Classification of Patterns on High Resolution SAR Images

Synthetic Aperture Radar(SAR) images taken via SAR sensor are capable of recreating a targeted landscape with great accuracy regardless of the current weather condition. Classifying patterns & objects like water mass, land & vehicles play a prominent role in remote sensing applications, military usage etc. Classification is done in three primary steps. The first one is image denoising This is done due to loss of fine detail from speckle noise. This can be achieved to a great extend by applying differentially the smoothing over the image regions after checking whether they are homogeneous or edge regions. Here Non-Local means algorithm is used for denoising For the next step which is feature extraction Local Binary Patterns is used by considering pixel intensity difference. Image is quantized then split into 3 matrices. Each part represents different pixel intensity points. RGB & HSV colour space are used as feature vectors. Patterns are segmented via LBP, RGB & HSV. Output obtained from ANN classifier is thresholded according to final pattern (target pattern). Each pattern classified is colour coded for ease of use. Proposed system uses a fusion of three feature vectors.