Session 1 - Convolutional Neural Network

Basics of object detection:

1. What is Convolutional Neural Network (CNN)
2. Different layers of CNN:
    a. Convolutional layer
        i. Kernels / Feature maps
    b. Pooling layer
    c. Fully connected layer
3. Hyperparameters
    a. Stride lengths
    b. padding
4. Activation functions
    a. Relu
    b. Leaky relu
    c. Sigmoid
    d. Tanh
    e. softmax
5. Loss functions
6. IOU
7. Non maximal suppression
8. What is feature extraction
9. How back propagation works in CNN

Reference material:

1. **CNN *Overview*:** ***https://stanford.edu/~shervine/teaching/cs-230/cheatsheet-convolutional-neural-networks***
2. ***Coursera Deep Learning specialization course on* CNN (Videos):** ***https://www.coursera.org/learn/convolutional-neural-networks#syllabus***
3. **CNN *explanation*: https://www.wandb.com/tutorial/convolutional-neural-networks**
4. **Implementation with Detailed explanation for digit recognition: https://towardsdatascience.com/building-a-convolutional-neural-network-cnn-in-keras-329fbbadc5f5**
5. **Implementation with Detailed explanation on Fashion-MNIST Dataset: https://www.datacamp.com/community/tutorials/convolutional-neural-networks-python**