**LITERATURE REVIEW**

Texts in an image directly carry high-level semantic information about a scene, which can be used to assist a wide variety of applications, such as image understanding, image search and indexing, navigation, and human computer interaction. Number of approaches for text detection in images has been proposed into the past. Automatic detection and translation of text in images done using different techniques proposed. These methods aim to detect the characters based on general properties of character pixels.

It is a challenging task to detect and segment text from captured images due to two main issues:

1) Different variety of text patterns like sizes, fonts, orientations, colors, and 2) presence of background outliers similar to text characters, such as windows, bricks, and character-like texture

[**Digital image processing**](http://research.omicsgroup.org/index.php/Digital_image_processing)**:**

[Digital image processing](http://research.omicsgroup.org/index.php/Digital_image_processing) is the use of computer algorithms to perform image processing on digital images. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing. It allows a much wider range of algorithms to be applied to the input data.

[Image processing](https://www.omicsonline.org/international-journal-of-advancements-in-technology.php) is a process to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful information from it. It is a type of signal released in which input is image, as video frame or photograph and output may be image or characteristics associated with that image.

**Text detection on images:**

Many recent methods have been proposed to design a better feature representation and models on text detection on images. A research paper from Stanford university by Adam Coates said that there are two key components of most system which are (i) text detection from images and (ii) character recognition. They applied a method that developed recently in machine-learning which is the large-scale algorithm and it about learning the features automatically for unlabeled data and show that they allow to construct highly effective classifier for both detection and recognition to be used in high accuracy end-to-end system and they come to conclusion that larger banks of features they achieved increasing in accuracy with top performance comparable to other systems.

Minhua Li, Meng Bai also proposed that to detected text on images based on image complexity analysis. And this approach adopts an image complexity analysis step to classify image complexity into three categories: low complexity, middle complexity and high complexity. Then images with different complexity adopt different methods to extract image edges. The proposed text detection method takes a coarse to fine detection strategy which combines the edge-based method, connected component based method and the texture based method into a framework.

Jain and Zhong use a neural network (NN) to discriminate between text, graphics, and halftones in document images. Zhong analyze local spatial variations in a gray-scale image and locate regions with a high variance as texts. They also combine a texture-based method with a CC-based method. Li extract the wavelet features of small windows in images, then classify them using NNs. Texture-based methods are known to perform well even with noisy, degraded, textured, or complex texts and backgrounds, however, they are usually time consuming as texture classification is inherently computationally dense.

**Synthesise**:

A text information in images serves as an important clue in different applications. It provides instructions for assistive reading and content-based image retrieval and so many applications.

TEXTS in images include useful information for the automatic annotation, indexing, and structuring of images. Text detection is the process of detecting and locating those regions that contain texts from a given image and is the first step in obtaining textual information. However, text variations related to size, style, orientation, and alignment, as well as low contrast and complex backgrounds make the problem of automatic text detection extremely challenging.