z-score	Only imaging features	Reproduction pipeline only imaging features
	Closest-to-paper: n=82	/	Z-score	No imaging features	No imaging features

Table 2. Terminology of the experiments in the current paper. Blue text denotes cohort or analysis variations that are closest to the original study, green text indicates variations due to unknown information, while red text indicates variations that are less similar to the original study.