

## Homework Week 11- Convolutional Neural Network (CNN)

- 1) True or False? One of the purposes of convolution in a CNN is to preserve the spatial relationship in an image
- 2) Consider a 3x3 input matrix or Tensor and 2x2 kernel, after convolution the output will be a square matrix. What is the size of one of the dimensions of the square matrix?
  - A. 1
  - B. 2
  - C. 3
  - D. None of the Above
- 3) What activation function is usually used for a CNN?
  - A. Relu
  - B. Tanh
  - C Sigmoid
  - D. None of the above
- 4) The convolution layer in a CNN can be seen as a
  - A. Feature extractor
  - B. Regularization method
  - C. Linear classifier
  - D. None of the above
- 5) Max pooling is:
  - A. Finds features
  - B. Takes the average of the set of activations
  - C. Takes the maximum of the set of activations
  - D. None of the above
- 6) You have a network with one input channel and three output channels how many kernels do you have
  - A. 1
  - B. 2
  - C. 3
  - D. None of the above

- 7) You have a network with two input channels and three output channels how many activation outputs do you have
- A. 1
  - B. 2
  - C. 3
  - D. None of the above
- 8) You have a network with two input channels and three output channels how many kernels do you have
- A. 4
  - B. 6
  - C. 8
  - D. None of the above
- 9) In the module torchvision the class transforms
- A. Converts an image to NumPy
  - B. Rotates the image
  - C. Performs all the transforms
  - D. All of the above
- 10) The following line of code does the following  
`model=models.resnet18(pretrained=True)`
- A. Creates a ResNet network with randomly initialized parameters
  - B. Creates a ResNet network that has been trained with another dataset
  - C. Creates a network with 18 linear layers
  - D. All of the above

## Solutions

- 1. True
- 2. B
- 3. A
- 4. A
- 5. C
- 6. C
- 7. C
- 8. B
- 9. D
- 10. B