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10.1148/ryai.2019180012

Table E1: Radiomic feature families extracted from the intratumoral and peritumoral regions

Feature group	Quantity	Description
Laws energy measures	25	Response to 5-pixel × 5-pixel filter targeting combination of specific textural enhancement patterns in the X and Y directions. Descriptors include all combinations of five 1D filters: level (L), edge (E), spot (S), wave (W), and ripple (R).
Laws Laplacian features	25	Laplacian pyramids allow for capture of multi-scale edge representations via a set of bandpass filters. First, the original image is convolved with a Gaussian kernel. The Laplacian is then computed as the difference between the original image and the low-pass-filtered image. The resulting image is then sub-sampled by a factor of 2, and the filter subsample operation is repeated recursively. This process is continued to obtain a set of bandpass-filtered images. Laws Energy filters are then applied to the resulting images to obtain a set of 25 features.
Gabor features	48	Detection of edges through response to Gabor wavelet features. Each descriptor quantifies response to a given Gabor filter at a specific frequency ($f \in \{0, 2, 4, 8, 16,$ or $32\}$) and orientation ($\theta \in \{0, \pi/8, \pi/4, 3\pi/8, \pi/2, 5\pi/8, 3\pi/4, 7\pi/8\}$).
Haralick features	13	Quantify heterogeneity and entropy of local intensity texture as represented by the gray-level co-occurrence matrix within a 5-pixel × 5-pixel window.
Local binary Pattern (LBP)	10	These features summarize the local structure in an image by comparing each pixel with its neighborhood and generating a binary vector related to the intensity of the center pixels. The LBP process results in an 8-bit code-word describing local neighborhood around every pixel.
Histogram of Oriented Gradient (HOG)	20	This feature reflects the frequency of occurrences of intensity gradient orientation in localized image regions. The image is divided into small connected cells and for each cell, the number of occurrences of each gradient direction calculated. The combination of these histograms yields the corresponding HOG features.
Co-occurrence of Local Anisotropic Gradient Orientations (CoLIAGe) features	13	CoLIAGe involves extracting the dominant gradient orientation along the X and Y directions for every pixel via principal component analysis. A co-occurrence matrix is then computed for every pixel within the neighborhood (5 × 5) to capture co-occurring arrangements of the dominant gradient orientations.
3D Shape Features	24	convexity, width, height, depth, perimeter, area, eccentricity, compactness, radial distance, roughness, elongation equivalent diameter and 3D-sphericity of the nodule.