

Homework assignments for Class #1

1. Which of the following networks are considered deep?

Input
Conv2D
Conv2D
Output

Input
Conv2D
Dropout
Activation
Output

Input
Conv2D
MaxPooling
Output

Input
Dense
Dropout
Activation
Output

Input
Conv2D
Dense
Output

2. Your input is a tensor of shape $81 \times 81 \times 64$, and you convolve it with 16 filters that are 5×5 each, using a stride of 2 and “valid” padding. What is the shape of the output tensor?

3. You are training the U-Net model on the unet data under default values of the most of hyperparameters, except for the `batch_size`, which you choose yourself. You perform 2 runs: one run using a single GPU, and the other using 4 GPUs. By how many fold faster does the code run when 4 GPUs are used? Make your estimate of the speedup based on the results of training with several epochs only.