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SDSU
presents
a thesis defense for
Master of Science
degree in
Computer Science

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GMCS 405

Vijaya Bylaiah

Plant Leaf Recognition and Matching with MATLAB

Abstract

Imagine someone hiking in the Swiss mountains, where he finds a weird leaf or flower. This person has always been bad in biology but would like to know more about that plant. What's its name? Its main features? Is it rare? Is it protected? Etc. By simply taking a picture of the leaf with a Digital Camera, he or she could feed it to the database in his computer and then get all these information through an automatic leaf recognition application.

In recent decades, digital image processing, image analysis and machine vision have been sharply developed, and they have become a very important part of artificial intelligence and the interface between human and machine grounded theory and applied technology.

These technologies have been applied widely in industries, medicine and agriculture. Finger print recognition is well developed and face recognition is rapidly improving.

As part of this project, the elaboration of such an application has been attempted. The recognition of leaves from photographs implies several steps, starting with image preprocessing, feature extraction, plant identification, matching and testing and finally obtaining the results implemented in MATLAB.

While a botanist could be content with a system for recording a plant species discovered in its natural habitat, to be identified and logged later, this application aims at providing a detailed identification to hikers, campers, etc.

Thesis Committee

Carl Eckberg, Thesis Chair, Department of Computer Science
William Root, Department of Computer Science
Mahasweta Sarkar, Department of Electrical Engineering