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Abstract

Multimodal image matching calls or demands for feature based or object based matching. Feature used in matching can be edges ,ridges, blobs, valleys etc. Feature based matching is considered as less tedious and low level image processing task whereas object based matching is consider as high level image processing task and complex.

Index terms—

1 Feature based Matching of CT & MRI Brain Images Ayush Dogra

Abstract -Multimodal image matching calls or demands for feature based or object based matching. Feature used in matching can be edges ,ridges, blobs, valleys etc. Feature based matching is considered as less tedious and low level image processing task whereas object based matching is consider as high level image processing task and complex.

I.

2 Matching

hile integrating two multimodal and mono modal images, first step is matching (geometrical matching) and second step is fusion (combined display of data involved). In this paper we will concentrate on first step. Matching of CT and MRI images is useful in radiation therapy planning. This type matching is also used in skull base surgery and epilepsy surgery. And the generalization of a 3D images by lvv operator can be found in [4]. When applying lvv operator to the CT set the resultant image show skull ridge. Then this ridgeness image is superimposed on to the original

3 Registration Method

Now we need to register the feature volume. The technique used is cross correlation [5] since the two images have different physical realities. By using the grey values directly [1], avoid segmentation our feature images.

The correlation value $c(t)$ of CT feature volume L1 and MR feature volume L2 over all rigid transformations t , where $c(t)$ is defined Here next level is formed by maximizing the trough images or minimizing the ridge images. This method is also called multi resolution correlation [2,6]. The disadvantage of this approach is high computational effort required. ”

4 Conclusion

The terms matching and registration are both used to denote the process of determining a transformation that relates the contents of two images in a meaningful way. The registration of MR and CT images was one of the first application of medical image registration. Further more the applicability of MR-CT registration is restricted primarily to the head. MR-CT registration is likely to become more widely used in future. ¹

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Figure 1:



1

Figure 2: Figure 1 :

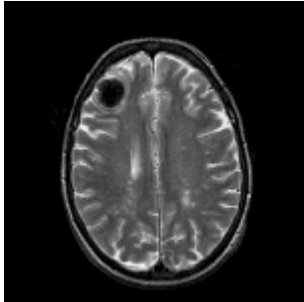
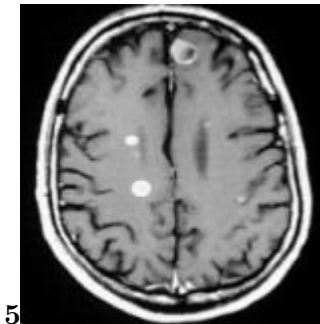
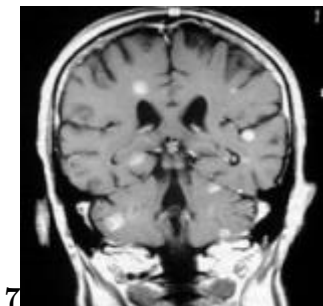


Figure 3:



5

Figure 4: Figure 5 :



7

Figure 5: Figure 7 :

$$L_{vv} = \frac{1}{||v||^2}(v \cdot \nabla)^2 L,$$

Figure 6:

$$11 \left(\frac{\partial}{\partial x}, \frac{\partial}{\partial y} \right).$$

Figure 7: Figure 11 :

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