Abstract

Image segmentation plays a vital role in medical image processing and computer vision. In case of medical scan images geometric level set functions perform accurate segmentation in good no of cases but develops irregularities during concave region evolution. These irregularities cause numerical errors and eventually destroy the stability of the evolution. In this
paper, a new variational formulation known as distance regularization has a unique forward-and-backward (FAB) diffusion effect is used for the analysis of medical brain image scans which perform accurate segmentation in case of concavities. This method also eliminates the need of the costly re-initialization procedure. This method shows reliable and good convergence to the object boundaries with speed in case of concavities.

Reference

- Chunming Li, Chenyang Xu, Senior Member, IEEE, Changfeng Gui, and Martin D. Fox, Member, IEEE, “Distance Regularized Level Set Evolution and Its Application to Image Segmentation”, IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 19, NO. 12, DECEMBER 2010,pp3243-3254.

Index Terms

Computer Science

Signal Processing
Key words

Segmentation
Variational Levelset
Distance Regularized Level Set
Re-initialization
Convergence

Medical image processing