

## THE SURVEY PAPER ON OBJECT DETECTION AND RECOGNITION FOR IMAGES

Amanpreet Kaur<sup>1</sup>, Er. Priyanka<sup>2</sup>

<sup>1</sup>Research Scholar, <sup>2</sup>Assi. Prof

Department of Computer Engineering, UCOE, Punjabi University, Patiala

**ABSTRACT:** This paper embrace the survey on detection of diverse objects in the given high-resolution satellite image and then recognizes it. This work is accomplished with the help of edge detection method along with segmentation. These edges make the rough estimation of an object. To make the detection possible certain difficulties must be handled, which can hamper our task of identification, i.e. lightning conditions, size, appearance, pose, occlusion, camera parameters, background etc. From the complex environment of multitude of objects in a given image, the detected objects are then recognized to categorize their identity.

### I. INTRODUCTION

An object detection and recognition system can identify objects in the real world with the help of an image of the world. Humans perform detection and recognition effortlessly and instantaneously. Even a person can recognize the multitude of objects, having different viewpoint, with little efforts if those objects are visible to him. Algorithmic description of this task for implementation on machines has been very difficult. Then we have to propose an efficient algorithm which helps machines to detect objects in given high resolution satellite image and then recognize their category i.e. not only human beings but also other living and non living things. Edge detection method is used for detection purpose. Edge is mainly the connection between two points. Edge between points can be in two-dimensional image or projection of 3-dimensional image in two dimensions. In this paper I have consider following steps i.e. 1). Detection of different objects in the image with the help of edge detection method, this method can detect the object present in any size, pose, expression, etc. 2).Segmentation of objects so that their identification becomes easy. 3). Recognition of identity of different objects in a single image and then group the similar objects in single category even having different background, illumination, viewpoint, etc.



Fig 1 Categorization of objects

In fig1 it is shown that we have collection of objects in image and we have to detect those objects and then recognize them. We have detected four objects, one is human and rest is birds. Recognition is taken place after segmentation of the image. All three birds are of same kind but they have different pose i.e. viewpoint is different.

### Complexities during detection and recognition

There are various difficulties which hamper the task of detection and recognition of objects in given image. Those are given as:

- View point and lightning conditions variation.
- Shape, appearance or pose variation.
- Background or camera parameters.
- Projection of 3-dimensional images into 2-dimensional images.
- Large number of objects in image (multitude) is harder to detect then less objects.
- Occlusion.

### II. LITERATURE SURVEY

In the survey from several papers on recognition and detection various attributes are grouped in a table i.e. title of paper, year of publication, author name, techniques used and advantages and disadvantages of those papers.

Title	Year of publication	Author	Techniques	Advantages	Disadvantages
Aircraft recognition in High-Resolution Satellite Images Using Coarse-to-Fine Shape Prior	May 2013	Ge Liu, Xian Sun, Kun Fu, and Hongqi Wang	Otsu method, global shape method, level set method, edge detection method.	1) Complex structure recognition. 2) Principle component analysis (PCA) and kernel density function is helpful in dimension reduction. 3) Edge detection can provide the rough estimation of object.	1) Edge detection is difficult in blurred or low contrast images. 2) Segmentation is pixel based which is easily affected by diversity or complexity of environment.
Learning AND-OR Templates for Object Recognition and Detection	Sept. 2013	Zhangzhang Si and Song-Chun Zhu	AND-OR template matching technique	1) Similar features are grouped together using AND node and deformation is done using OR nodes. 2) Structure of model is minimized by graph compression with the help of sharing and merging operators.	1) Unsupervised learning may cause ambiguity in identification. 2) Templates (active basis and hybrid image) used in this paper have lack of reconfigurable property.
Grab Cut-Based Abandoned Object Detection	Sep. 22-24, 2014.	Kahlil Muchtar , Chih-Yang Lin , Chia-Hung Yeh	Detection-based method, Markov random field model, Gaussian Mixture Model.	1) Mainly focus on immobile objects i.e. background. 2) Detection based approach is used instead of tracking based approach which is not good in crowded places.	1) Poor lightning may affect the background. 2) Danger may be a mobile object for example a man carrying bomb.
Position Recognition to Support Bedsores Prevention	Jan. 2013	Paolo Barsocchi	Support vector machine, K-nearest neighbor method	1) Useful in healthcare for getting the information regarding the activities of a patient. 2) No need of extra hospital staff for special care. 3) Continuous observation is possible in hospitals or other organizations.	1) Good lightning environment is needed to collect the correct activities of a patient.
Image-based Face Detection and Recognition	Nov. 2012	Faizan Ahmad, Aaima Najam and Zeeshan Ahmed	Local Binary Pattern (LBP), Support Vector Machine	1) Milestone for video surveillance. 2) Helpful in security purpose. 3) Work for improving accuracy and speed of identification.	1) Background should not be complex.

### III. CONCLUSION

Detection and recognition becomes important topic for research. Various algorithms are proposed for such purpose. Objects may appear in any shape, size, pose, etc. Lightning conditions, view point, capturing device parameters may also vary. In this paper Edge detection method is consider for detection purpose and then next step is recognition of particular object from group of objects in high resolution satellite image. Segmentation method is used for the

identification of objects in image.

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