Abstract

Radiological images are gradually more being used in healthcare and medical research. There is, accordingly, widespread interest in accurately relating information in the different images for diagnosis, treatment and basic science. In this paper we formulate feature registration problems by using F-transform (Fuzzy-Transform) to extract the salient edges and extracted control points (CP) of medical Images. The MRI brain Images were first decomposed using F-transform, then Edge and CP were extracted from F-transform error function, and some proposed rules. After edge and CP extraction, mutual information (MI) was adopted for the registration of feature points, and translation parameters are calculated by using particle swarm optimization (PSO). We implement experiments to evaluate the performance of the F-Transform and MI similarity measures for 2-D/3-D rigid point feature registration. The experimental results showed that the proposed method produces totally accurate performance for rigid point feature registration for MRI brain images.

References

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**Index Terms**

- Computer Science
- Bio-medical Sciences

**Keywords**

- Feature-based registration
- mutual information
- Fuzzy-Transform (F-Transform)
- particle swarm optimization (PSO)