Abstract

The aim of this research is to register satellite images on the DSP processor using probabilistic optimization method named as particle swarm optimization. Satellite image registration is necessary in order to find change detection, to eliminate influence of camera distortion (roll, pitch and yaw), merge satellite imagery and in urban planning. Particle Swarm Optimization is a stochastic search technique with less computation and still very effective as compared to other optimization techniques. It is based on bird flocking, fish schooling and swarm theory. Each particle changes its position and velocity based on its corresponding fitness value. Fitness value can be calculated using joint entropy and mutual information. The algorithm can be used in object recognition, image segmentation, matching and registration. The performance of this algorithm is measured and results are shown using DSK 6713 hardware along with VM32242.

References

- Jiarui Lin, Zhiyong Gao, Bangquan Xu, Yangxiezi Cao, Zhan yingjian, "The affection of grey levels on mutual information based medical image registration," 26th

- Chen-Lun Lin, Aya Mimori, and Yen-Wei Chen, "Hybrid Particle Swarm Optimization and Its Application to Multimodal 3D Medical Image Registration", Hindawi Publishing Corporation Computational Intelligence and Neuroscience, pp. 1 – 7, 2012.
Index Terms

Computer Science  Image Processing

Keywords

Image Registration  Mutual Information  Joint Histogram  Joint Entropy  Particle Swarm Optimization