

Seminar za primjene i optimizaciju

Clustering Center Based Fixed Point Iterations Method

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Abstract. Considering the Gaussian mixture model the center based iterative method is developed. The proposed method is constructed by applying the conditional expectations for parameter re-estimation in an iterative procedure. This procedure utilized the rejection of tails of low probabilities which are followed by the p -quantile value of the Chi-squared distribution where the Mahalanobis distance is considered. In order to study the proposed method, the Banach fixed point theorem is considered, where the results and properties of the proposed method are presented on various numerical examples. Finally, this method is emphasized in digital image processing for image segmentation and pattern recognition.

Keywords: Clustering, Gaussian mixture, the Banach fixed point theorem, Image processing