EE263 Summer 2025

SAN JOSE STATE UNIVERSITY
DEPARTMENT OF ELECTRICAL ENGINEERING

HOMEWORK No.6 – Due Sep. 16

[Problem1] This assignment asks you to experiment with the given CNN, AlexNet in this case, and report your observation and conclusions using some ideas from the Zeiler and Fergus paper titled "Visualizing and Understanding Convolutional Networks," as discussed in class.

Use two images from Matlab, 'peppers.png' and 'llama.jpg' as shown below, for this experiment. For each of the two images as input, you produce test images by systemically covering up different portions of the image with a gray square of arbitrary sizes (see Figs 7 and 8 in the ZF paper). Then you input each masked image to the AlexNet for inferencing and observe top-5 classes the network guesses, along with corresponding probability distribution.

The point of playing with these masked images is to figure out what parts of an image the CNN is relying on in order to estimate what class the image represents. Youe can also use the masked images to "confuse" the CNN by hiding parts of the object, or parts of an image that contains multiple objects. This provides some insight into what the CNN is "thinking."

Your report should contain tables similar to Table 1 of the ZF paper and accuracy plots similar to Figure 9 of the ZF paper. You should write your observations and conclusions clearly at the end of the report. Your report should be no longer than 10 pages, including input pictures and tables and plots.

You may use either Matlab or Python.