Plant Leaf Recognition using Gabor Filter

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Abstract

This paper proposes an automated system for recognizing plant species based on leaf images. Plant leaf images of three plant types are analyzed using Gabor Filter by varying the filter parameters. Leaf images are convolved with Gabor filters followed by a separation of the real and imaginary portions of the signal. Absolute difference between the real and imaginary signals form the scalar feature value used for discrimination. Associated parameters like filter size, standard deviation, phase shift and orientation are varied to investigate which combination provides the best recognition accuracies. Classification is done by subtracting the test samples from the mean of the training set. The data set consists of 120 images divided into 3 classes. Accuracy obtained is comparable to the best results reported in literature.

References

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- Plantscan database (URL: http://imedia-ftp.inria.fr:50012/Pl@ntNet/plantscan_v2/).
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Index Terms

Computer Science
Pattern Recognition

Keywords

Gabor Filter  Leaf Classification