CSE483 Computer Vision – Spring 2023

The Street View House Numbers (SVHN) Recognition

SVHN is a real-world image dataset for developing object recognition algorithms with minimal requirement on data preprocessing and formatting. It can be seen as similar in flavor to MNIST (e.g., the images are of small, cropped digits), but incorporates an order of magnitude more labelled data (over 600,000 digit images) and comes from a significantly harder, unsolved, real world problem (recognizing digits and numbers in natural scene images). SVHN is obtained from house numbers in Google Street View images.

The dataset has the following information:

- 10 classes, 1 for each digit. Digit '1' has label 1, '9' has label 9 and '0' has label 10.
- 73257 digits for training, 26032 digits for testing, and 531131 additional, somewhat less difficult samples, to use as extra training data.
- It comes in two formats:

    1. Original images with character level bounding boxes.

    2. MNIST-like 32-by-32 images centered around a single character (many of the images do contain some distractors at the sides).

You can download the database from: http://ufldl.stanford.edu/housenumbers/

Phase one:
The output of this phase is to localize the digits in the test images.

Phase two:
The output of this phase is to recognize the digits in the test images.

What to be delivered for each phase:

- The code well written and commented.
- A Github repository with your code on it. The Github repository should be your main tool for different stages of the project (You shouldn't only push the code when you're done with each phase). The readme should also have clear instructions on how to run your code

- A Jupiter-notebook showing the result of your pipeline on the provided test images.
- The output of your pipeline on the provided test images.
- A report containing the methods used in the pipeline and explaining them in detail.

Teams' formation:

You're encouraged to work in teams. The maximum of each team is 3.

Deadline:

Phase one:

May 4th, 2022, 11:59 pm

Phase two:

May 18th, 2022, 11:59 pm