Introduction to CNN
HL
2020-9-4

1. OpenCV Coding Reference Sheet
under the folder of opencv/**deep-learning-2020S**/
check this file: 10-102-2020F-#0-Summer2018-OpenCV-sheet.pdf
The link:
https://github.com/hualili/opencv/blob/master/deep-learning-2020S/10-102-2020F-%230-Summer2018-OpenCV-sheet.pdf

2. First NN code example

(1) Simple code for NN (like "hello, the world")
Under the folder: https://github.com/hualili/CMPE297/tree/master/2019S
The file:
2019S-29-Python-NN-Intro-2019-4-5.pdf
The link:
https://github.com/hualili/CMPE297/blob/master/2019S/2019S-29-Python-NN-Intro-2019-4-5.pdf

or directly from its original source:
https://victorzhou.com/blog/intro-to-neural-networks/

(2) Modify this code to fit our facial detection example
feature vector dimension N = 2
data set C1={X11, X12, X13}, C2={X21, X22, X23}
Supervise learning, true Y={1,1,1,0,0,0}

The modified code is posted on line
under the folder: opencv/**deep-learning-2020S**/
file name: 10-2020F-103-2introNN.py
the link: https://github.com/hualili/opencv/blob/master/deep-learning-2020S/10-2020F-103-2introNN.py

(3) Coding to Architecture
a. Use the notation in my lecture note,
the file: 2019S-292018F-7-107-NeuralNets-Intro-2017-10-7.pdf
the link: https://github.com/hualili/CMPE297/blob/master/2019S/2019S-292018F-7-107-NeuralNets-Intro-2017-10-7.pdf

b. Check out the sample code we modified in 2(2), then

c.
Locate/Understand activation function, sigmoid
https://victorzhou.com/blog/intro-to-neural-networks/

Locate/understand initial weights/bias
Save trained NN (save its weights/bias)
Load weights/bias back to make initial condition of the NN before training
Locate/understand loss function
Locate/understand EPOCHS
Terminate training based on loss/error conditions
Add nodes on the input layer and/or hidden layer
Add hidden layers
Add output neurons and understand its meaning
Understand/Plot the loss function
(END)