CSC420: Assignment 3

Xiangyu Kong, kongxi16

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Problem 1

See *question_1.py* for the main functions for this problem.

1. Implement U-NET

The U-Net is implemented in $UNet.py$.
The structure of the U-Net follows the one defined in the paper by **Ronnenberger et. al**. It takes input of size of (B, C, H, W), where B is the the batch size, C is the number of channels (1 for this assignment), and H, W are the height and width of the image (128×128 for this assignment)
Each down-convolution consists of 2 operations of [convolution with 64 filters, batch norm, ReLU], and down-sampling by factor of 2.
Each up-convolution consists of up-sampling by factor of 2, concatenating with the corresponding down-convolution result, and 2 operations of [convolution with 64 filters, batch norm, ReLU].
After training on the image, the model is tested against the test set using Dice coefficient: $\frac{2|X \cap Y|}{|X|+|Y|}$