Abstract

Synergistic studies of anatomical to functional imaging provide some additional information which is not always available in either of the two individual images. In case of Alzheimer disease, synergistic study of MR-PET or MR-SPECT brain images provides clinical information of functional behaviour of effected brain regions with the pathological status of corresponding tissues. But it requires alignment and fusion of two different types of imaging modalities. In our endeavour we have suggested a shape based generalised transformation model for the brain image registration and implemented it with radial basis function (RBF) neural network. For fusion we have suggested a two step process. Firstly, we have used fuzzy c-means to segment the candidate images and to assign basic probability assignment (bpa) to each pixel.
corresponding to each cluster. Then on the basis of these weightage (bpa) we have proposed Dempster Shafer evidence accumulation concept to combine each pixel to generate a fused image. From the experimental results it is evident that fused MR-PET and MR-SPECT images can provide sufficient information for the synergistic studies of Alzheimer Diseased brain images.

Reference


Index Terms

Computer Science Pattern Recognition
Key words
Multimodal Medical Image Registration       Synergistic study of AD Medical Image
Fusion.