

Annexure 3 – Results: Miscellaneous

A-3.1 Suitability of Proposed Methods for Character Recognition

Following Figure 108 shows prominent boundaries, extracted foreground, background and resultant watershed pixels of a scanned image of a printed Gujarati alphabet. The shape preserving feature extraction is a major concern in character recognition, which is challenged by breaks present & induced because of processing of scanned image. Continuity and shape preserving watershed pixels of one pixel width produced with proposed algorithm provide the most suitable & required features for character recognition.

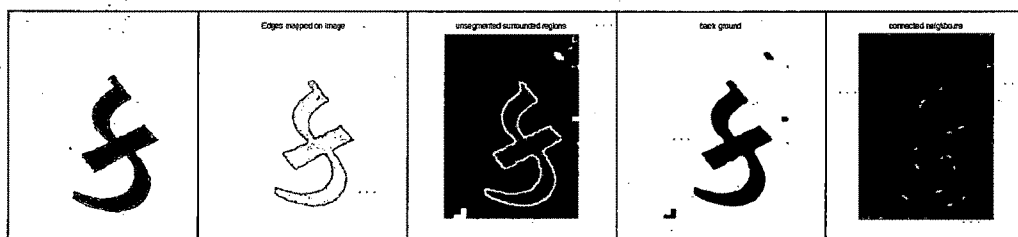


Figure 108. From Left to Right – Scanned alphabet, Mapped edges, Foreground, Background and Watershed pixels.

A-3.2 Foreground Extraction - Tiger Images of BSDB [Fowlkes, on line] [Martin, 2001]

Tiger images captured in natural conditions of forest provide all possible challenges for foreground extraction. The tiger images of BSDB [Fowlkes, on line] [Martin, 2001] are few of the toughest among all. The effectiveness of proposed methods leading to foreground extraction is shown with the results in Figure 108.

A-3.3 Query Response Examples – Tiger Images BSDB [Fowlkes, on line] [Martin, 2001]

The image database BSDB [Fowlkes, on line] [Martin, 2001]- a collection of challenging images for segmentation is not meant for image retrieval as many images belonging to same class are not available. Still, on available 6 tiger images of the database, experiments of image retrieval were carried out to target retrieval of tiger images.






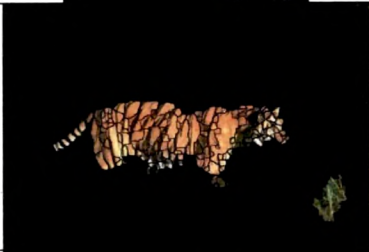





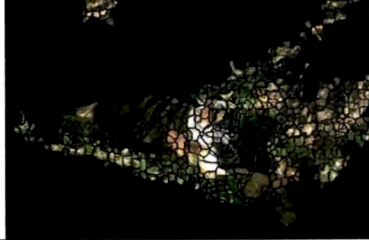
	Image	Extracted foreground
a)		
b)		
c)		
d)		
e)		
f)		

Figure 109. Tiger images of BSDB [Fowlkes, on line] [Martin, 2001] and extracted foreground.

Queries	Responses
	
	
	
	
	
	

Figure 110. Queries & responses of Tiger images BSDB [Fowlkes, on line] [Martin, 2001].

The foreground color codes based method was used for the purpose of retrieval with similarity cut-off set to 50. Figure 109 illustrates the effectiveness of the method for extracting foreground tiger for challenging complex background with different pose/illumination/texture variations. The screen shot of results for each of tiger image given as query are shown in Figure 110. Except for the last query image containing disguised tiger, retrieval of target images for all other queries have been quite remarkable.

A.3.4 Face Extraction - Face Image BSDB [Fowlkes, on line] [Martin, 2001]

A typical image of BSDB database [Fowlkes, on line] [Martin, 2001] has been presented with face extraction results (Figure 111). The image contains skin-colored head-cape & cloths with typical pose of hands and face. Exclusion of face-touching hands in the detected face region is note-worthy. The precise face region extraction proves the effectiveness of proposed methods.



Figure 111. Image of BSDB [Fowlkes, on line] [Martin, 2001] and extracted face