

# Abstract

**Yasser El Sonbaty**

## **Enhanced Fuzzy-based Models for ROI Extraction in Medical Images**

standard fuzzy c-means (fcm) clustering has been widely used as an effective method for image segmentation. however, fcm is sensitive to initialization and is easily trapped in local optima. in this paper, several enhanced models for fcm clustering were proposed, namely  $w\_ss\_fcm$ ,  $laws\_ss\_fcmh\_fcm$ , to promote the performance of standard fcm. the proposed algorithms merge partial supervision with spatial locality to increase conventional fcm's robustness. a comparison study was conducted to validate the proposed methods' performance applying well established measures on three datasets. experimental results show considerable improvement over standard fcm and other variants of the algorithm. it also manifests high robustness against noise attacks.  $\square$