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PCA Based Clustering for Brain Tumor Segmentation of T1w MRI Images

Irem Ersöz Kaya , Ayça Çakmak Pehlivanli ,
Emine Gezmez Sekizkardeş , Turgay Ibrikçi

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Highlights

- To investigate the performance of the PCA based clustering on MR images.
- In order to achieve the goal, the PCA methods were first implemented on the MRI images which were resized into three different sizes, as well as the original size.
- The two common methods, K-means and FCM, are preferred for clustering.
- The success of the five PCA algorithms, PCA, PPCA, EM-PCA, GHA, APEX, in dimensionality reduction for clustering and to evaluate the methods according to their propensity to cause information loss.
- The EM-PCA and the PPCA achieve the successful results with the two clustering algorithms implemented on the resized MRI images.
- Therefore, it can be concluded that the PPCA and the EM-PPCA work effectively with the two clustering algorithms.

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