

109-dimension domain specific features were extracted. The features were divided into four types, including shape, size, voxel intensity, texture. The detail of this domain specific feature is shown in following table.

Type	Number	Feature
shape	1	original_shape_Flatness
	2	original_shape_Maximum2DDiameterRow
	3	original_shape_MajorAxisLength
	4	original_shape_Maximum2DDiameterColumn
size	5	original_glszm_LargeAreaEmphasis
	6	original_glszm_SizeZoneNonUniformity
	7	original_glszm_SmallAreaEmphasis
	8	original_glszm_LargeAreaHighGrayLevelEmphasis
	9	original_glszm_ZonePercentage
	10	original_glszm_SmallAreaLowGrayLevelEmphasis
voxel intensity	11	square_firstorder_Variance
	12	exponential_firstorder_Kurtosis
	13	wavelet-HHH_firstorder_Uniformity
	14	wavelet-LHH_firstorder_90Percentile
	15	wavelet-HLL_glszm_GrayLevelVariance
	16	wavelet-HHH_firstorder_Energy
	17	wavelet-HLH_firstorder_RobustMeanAbsoluteDeviation
	18	wavelet-LHH_firstorder_MeanAbsoluteDeviation
	19	wavelet-HLH_firstorder_Minimum
	20	wavelet-HHH_firstorder_TotalEnergy
	21	wavelet-HLL_firstorder_90Percentile
	22	wavelet-LHL_firstorder_TotalEnergy
	23	wavelet-HHH_firstorder_Variance
	24	wavelet-HLH_firstorder_InterquartileRange
	25	wavelet-LHH_firstorder_Variance
	26	exponential_firstorder_MeanAbsoluteDeviation
	27	wavelet-HHH_firstorder_Skewness
	28	wavelet-LHL_firstorder_Energy
	29	wavelet-HLH_firstorder_Energy
	30	squareroot_firstorder_Variance
	31	lbp-3D-k_firstorder_Minimum
	32	lbp-3D-k_firstorder_90Percentile
	33	lbp-3D-k_firstorder_Mean
	34	wavelet-LLH_firstorder_Skewness
	35	wavelet-LLL_firstorder_Skewness

texture	36	wavelet-HHL_firstorder_Variance
	37	wavelet-HHL_firstorder_Skewness
	38	wavelet-HLL_firstorder_90Percentile
	39	lbp-3D-m2_firstorder_MeanAbsoluteDeviation
	40	lbp-3D-m1_firstorder_90Percentile
	41	original_glcem_JointEntropy
	42	wavelet-LLH_glcem_Correlation
	43	original_ngtdm_Strength
	44	wavelet-LLH_glszm_SmallAreaLowGrayLevelEmphasis
	45	wavelet-HLH_glszm_SizeZoneNonUniformity
	46	wavelet-HHH_glcem_Imc1
	47	original_gldm_DependenceEntropy
	48	wavelet-LLH_glcem_ClusterTendency
	49	wavelet-LHL_glszm_GrayLevelNonUniformityNormalized
	50	wavelet-LLL_glszm_HighGrayLevelZoneEmphasis
	51	wavelet-LLL_ngtdm_Strength
	52	wavelet-HHH_glcem_SumSquares
	53	wavelet-HLL_glrIm_RunPercentage
	54	wavelet-LLH_glcem_Idmn
	55	wavelet-HLL_glszm_GrayLevelNonUniformityNormalized
	56	wavelet-LHL_glrIm_GrayLevelVariance
	57	wavelet-LLH_glcem_DifferenceEntropy
	58	wavelet-LLH_glcem_MCC
	59	wavelet-HHH_glcem_JointEntropy
	60	wavelet-LLL_firstorder_Skewness
	61	wavelet-LLH_glrIm_ShortRunLowGrayLevelEmphasis
	62	wavelet-HLH_glrIm_LongRunEmphasis
	63	wavelet-LHL_gldm_GrayLevelVariance
	64	wavelet-HHL_glszm_GrayLevelNonUniformityNormalized
	65	wavelet-LLL_glszm_ZoneVariance
	66	lbp-3D-k_glszm_SizeZoneNonUniformityNormalized
	67	wavelet-LHH_glcem_JointEntropy
	68	original_glcem_Imc2
	69	lbp-3D-k_glcem_ClusterProminence

70	original_glcml_SumEntropy
71	wavelet-LLH_glcml_Id
72	wavelet-HLH_glrml_LowGrayLevelRunEmphasis
73	wavelet- HLH_glszm_GrayLevelNonUniformityNormalized
74	wavelet-LLH_glcml_Contrast
75	wavelet-LHL_glszm_LowGrayLevelZoneEmphasis
76	wavelet- LLH_glrml_ShortRunHighGrayLevelEmphasis
77	wavelet-HLH_firstorder_Minimum
78	wavelet- HHH_glrml_GrayLevelNonUniformityNormalized
79	wavelet-HLL_firstorder_TotalEnergy
80	wavelet-LHL_firstorder_Entropy
81	wavelet-LLH_firstorder_Variance
82	wavelet-LHH_firstorder_InterquartileRange
83	wavelet-HLH_glrml_LowGrayLevelRunEmphasis
84	wavelet-LHH_glrml_LongRunEmphasis
85	wavelet-HLL_glrml_RunPercentage
86	wavelet-LLL_glszm_HighGrayLevelZoneEmphasis
87	wavelet- LHL_glrml_ShortRunHighGrayLevelEmphasis
88	wavelet-HHH_gldm_DependenceVariance
89	wavelet- LHL_glszm_HighGrayLevelZoneEmphasis
90	wavelet-HHH_glrml_GrayLevelVariance
91	wavelet-HLH_glcml_ClusterShade
92	wavelet- HLL_glszm_GrayLevelNonUniformityNormalized
93	wavelet-LHL_glrml_GrayLevelVariance
94	wavelet-LLH_glcml_DifferenceEntropy
95	wavelet-LLH_glcml_MCC
96	wavelet-HHH_glcml_JointEntropy
97	wavelet-LLH_glrml_RunLengthNonUniformity
98	wavelet- HHL_glszm_GrayLevelNonUniformityNormalized

99	lbp-3D- k_glszm_SizeZoneNonUniformityNormalized
100	wavelet-LHH_glcmm_JointEntropy
101	original_glcmm_Imc2
102	lbp-3D-k_glcmm_ClusterProminence
103	original_glcmm_SumEntropy
104	wavelet-LLH_glcmm_Idn
105	wavelet-HLH_glrmm_LowGrayLevelRunEmphasis
106	wavelet- HLH_glszm_GrayLevelNonUniformityNormalized
107	wavelet-LLH_glcmm_Contrast
108	wavelet-LHL_glszm_LowGrayLevelZoneEmphasis
109	wavelet- LLH_glrmm_ShortRunHighGrayLevelEmphasis