A Novel Eigenface based Species Recognition System

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Authors:
T. A. S. Achala Perera
John Collins

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Abstract

To develop a species recognition system for a resettable trap using novel species identification techniques. Classical Eigenface based identification techniques are widely used in human faced detection domain. In this research Eigen faced based technique is used to identify the feral animals like Possums, cat and Weasels. When traditional Eigen faced technique is applied to detect these animal, detection rate is extremely poor (Possums 55%, Cats 33% and weasels 45%), due to their orientation of the heads and fur patterns. In this research, Eigenface based image recognition technique's detection rate was improved by adding different training sets to the system. Traditional Eigenface detection domain one training set is used, but it was discovered single training set was not adequate to detect small animal. This is because smaller animals like possums, cats and weasels tend to have different color group, different texture and hard to obtain face up images. Therefore it was decided to divide the training set into different sub groups. This sub training sets are used to train system and search for match. This method improved the detection rate up to 83% for possum, 50% for cats and 63% weasels.

References
- D. W. Craig Gillies, "A short guide for identifying footprints on tracking tunnel papers," vol. OLDDM-63018 1

Index Terms

Computer Science          Pattern Recognition

Keywords

Euclidean distance  face recognition  animal detection