

# MSBD 6000B Project 2

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The final model used in this project is a CNN. The model has pre-processing including using transform all image into a (50,50) smaller image with inter-area to fill the pixel. At last, all the pixels are divided by 255 to normalize the overall set.

Keras are used to train our model with the following steps

1. Conv2D of 128 features map with size of 3x3 and a rectifier activation function
2. 20% Dropout layer
3. Conv2D of 128 features map with size of 3x3 and a rectifier activation function
4. 2x2 Max Pool Layer
5. Conv2D of 128 features map with size of 3x3 and a rectifier activation function
6. 20% Dropout layer
7. Conv2D of 128 features map with size of 3x3 and a rectifier activation function
8. 2x2 Max Pool Layer
9. Conv2D of 128 features map with size of 3x3 and a rectifier activation function
10. 20% Dropout layer
11. Conv2D of 128 features map with size of 3x3 and a rectifier activation function
12. 2x2 Max Pool Layer
13. Flatten Layer
14. 20% Dropout layer
15. Fully Connected Layer with 2048 units and a rectifier activation function
16. 20% Dropout layer
17. Fully Connected Layer with 1024 units and a rectifier activation function
18. 20% Dropout layer
19. Fully Connected Layer with 512 units and a rectifier activation function
20. 20% Dropout layer
21. Fully Connected Layer with 5 output unit and a softmax activation function

Since the GPU memory available in the computer used for training are limited, only a small 50x50 image can be used and a large model are used to cover the limitation.