Test-Retest data for the assessment of breast MRI radiomic feature repeatability

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Supplementary materials explanation and abbreviations

BFC = Bias Field Correction DYN = T1-weighted images VISTA = T2-weigthed images ADC = ADC maps

The dotted black line in all scatterplots represent the CCC cut off value (CCC>0.90).

Table S1 - acquisition parameters

	RT	ТЕ	ST	FA	WFS	ETL	PS	AM	NoS
T2W	2000	223	2	90	0.28	95	0.79 x 0,79	340, 339	220
T1W	5.30	3.0	2	10	0.39	38	0.36 x 0.36	453, 450	170
DWI	10765	88	3	90	9.46	61	1.01 x 1.01	151, 146	150

Abbreviations: RT, repetition time; TE, echo time; ST, slice thickness; FA, flip angle; WFS, water-fat shift; ETL, echo train-length; PS, pixel spacing; AM, acquisition matrix; NoS, number of slices; T2W, T2-weighted; T1W, T1-weighted; DWI, diffusion-weighted image.

Table S2 - Concordant features across all pairs for the bias field corrected T1-weighted MRI exams, with A: no further pre-processing, B: 32-bin grayscale discretization, C: 64-bin grayscale discretization, D: Z-score normalization, E: Z-score normalization + 32-bin grayscale discretization, and F: Z-score normalization + 64-bin grayscale discretization

	Α	В	С	D	Ε	F
	8	10	8	4	10	8
Number of concordant features	(8.8%)	(11.0%)	(8.8%)	(4.4%)	(11.0%)	(8.8%)
firstorder_Skewness	Х	Х	Х	Х	Х	Х
firstorder_Uniformity		Х	х		х	х
glrlm_GrayLevelNonUniformity	Х	Х	х		х	х
glrlm_GrayLevelNonUniformityNormalized		Х	х		х	х
glrlm_RunLengthNonUniformity	Х		х			х
glszm_GrayLevelNonUniformity	Х		х	х		
glszm_LargeAreaHighGrayLevelEmphasis		Х			х	
glszm_SizeZoneNonUniformity	Х			х		
gldm_DependenceEntropy		Х			х	
gldm_DependenceNonUniformity	Х	Х			Х	
gldm_GrayLevelNonUniformity	Х	Х		х	Х	Х
ngtdm_Busyness		Х	х		Х	х
ngtdm_Coarseness	х	Х	х		Х	х

	Α	В	С	D	Ε	D
	0	2	1	26	6	5
Number of stable features	(0.0%)	(2.2%)	(1.1%)	(28.6%)	(6.6%)	(5.5%)
firstorder_10Percentile				Х	Х	Х
firstorder_InterquartileRange				Х	х	х
firstorder_Kurtosis			х			
firstorder_MeanAbsoluteDeviation				Х	х	х
firstorder_RobustMeanAbsoluteDeviation				Х	х	х
glcm_Contrast				Х		
glcm_DifferenceAverage				Х		
glcm_DifferenceEntropy				Х		
glcm_DifferenceVariance				Х		
glcm_JointEntropy				Х		
glcm_Idm				Х		
glcm_Idmn				Х		
glcm_Id				Х		
glcm_Idn				Х		
glcm_InverseVariance				Х		
glcm_SumEntropy				Х		
glrlm_GrayLevelNonUniformity		Х	х		Х	Х
glrlm_RunPercentage				Х		
glrlm_RunVariance				Х		
gldm_DependenceEntropy				Х		
gldm_DependenceNonUniformity				Х		
gldm_DependenceNonUniformityNormalized				Х		
gldm_DependenceVariance				Х		
gldm_GrayLevelNonUniformity				Х		
gldm_LargeDependenceEmphasis				Х		
gldm_SmallDependenceEmphasis				Х		
gldm_SmallDependenceHighGrayLevelEmphasis				Х		
gldm_SmallDependenceLowGrayLevelEmphasis		Х			Х	
ngtdm_Complexity				Х		

Table S3 - Concordant features across all pairs for the bias field corrected T2-weighted MRI exams, with A: no further pre-processing, B: 32-bin grayscale discretization, C: 64-bin grayscale discretization, D: Z-score normalization, E: Z-score normalization + 32-bin grayscale discretization, and F: Z-score normalization + 64-bin grayscale discretization.

Figure S1 - T1-weighted images with and without BFC without further image pre-processing: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

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Date 1Date 2All

DYN

Figure S2 - T1-weighted images with and without BFC with 32-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

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Figure S3 - T1-weighted images with and without BFC with 32-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

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Date 1Date 2All

Figure S4 - T1-weighted images with and without BFC with z-score normalization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

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Figure S5 - T1-weighted images with and without BFC with z-score normalization and 32-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

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			-glcm_MaximumProbability
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		0000000000	-glcm_JointEnergy
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			-gicm_InverseVariance
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			-gicm_lmc1
			-gicm_ldn
		0 0 00000000000000000000000000000000000	-gicm_ldmn
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			gicin_DifferenceVariance
			gicin_DifferenceEntropy
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		000 0.000000000000000000000000000000000	- firstorder 90Percentile
			- firstorder_90Percentile

Date 1Date 2All

Figure S6 - T1-weighted images with and without BFC with z-score normalization and 64-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

DYN	DYN BFC	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0.000 0000000000000000000000000000000	-ngtdm_Strength
		-ngtdm_Contrast
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		-ngtdm_Coarseness
		-ngtdm_Busyness
		-glszm_ZoneVariance
		-giszm_ZonePercentage
		- giszin_zoneEniropy
		- diszm_SmallAreaHighGravLevelEmphasis
		- dlszm_SmallAreaEmphasis
		-glszm_SizeZoneNonUniformityNormalized
	COMMINICATION 0 00	-glszm_SizeZoneNonUniformity
		-glszm LowGrayLevelZoneEmphasis
		-glszm_LargeAreaLowGrayLevelEmphasis
	do: @@@@@@@	-glszm_LargeAreaHighGrayLevelEmphasis
0.0000000000	o on one of an	-glszm_LargeAreaEmphasis
		-glszm_HighGrayLevelZoneEmphasis
		-glszm_GrayLevelVariance
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		- drim ShortRuni owGravi evelEmphasis
		- alrlm_ShortRunHighGrayLevelEmphasis
		- olrim_ShortRunEmphasis
		-glrlm RunVariance
		-glrlm_RunPercentage
	0 mmm	-glrlm_RunLengthNonUniformityNormalized
		-glrlm_RunLengthNonUniformity
	© 000000000000000000000000000000000000	-glrlm_RunEntropy
		-glrlm_LowGrayLevelRunEmphasis
		girim_LongRunLowGrayLevelEmphasis
		- girim_LongRunHighGrayLevelEmphasis
		- girim_LongKunEmphasis
		- drim_highGrayLevelKunEmphasis
		- glrlm Grayl evelNont InformityNormalized
		- glrlm GrayLevelNonUniformity
		-gldm_SmallDependenceLowGravLevelEmphasi
00 000000000	0 000 000000000	-gldm SmallDependenceHighGrayLevelEmphas
00 (000)	0 @ @@@######	-gldm_SmallDependenceEmphasis
		-gldm_LowGrayLevelEmphasis
		-gldm_LargeDependenceLowGrayLevelEmphasi
		-gldm_LargeDependenceHighGrayLevelEmphas
		- gldm_LargeDependenceEmphasis
		-gldm_HighGrayLevelEmphasis
		- oldm_GravLevelNonLiniformity
		- oldm_DependenceVariance
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	¢ • CC 000	-gldm_DependenceNonUniformity
O (2018)31	0.042339938 200	-gldm_DependenceEntropy
	0 0 0 0000000 0000000000	-glcm_SumSquares
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		-glcm_MaximumProbability
		- gicm_JointEntropy
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		- gicm_DifferenceEntropy
		- alcm DifferenceAverage
		- dcm Correlation
00 00 correction containing the containing of th		- glcm Contrast
		-glcm ClusterTendency
		-glcm_ClusterShade
		-glcm_ClusterProminence
00000	0 @ Operation	-glcm_Autocorrelation
		-firstorder_Variance
		- firstorder_Uniformity
	0 C101300-03-0000	- firstorder_lotalEnergy
		- firstorder_Skewness
		-firstorder_RobustMeanAbsoluteDeviation
		-firstorder Range
		- firstorder Minimum
0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	- firstorder Median
	Comment Associate	- firstorder_MeanAbsoluteDeviation
0.0000000000000000000000000000000000000	C 2311 COLO	- firstorder_Mean
	0 0000 0000	- firstorder_Maximum
(D) (D) (D) (D) (D) (D)	0.00 00100100100	- firstorder_Kurtosis
0 0000 000 000 000 000 000 000 000 000	000020	-firstorder_InterquartileRange
	Cobernera	-tirstorder_Entropy
	0 0.0000	- Tirstorder_Energy
		-firstordor 00Porcontils
		- firstorder_90Percentile

Figure S7 - T2-weighted images with and without BFC without further pre-processing: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

ISTA	VISTA BFC	
		- ngtdm_Strength
		-ngtdm Complexity
0 0000000000 00	0 0	-ngtdm_Coarseness
		- ngtdm_Busyness
		- alszm ZonePercentage
	000 000 000 0000 0000 0000 0000 0000 0000	-glszm_ZoneEntropy
		-glszm_SmallAreaLowGrayLevelEmphasis
		-giszm_SmallAreaHighGrayLevelEmphasis
000000000		-glszm_SizeZoneNonUniformityNormalized
Construction and Construction	0 000000 00000 0 0 0 00000 0	glszm_SizeZoneNonUniformity
		-glszm_LowGrayLevelZoneEmphasis
OCEDERATIO		-glszm_LargeAreaHighGrayLevelEmphasis
		-glszm_LargeAreaEmphasis
		-glszm_HighGrayLevelZoneEmphasis
	0 000 0000 0000	-glszm_GrayLevelNonUniformityNormalized
00 00 00		glszm_GrayLevelNonUniformity
		-glrIm_ShortRunLowGrayLevelEmphasis
		-glrlm_ShortRunEmphasis
		-glrlm_RunVariance
		-glrlm_RunPercentage
0		-glrlm_RunLengthNonUniformity
0 000000		-glrlm_RunEntropy
		- girim_LowGrayLevelRunEmphasis
		-glrlm LongRunHighGravLevelEmphasis
		-glrlm_LongRunEmphasis
		-glrIm_HighGrayLevelRunEmphasis
		-glrlm GrayLevelVariance
		-glrlm_GrayLevelNonUniformity
		-gldm_SmallDependenceLowGrayLevelEmpha
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		-gldm_LowGrayLevelEmphasis
		-gldm_LargeDependenceLowGrayLevelEmpha
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o @::da::easian		-gldm_GrayLevelVariance
		-gldm_GrayLevelNonUniformity
a d		-gldm DependenceVonUniformityNormalized
(C++)+(-)+(+)+(+)+(+)+(+)+(+)+(+)+(+)+(+)+		-gldm_DependenceNonUniformity
		-gldm_DependenceEntropy
		-glcm SumEntropy
		-glcm_MaximumProbability
		-gicm_JointEntropy -gicm_lointEnergy
CONDEMN		-glcm JointAverage
0 00 00 00 00 00 00 00 00 00 00 00 00 0		-glcm_InverseVariance
		-glcm_lmc2
	©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©	- alcm Idn
		-glcm_ldmn
		- glcm_ldm
		-glcm DifferenceVariance
		-glcm_DifferenceEntropy
		-glcm_DifferenceAverage
		- alcm Contrast
0 000 6400 10000		-glcm_ClusterTendency
		-glcm_ClusterShade
		- gicm_ClusterProminence
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		-firstorder_lotalEnergy
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		- firstorder_Range
0.0 00000000000000000000000000000000000		-firstorder Median
000		-firstorder_MeanAbsoluteDeviation
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00		-firstorder_InterquartileRange
	000000 000000	-firstorder_Entropy
0.0.0000000		- firstorder_Energy
		- firstorder 10Percentile

Figure S8 - T2-weighted images with and without BFC with 32-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

VISTA	VISTA BFC	
	0 (8:80 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-ngtdm_Strength
		- ngtdm_Contrast
		- ngtdm_Complexity
	0.0000000 0 0.0000000	-ngtdm Busyness
		-glszm_ZoneVariance
		-glszm_ZonePercentage
		glszm_ZoneEntropy
		- glszm_SmallAreaHighGravLevelEmphasis
- o coo b a o a con com a manana a manana accana a con ca co co co co co co		-glszm SmallAreaEmphasis
		-glszm_SizeZoneNonUniformityNormalized
		glszm_SizeZoneNonUniformity
		- giszm_LowGrayLevelZoneEmphasis
	00 0000 0000	- glszm LargeAreaHighGravLevelEmphasis
		glszm LargeAreaEmphasis
		-glszm_HighGrayLevelZoneEmphasis
		- glszm_GrayLevelVariance
		- giszm_GrayLevelNonUniformity
		- glrlm ShortRunLowGravLevelEmphasis
		-glrlm_ShortRunHighGrayLevelEmphasis
		-glrlm_ShortRunEmphasis
		- girim_RunVariance
		- glrlm_RunLengthNonUniformityNormalized
		- glrlm RunLengthNonUniformity
	0 0 00.00.00.00.00.00.00.00.00.00.00.00.	-glrlm_RunEntropy
		glrlm_LowGrayLevelRunEmphasis
		- girim_LongKunLowGrayLevelEmphasis
		- glrlm LongRunEmphasis
		-glrlm_HighGrayLevelRunEmphasis
0 000 000000000000000000000000000000000		-glrlm_GrayLevelVariance
		- glrlm_GrayLevelNonUniformityNormalized
		- gldm_GrayLeveiNonOniformity
		- gldm SmallDependenceHighGravLevelEmphasis
		-gldm_SmallDependenceEmphasis
		-gldm_LowGrayLevelEmphasis
		- gldm_LargeDependenceLowGrayLevelEmphasis
		- gldm_LargeDependenceFinghGrayLeveiEmphasis
- co cana co		-gldm HighGrayLevelEmphasis
		-gldm_GrayLevelVariance
		-gldm_GrayLevelNonUniformity
		- gldm_DependenceVariance
		- aldm DependenceNonUniformity
		-gldm_DependenceEntropy
		-glcm_SumSquares
		- glcm_SumEntropy
		- glcm_JointEntropy
		- glcm_JointEnergy
		-glcm_JointAverage
		- glcm_InverseVariance
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000 00000000000000000000000000000000000		- glcm_ldmn
		-glcm_ldm
		- gicm_ld
		- alcm_DifferenceEntropy
		-glcm_DifferenceAverage
	© 00 0 000 000 000 000 000 000 000 000	-glcm_Correlation
		-glcm_Contrast
		- gicrn_Cluster Lendency
		- glcm_ClusterProminence
		- glcm Autocorrelation
o and the second		-firstorder_Variance
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		- firstorder_lotalEnergy
		- firstorder_BootMeanSquared
		-firstorder_RobustMeanAbsoluteDeviation
		-firstorder_Range
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		- firstorder_Median
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con deserves		-firstorder_Maximum
	0.000000	-firstorder_Kurtosis
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00000		-firstorder 90Percentile
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0.0 0.2 0.4 0.6 0.8 1.0	0.0 0.2 0.4 0.6 0.8 1.0	
CCC	CCC	

Date 1Date 2All

Figure S9 - T2-weighted images with and without BFC with 64-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

VISTA VISTA BFC ngtdm_Strength ngtdm_Contrast ngtdm_Complexity n n n notdm Coarseness ngtdm_Busyness glszm_ZoneVariance glszm_ZonePercentage glszm_ZoneEntropy glszm_SmallAreaLowGrayLevelEmphasis 00 0 glszm_SmallAreaHighGrayLevelEmphasis glszm_SmallAreaEmphasis താറത്ത് താത്തി ao co oo co canao co 0 glszm_SizeZoneNonUniformityNormalized glszm_SizeZoneNonUniformity 000 00 -0 0 00 00 00 00 0 glszm_LowGrayLevelZoneEmphasis glszm_LargeAreaLowGrayLevelEmphasis glszm_LargeAreaHighGrayLevelEmphasis 10000000 CCD @ 0 glszm_LargeAreaEmphasis glszm_HighGrayLevelZoneEmphasis 0000000000000 മാരം റമാഷ്ട glszm_GrayLevelVariance glszm_GrayLevelNonUniformityNormalized 0000 00000 0 glszm_GrayLevelNonUniformityNonMaliz glszm_GrayLevelNonUniformity glrlm_ShortRunLowGrayLevelEmphasis 0 00 0 000 000 glrlm_ShortRunHighGrayLevelEmphasis glrlm_ShortRunEmphasis glrlm_RunVariance 0 00 00 00 glrlm_RunPercentage glrlm_RunLengthNonUniformityNormalized 000 000 glrlm_RunLengthNonUniformity glrlm_RunEntropy **an con a** or glrlm_LowGrayLevelRunEmphasis glrlm_LongRunLowGrayLevelEmphasis glrlm_LongRunHighGrayLevelEmphasis 00000 0 0 0000 0 00 00000 00 00 glrlm_LongRunEmphasis glrlm_HighGrayLevelRunEmphasis glrlm_GrayLevelVariance glrlm_GrayLevelNonUniformityNormalized 000 00 000 080 0 00 0 00 000 0.000 glrlm_GrayLevelNonUniformity gldm_SmallDependenceLowGrayLevelEmphasis gldm_SmallDependenceHighGrayLevelEmphasis 00 0 gldm_SmallDependenceEmphasis gldm LowGrayLevelEmphasis gldm_LargeDependenceLowGrayLevelEmphasis gldm_LargeDependenceHighGrayLevelEmphasis 000 0 0 gldm_LargeDependenceEmphasis 000 gldm_HighGrayLevelEmphasis gldm_GrayLevelVariance 0 0000 gldm_GrayLevelNonUniformity o gldm_DependenceVariance gldm_DependenceNonUniformityNormalized · • • • • • gldm_DependenceEntropy gldm_DependenceEntropy glcm_SumSquares glcm_SumEntropy glcm_MaximumProbability 000000000 0000000000000 ന നോ നോ ന da 1000 co o ano a**nno**ce an glcm_JointEntropy glcm_JointEnergy glcm_JointAverage 0 000 0 **......................** glcm_InverseVariance glcm_Imc2 glcm_Imc1 00 glcm_ldn glcm_ldmn o a coccara a glcm_ldm glcm_ld glcm_DifferenceVariance glcm_DifferenceEntropy glcm_DifferenceAverage glcm_Correlation glcm_Contrast glcm_ClusterTendency glcm_ClusterShade glcm_ClusterProminence glcm_Autocorrelation **~~~~** 00 firstorder_Variance firstorder_Uniformity firstorder_TotalEnergy firstorder_Skewness firstorder_RootMeanSquared firstorder_RobustMeanSpaced mode 00 00 0 0 00 firstorder_RobustMeanAbsoluteDeviation firstorder_Range firstorder_Minimum firstorder_Median firstorder_MeanAbsoluteDeviation firstorder_Mean firstorder_Mean mm m firstorder Kurtosis firstorder_InterquartileRange - firstorder_Entropy - firstorder_Energy - firstorder_90Percentile - firstorder_10Percentile

0.0 0.2 0.4 0.6 0.8 1.0 0.0 0.2 0.4 0.6 0.8 1.0 ccc CCC

 Date 1 Date 2 • All

Feature

Figure S10 - T2-weighted images with and without BFC with z-score normalization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2



Figure S11 - T2-weighted images with and without BFC with z-score normalization and 32-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

STA		VISTA BFC		
			0 0 0 0 0 0 0 0	- ngtdm_Strength
				- ngtdm_Contrast
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				-glszm_ZonePercentage
				-glszm_ZoneEntropy
		0 0 0 0 0 0 0 0		-glszm_SmallAreaLowGrayLevelEmphasis
				- alszm_SizeZoneNonUniformityNormalized
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				- giszm_HignGrayLeveiZoneEmphasis
				- diszm_Grayl evel Non InformityNormalize
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				-glrlm ShortRunLowGrayLevelEmphasis
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	00000 000000000000000000000000000000000			-glrlm_ShortRunEmphasis
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				- girlm_RunPercentage
000		0.00		- girini_KuriLengtriNonUniformityNormalize
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				- glrlm LowGravLevelRunFmphasis
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oxo o coo coo o		0 0 0 0 0		-glrlm_LongRunEmphasis
0 000 0 000000 0 000 0 0		000 000 000 000 0		-glrlm_HighGrayLevelRunEmphasis
				-glrlm_GrayLevelVariance
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				-gldm SmallDependenceEmphasis
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		• • •		-gldm_LargeDependenceEmphasis
				- gldm_HighGrayLevelEmphasis
				- aldm GrayLevelVariance
0 0		0 00 00 0		-gldm DependenceVariance
0 0 000 0 000 00				-gldm_DependenceNonUniformityNormaliz
			0.00	-gldm_DependenceNonUniformity
0 00000000				gldm_DependenceEntropy
				- glcm_SumSquares
000000		0 000 000		- dcm_MaximumProbability
	0 0 0 00000 00000000000000000000000000			- alcm_lointEntropy
0 00 00 00 00 00 00 00 00 00 00 00 00 0		0000 0000		-glcm JointEnergy
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		000000		-glcm_InverseVariance
	0		0 3 00000000000000000000000000000000000	-glcm_lmc2
		0 0		- gicm_imc1
				- gicm_idmp
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				- alcm Id
		000		- glcm DifferenceVariance
				-glcm_DifferenceEntropy
				-glcm_DifferenceAverage
				-glcm_Correlation
				-glcm_Contrast
				-gicm_ClusterTendency
				- gicm_ClusterShade
an oooooan aooooa				- alcm_Autocorrelation
			de esta	-firstorder Variance
0 0 0 0 00				- firstorder Uniformity
	00 00000000		0 0000000000000000000000000000000000000	-firstorder_TotalEnergy
				-firstorder_Skewness
			0 0 00000000000000000000000000000000000	-firstorder_RootMeanSquared
				-tirstorder_RobustMeanAbsoluteDeviation
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				- firstorder_Winfimum
				-firstorder MeanAbsoluteDeviation
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o accoaco o acca		000 0		-firstorder Maximum
	000 0 00 00 00 000000000000000000000000	•	0.0	- firstorder_Kurtosis
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			0 (000000000000000000000000000000000000	-tirstorder_Energy
				a transfordor HUHOroophilo
				-firstorder_10Dereactile

Figure S12 - T2-weighted images with and without BFC with z-score normalization and 64-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

VISTA		VISTA BFC	
			- ngtdm_Strength
0 0000000000000000000000000000000000000			-ngtdm_Contrast -ngtdm_Complexity
• 0.000 for	n co	0	-ngtdm_Coarseness
			- ngtdm_Busyness - glszm_ZopeVariance
0 (00) (00) (00) (00) (00) (00) (00) (0			-glszm_ZonePercentage
			-glszm_ZoneEntropy
	0		-glszm SmallAreaHighGrayLevelEmphasis
	0000		-glszm_SmallAreaEmphasis
	00		-glszm_SizeZoneNonUniformityNormalized
	00000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-glszm_LowGrayLevelZoneEmphasis
			-glszm_LargeAreaLowGrayLevelEmphasis
	0		-glszm LargeAreaEmphasis
			-glszm_HighGrayLevelZoneEmphasis
	D 300		-glszm_GrayLevelVariance -glszm_GrayLevelNonUniformityNormalized
			-glszm_GrayLevelNonUniformity
	000		-glrlm_ShortRunLowGrayLevelEmphasis
			-glrlm ShortRunEmphasis
	0000		-glrlm_RunVariance
			- glrlm_RunPercentage
0000000 000 000 000 000 000 000 000 00		0 00 00 0 0 0 0 00 0 00 0 00 0 0 000	-glrlm_RunLengthNonUniformity
	CONTROL		-glrlm_RunEntropy
			-girim_LowGrayLeveiKunEmphasis -girim_LongRunLowGravLevelEmphasis
			-glrlm_LongRunHighGrayLevelEmphasis
			-glrlm_LongRunEmphasis
	10000		-glrlm GrayLevelVariance
		0 000000000 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-glrlm_GrayLevelNonUniformityNormalized
00000000		00000	-glrlm_GrayLevelNonUniformity
			-gldm_SmallDependenceHighGrayLevelEmphasis
0 0 0 minimutes and	00000	0 0000 00000000000000000000000000000000	-gldm_SmallDependenceEmphasis
			-gldm_LowGrayLevelEmphasis
	n 30 m - 03		-gldm_LargeDependenceHighGrayLevelEmphasi
			-gldm_LargeDependenceEmphasis
			- dldm GravLevelVariance
	0.000	0 00000 0 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-gldm_GrayLevelNonUniformity
			-gldm_DependenceVariance
			-gldm DependenceNonUniformity
			-gldm_DependenceEntropy
			- gicm_SumSquares
	00 00		-glcm_MaximumProbability
			-glcm_JointEntropy
	000		- glcm_JointAverage
0.0 01000000000000000000000000000000000			-glcm_InverseVariance
			- glcm_lmc2
• @ @@@################################			-glcm_ldn
0000 0000000000000000000000000000000000			-glcm_ldmn
			- glcm ld
0 COD 000000 000000000000000000000000000	0000		-glcm_DifferenceVariance
			- glcm_DifferenceEntropy
000 00000000000000000000000000000000000		000000000000000000000000000000000000000	-glcm Correlation
			-glcm_Contrast
			-glcm_ClusterTendency
	a no		-glcm_ClusterProminence
	D CD		-glcm_Autocorrelation
	0000		- firstorder_Variance
• 0 apres		0 000 100 100	-firstorder_TotalEnergy
			- firstorder_Skewness
			-firstorder_RobustMeanAbsoluteDeviation
			firstorder_Range
			-firstorder_Minimum
0 ¢ 0			-firstorder_MeanAbsoluteDeviation
			firstorder_Mean
			-firstorder_Maximum
00	00000		-firstorder_InterquartileRange
	000		- firstorder_Entropy
			-firstorder_Energy -firstorder_90Percentile
			-firstorder_10Percentile
0.0 0.2 0.4 0.6 0.8 CCC	1.0	0.0 0.2 0.4 0.6 0.8 1.0 ccc	

Figure S13 - ADC maps with and without BFC without further pre-processing: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

ADO	0	ADC BFC	
			-ngtdm_Strength
			- ngtdm_Contrast
			- ngtdm_Complexity
			- ngtdm_Busyness
	0 00 00 00 00 00 00 00 00 00 00 00 00 0		-glszm_ZoneVariance
			-glszm_ZonePercentage
			- glszm_ZoneEntropy
	00 000		- glszm SmallAreaHighGravLevelEmphasis
			-glszm_SmallAreaEmphasis
			-glszm_SizeZoneNonUniformityNormalized
			- glszm_LowGravLevelZoneEmphasis
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		-glszm_LargeAreaLowGrayLevelEmphasis
			-glszm_LargeAreaHighGrayLevelEmphasis
			- glszm_LargeAreaEmphasis
			-glszm_GrayLevelVariance
	0 000000 000000000000000000000000000000		-glszm_GrayLevelNonUniformityNormalized
			- glszm_GrayLevelNonUniformity
	an oa an		- glrlm_ShortRunHighGravLevelEmphasis
			-glrlm_ShortRunEmphasis
			- glrlm_RunVariance
			-glrim_RunPercentage
			-glrlm_RunLengthNonUniformity
	0 (0.101000) (0.000)		-glrlm_RunEntropy
			- girim_LowGrayLevelRunEmphasis
			-glrlm LongRunHighGrayLevelEmphasis
			-glrlm_LongRunEmphasis
			- glrlm_HighGrayLevelRunEmphasis
			- glrlm_GrayLevelVanance
	0 (000	ជុំឈុ ខ រ	-glrlm_GrayLevelNonUniformity
			-gldm_SmallDependenceLowGrayLevelEmphasis
			- gldm_SmallDependenceEmphasis
			-gldm_LowGrayLevelEmphasis
			-gldm_LargeDependenceLowGrayLevelEmphasis
			- gldm_LargeDependenceEmphasis
are	COO @ @000_0000_00		-gldm_HighGrayLevelEmphasis
eati			- gldm_GrayLevelVariance
ш			- gldm_DependenceVariance
			-gldm_DependenceNonUniformityNormalized
		1	- gldm_DependenceNonUniformity
	0 (02:00-00-00-00-00-00-00-00-00-00-00-00-00-		- glcm SumSquares
	00 00 000 (000 000 000 000 000 000 000		-glcm_SumEntropy
			- glcm_MaximumProbability
			- alcm JointEnergy
	CO COMPLETE CONTRACTOR CONTRACTON		-glcm_JointAverage
			- glcm_InverseVariance
	000000	()0.000	- gicm_inc2
			-glcm_ldn
			-glcm_ldmn
			- alcm Id
			-glcm_DifferenceVariance
			-glcm_DifferenceEntropy
			- alcm Correlation
			-glcm_Contrast
			-glcm_ClusterTendency
			-glcm_ClusterShade -glcm_ClusterProminence
			-glcm_Autocorrelation
	0. 000000000000000000000000000000000000		-firstorder_Variance
			- firstorder_Uniformity
		CONCERNING CONTRACTOR OF CONTR	-firstorder_Skewness
	0. 000000000000000000000000000000000000		-firstorder_RootMeanSquared
			-firstorder_KobustMeanAbsoluteDeviation
			-firstorder_Minimum
	0 000 (0.000 (0.000 (0.000))		firstorder_Median
			-firstorder_MeanAbsoluteDeviation
			-firstorder_Maximum
	00 00133 d 8 20 - 001	0000 0000 0000 0000 0000 0000 0000 0000 0000	-firstorder_Kurtosis
			-tirstorder_InterquartileRange
			-firstorder_Energy
			- firstorder_90Percentile
			-Tirstorder_10Percentile
0.0	CCC 0.4 0.6 0.8 1.	0.00 0.2 0.4 0.6 0.8 1.0 CCC	

Figure S14 - ADC maps with and without BFC with 32-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

ADC .			ADC BFC	
				-ngtdm_Strength
				- ngtdm_Contrast
0 00 00		0 0		- ngtdm_Complexity
	000			-ngtdm_Coarseness
				-glszm ZoneVariance
		000 0		-glszm_ZonePercentage
				glszm_ZoneEntropy
				- glszm_SmallAreaLowGrayLevelEmphasis
0 0000000000		0 0	0 0 000 00000 00 00 000 0000 0000 0000 0000	- olszm SmallAreaEmphasis
o o o co c		D O		-glszm_SizeZoneNonUniformityNormalized
				-glszm_SizeZoneNonUniformity
		DDO		-glszm_LowGrayLevelZoneEmphasis
		000000		- diszm LargeAreaHighGravLevelEmphasis
				- alszm LargeAreaEmphasis
		00000		-glszm_HighGrayLevelZoneEmphasis
00 00		000		-glszm_GrayLevelVariance
				-glszm_GrayLevelNonUniformityNormalized
	an a			- drlm_ShortRunl.owGravl.evelEmphasis
				- glrlm_ShortRunHighGravLevelEmphasis
				-glrlm_ShortRunEmphasis
0 0 0 0 000 000 000000000		00000		-glrlm_RunVariance
				-girim_RunPercentage
				-girim_kuriLengthNonUniformityNormalized
	0 0 00 00 00 00 00 00 00 00 00 00 00 00			-alrim RunEntropy
	@ @D 0 0000000		00 000000000000000000000000000000000000	-glrlm_LowGrayLevelRunEmphasis
		0.000		glrlm_LongRunLowGrayLevelEmphasis
				-glrim_LongRunHighGrayLevelEmphasis
				- girim_LongKunEmphasis
				- drlm GravLevelVariance
	0 0 0000 000000000000000000000000000000			-glrlm GrayLevelNonUniformityNormalized
			000	-glrlm_GrayLevelNonUniformity
				-gldm_SmallDependenceLowGrayLevelEmphas
				-gldm_SmallDependenceHighGrayLevelEmpha
				- gldm_SmallDependenceEmphasis
				- aldm LargeDependencel owGravLevelEmpha
	o a cao a ana ana ana ana ana ana ana ana ana		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-gldm LargeDependenceHighGrayLevelEmpha
0 00 000		0 000000		-gldm_LargeDependenceEmphasis
				-gldm_HighGrayLevelEmphasis
				- gldm_GrayLevelVariance
0 0 00 0 0000				- gldm_GrayLeveiNonOniformity
				- aldm DependenceVariance
	00	0.000		-gldm_DependenceNonUniformity
	0.000.000	()() () () () () () () () () () () () ()		-gldm_DependenceEntropy
				- glcm_SumSquares
				- dcm_MaximumProbability
				- glcm JointEntropy
0 0 00				-glcm_JointEnergy
	0 0000000000000000000000000000000000000			-glcm_JointAverage
				- gicm_inverse variance
				- alcm_lmc1
		00		- alcm Idn
0 00		0		-glcm_ldmn
		000 00		-glcm_ldm
0 000 0000000				- gicm_la
0		0 0000		- alcm DifferenceEntropy
		00 00		-glcm_DifferenceAverage
			(100.000	-glcm_Correlation
0 00 00		0		-glcm_Contrast
				- giom_Cluster Lendency
				- alcm ClusterProminence
				-glcm Autocorrelation
	0 00000		00 0 0 00000000000000000000000000000000	-firstorder_Variance
				-firstorder_Uniformity
	0.000 000			-tirstorder_TotalEnergy
	0 00000000			-firstorder_BootMeanSquared
	00.0 (00)			-firstorder_RobustMeanAbsoluteDeviation
α		• •		-firstorder_Range
				-firstorder_Minimum
	0 000 0000			- firstorder_Median
				- Tirstorder_MeanAbsoluteDeviation
		• •		-firstorder_Iviean
				-firstorder Kurtosis
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		O CITE O CREETING INCOME	-firstorder_InterquartileRange
				-firstorder Entropy
				instoldel_Entropy
	0 00 00 00 00 00 00 00 00 00 00 00 00 0			- firstorder_Energy
				-firstorder_Energy -firstorder_90Percentile

Figure S15 - ADC maps with and without BFC with 64-bin grayscale discretization: scatterplots of pairwise CCC values for all features wherein orange represents the use of all pairwise comparisons, blue represents the pairwise comparisons between MRI exams scanned on Date 1 and green represent the pairwise comparisons between MRI exams scanned on Date 2

		ADC BFC	
	000 00 00000000000000000000000000000000	0 00 0000 0000 0000 0000 0000 0000 0000 0000	-natdm Strenath
			-ngtdm Contrast
			-ngtdm Complexity
	ф		-ngtdm Coarseness
		0 0000000	- ngtdm Busyness
			-glszm ZoneVariance
			-glszm_ZonePercentage
		0.0000000000000000000000000000000000000	-glszm ZoneEntropy
	0 0 00000 00000000000000000000000000000		-glszm_SmallAreaLowGrayLevelEmphasis
			-glszm SmallAreaHighGrayLevelEmphasis
			-glszm_SmallAreaEmphasis
			-glszm_SizeZoneNonUniformityNormalized
	00 000331 0 3180	0 000000000	glszm_SizeZoneNonUniformity
		0 0000 0000 000000000000000000000000000	glszm LowGrayLevelZoneEmphasis
			glszm LargeAreaLowGrayLevelEmphasis
0000			glszm LargeAreaHighGrayLevelEmphasis
			glszm LargeAreaEmphasis
		COMMUNICATION CONTRACTOR CONT	-glszm HighGrayLevelZoneEmphasis
			glszm_GrayLevelVariance
	0 0000000000000000000000000000000000000		glszm_GrayLevelNonUniformityNormalized
		•	-glszm_GrayLevelNonUniformity
		0.0000000000000000000000000000000000000	-glrlm_ShortRunLowGrayLevelEmphasis
		0 m 0 m o monthem features and a monthem feat	-glrlm_ShortRunHighGrayLevelEmphasis
			-glrlm_ShortRunEmphasis
0 000			-glrlm_RunVariance
			-glrlm_RunPercentage
		0 00 00000 00 000000000000000000000000	-glrlm_RunLengthNonUniformityNormalized
			-glrlm_RunLengthNonUniformity
			-glrlm_RunEntropy
		0.00.0000000000000000000000000000000000	-glrlm_LowGrayLevelRunEmphasis
			-glrlm_LongRunLowGrayLevelEmphasis
			-glrlm_LongRunHighGrayLevelEmphasis
			-glrlm_LongRunEmphasis
			-glrlm_HighGrayLevelRunEmphasis
			-glrlm_GrayLevelVariance
			-glrlm_GrayLevelNonUniformityNormalized
	(DX)22(000)	033 338	-glrlm_GrayLevelNonUniformity
	0.00 00 00 00 0000000000000000000000000		-gldm_SmallDependenceLowGrayLevelEmphas
			-gldm_SmallDependenceHighGrayLevelEmpha
			-gldm_SmallDependenceEmphasis
			-gldm_LowGrayLevelEmphasis
			-gldm_LargeDependenceLowGrayLevelEmpha
			-gldm_LargeDependenceHighGrayLevelEmpha
			-gldm_LargeDependenceEmphasis
			-gldm_HighGrayLevelEmphasis
			-gldm_GrayLevelVariance
	000 000 000 000	00.000000000000000000000000000000000000	-gldm_GrayLevelNonUniformity
			-gldm_DependenceVariance
			-gldm_DependenceNonUniformityNormalized
	000000000000000000000000000000000000000	φ.C.m.m.	-gldm_DependenceNonUniformity
			gldm_DependenceEntropy
			-glcm_SumSquares
			-glcm_SumEntropy
			-glcm_MaximumProbability
			-glcm_JointEntropy
			-glcm_JointEnergy
			-glcm_JointAverage
			-glcm_InverseVariance
	0		- gicm_lmc2
	CONTRACTOR		- gicm_imc1
			-gicm_ldn
			- giom_idm
			- gioni_idm
			- gioni_ia
			gichi_DifferenceVariance
			gichi_DifferenceAverage
			gicin_DifferenceAverage
			- gion_Contract
			- alom_ClusterTondonov
			- alom ClusterShade
			- dem ClusterProminence
			-gicm_ClusterProminence
			-firstordor Varianco
			-firstorder_Variance
			-firstorder_OfficialEnergy
			-firstorder_Skewness
			-firstorder_BootMeanSquared
			-firstorder_RobustMeanAbsoluteDeviation
			-firstorder Range
			-firstorder Minimum
	0 000 000000000000000000000000000000000		-firstorder_Median
	00 00 00 00 00 00 00 00 00 00 00 00 00		- firstorder_MeanAbsoluteDeviation
			-firstorder Mean
			-firstorder Maximum
			-firstordor Kurtosis
			- firstorder InterguartilePanas
			- firstorder_interquartileRange
			-firstorder_Entropy
			-firstorder_OPercentile
			and the second sec
			-firstorder_10Percentile