Capstone Project Report

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Course: AI & ML (Batch - 4)

Problem Statement

Implement a text detection and extraction model using OpenCV and OCR. The necessary steps that you need to perform are:

1. Image preprocessing
2. Find possible contours that can represent the textual areas.
3. Apply optical character recognition (using python-tesseract, google OCR engine.

Prerequisites

Along with Python below packages needed to be installed

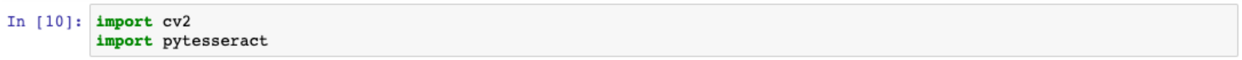
OpenCV
Pytesseract

Dataset Used

Sample Image

Implementation

Import required libraries and load data



```
In [10]: import cv2
         import pytesseract
```

Load data

```
In [18]: img_cv = cv2.imread('text.jpeg')
         img = cv2.cvtColor(img_cv, cv2.COLOR_BGR2RGB)

In [3]:  cv2.imshow('image',img_rgb)
         cv2.waitKey(0)

Out[3]:  113
```

Preprocess Image

In [19]:

```
im_gray = gray(img)
im_blur = blur(im_gray)
im_thresh = threshold(im_blur)

contours, _ = cv2.findContours(im_thresh, cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_NONE)
```

Drawing the contours

In [20]:

```
def contours_text(orig, img, contours):
    for cnt in contours:
        x, y, w, h = cv2.boundingRect(cnt)

        # Drawing a rectangle on copied image
        rect = cv2.rectangle(orig, (x, y), (x + w, y + h), (0, 255, 255), 2)

        cv2.imshow('cnt',rect)
        cv2.waitKey()

        # Cropping the text block for giving input to OCR
        cropped = orig[y:y + h, x:x + w]

        # Apply OCR on the cropped image
        config = ('-l eng --oem 1 --psm 3')
        text = pytesseract.image_to_string(cropped, config=config)

        print(text)
```

In [21]:

```
contours_text(img_cv, img, contours)
```