

CMPE258  
Individual Project: Design Hand Written Student ID Recognition System  
HL

1. This is an individual project. Design and build hand written student ID recognition system to recognize hand written student ID. Your design will use CNN (Convolutional Neural Network) as processing engine and Computer Vision algorithms for preprocessing. This project counts total 10 points.
2. (2 pts) Your system will have to support both live video input from USB web camera and the input from saved video files. Your program should prompt the user for the options of input video.
  - a. (2 pts) The video of the hand written digits must be from yourself;
  - b. The video should be in color.
3. Your system should
  - a. (2 pts) Display bounding box on each individual digit (not one bounding box for all digits);
  - b. (2 pts) Display preprocessed square image without aspect ratio distortion for each digit as video ongoing process of the hand written digits before resize it to the 28x28 resolution image;
  - c. (4 pts) Feed your preprocessed image into CNN for recognition, and label each recognized digit as a numeral on top of its bounding box by using OpenCV text function.
4. Save no more than 20 seconds processed video into a file.
5. Submit:
  - a. Your hand written digits video (no more than 20 seconds).
  - b. Your saved processed video file (no more than 20 seconds);
  - c. The program source code;
  - d. Up to one page readme file. Be sure detailed adequate information is provided for testing and verification purpose.
6. Put all the above files into one file and zip it.
7. Use the following file naming convention for your file:  
firstName\_lastName\_SID(last-4-digits)\_Spring23\_cmpe258\_digitsRecognition.pdf.  
Submit it to the class canvas.

(END)