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Research Article

DETECTION OF TYPE OF FLIGHT USING IMAGE PROCESSING TECHNIQUES

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A R T I C L E I N F O

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A B S T R A C T

The objective of the project is to recognize an aircraft in satellite image using sensing images matching for accurate detection and tracking. The number of aircraft types is limited and each type of aircraft has fixed size and shape. The similarity between the real target and the suspected target is obtained based on the reconstructive approaches. The demonstration has been carried out in MATLAB. First, the Test Image is selected for Pre-Processing where it involves removing low-frequency background noise and converts in to grey-scale image from the cluttered background. In order to estimate the pose and direction of aircraft the Histogram Oriented Gradient process is done which is based on pixel intensities considered as weights.

INTRODUCTION

Existing System

The Otsu's thresholding method is the simplest and standard method for automatic threshold selection, which can be applied to various flights The AI problem is that an object can appear very different when viewed from different angles or under different lighting. Another problem is deciding what features belong to what object and which are background or shadows. The procedure utilizes only the zero and the first-order cumulative moments of the gray level histogram

Disadvantages

- High requirement on shape extraction
- Low SNR rate of satellite images.
- The moment invariants and Fourier descriptor requires perfect extraction of shape of each aircraft.
- Irregular appearance caused by distortion.

Proposed System

A new aircraft recognition approach that can recognize aircraft robustly without perfect extraction of silhouette or shape of aircraft as a precondition, and can deal with the situation of parts missing and shadow disturbance. A direction estimation method is proposed first to align aircraft to a same direction. Jigsaw matching pursuit algorithm is proposed to solve the reconstruction problem.

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A novel type recognition approach for aircraft is proposed. The recognition approach consists of direction estimation and type recognition. A direction estimation method is proposed firs to align aircraft to a same direction. Then, a reconstruction-based similarity measured. In the tree-cut algorithm, the segmentation begins at the first level, and then each segment is split into α sub objects in the following levels iteratively by using the normalized-cut algorithm.

Advantages

- It can recognize aircraft robustly without perfect extraction of targets.
- Direction estimation and type recognition.
- To calculate the gradient of the image.
- To get the contour and texture information

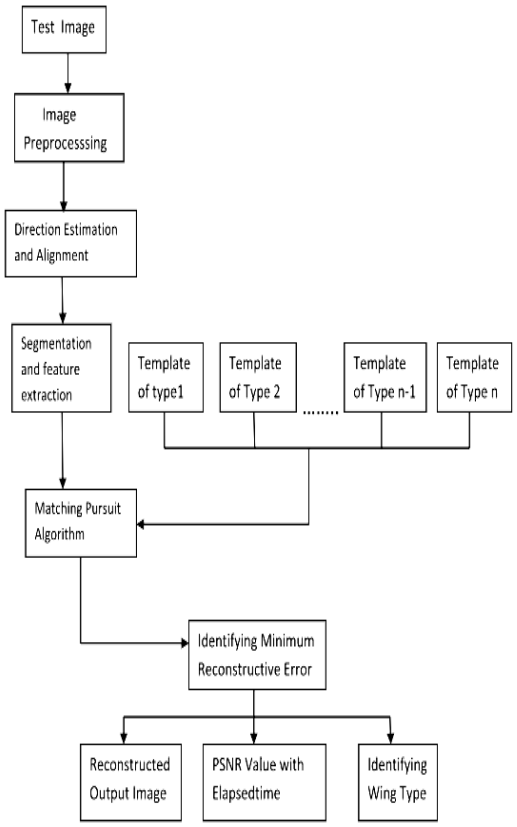
Architecture Diagram

Steps of Image Proposing

Preprocessing

Preprocessing of FLIGHT IMAGE is the first step in our proposed technique. Preprocessing of an image is done to reduce the noise and to enhance the image for further processing. The purpose of these steps is to improve the image and the image quality to get more surety and ease in segmenting the liver. Steps for preprocessing are as follows:

- Image is converted to gray scale.
- A 3x3 median filter is applied on liver CT image in order to remove the noise.



Layer Segmentation

After enhancing the flight, the next step of our proposed technique is to segment the flight region from flight layer image. Segmentation is done to separate the image foreground from its background. Segmenting an image also saves the processing time for further operations, which has to be applied to the image. We have used segmentation using a global threshold in order to segment the flight image. Afterwards some morphological operations are applied on the image to obtain the final segmented flight region.

Post processing

After segmenting the flight from flight region image, several post-processing operations are applied on the image to enhance the flight region so that area of focus can be clearly highlighted. These post-processing operations include adaptive histogram equalization, Gaussian smoothing and gray level transformations.

RESULTS

The image processing technique described above will yield an accurate result and experimental results prove that the accuracy will be 98.7% and the type of aircraft will be recognized using the template matching schemes.

CONCLUSION

A new robust-type recognition method for aircraft targets in high-resolution remote sensing images has been proposed. The main advantage of the method is that, it can recognize aircraft robustly and excludes the target overall shape extraction phase, the proposed work scope essentially concentrates on reducing the time of candidate identification eliminating other terrestrial disturbance

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