




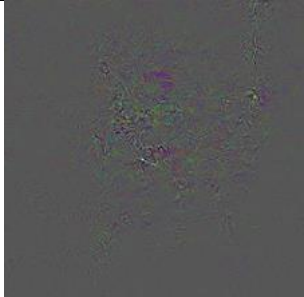
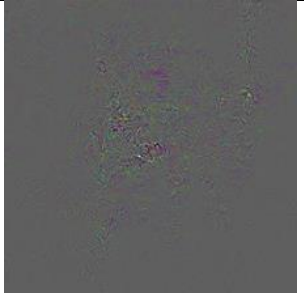
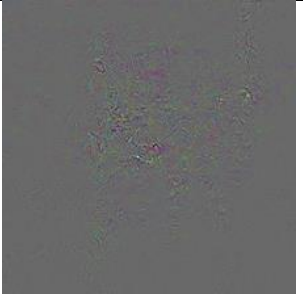
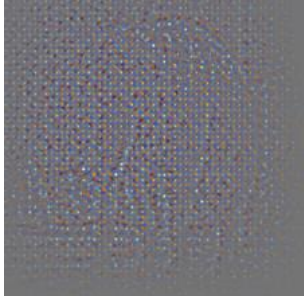
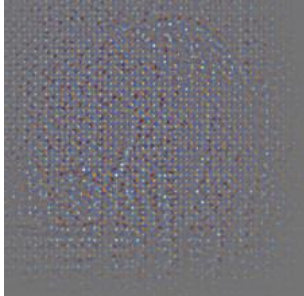
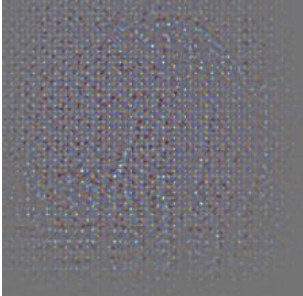
Task 2:



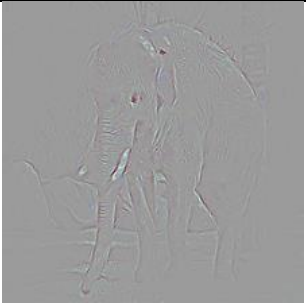



In this task, I'm reproducing the Demo1 and Demo2 of the Grad-CAM: Visual Explanations from Deep Network via Gradient-based Localization with another image.

Original Image:




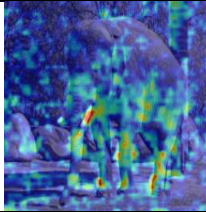
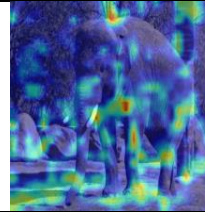


Reproduce Demo1:

Predict Class	#1 Indian_elephant	#2 tusker	#3 African elephant
Grad-CAM			
Vanilla backpropagation			
"Deconvnet"			


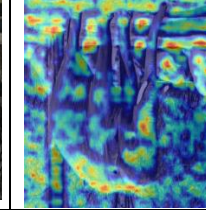
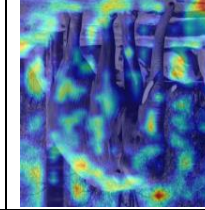
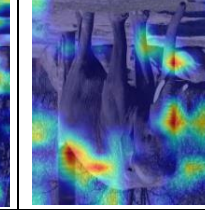
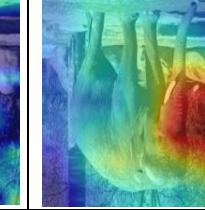
Guided back propagation			
Guided Grad-CAM			

Reproduce Demo2

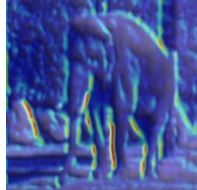
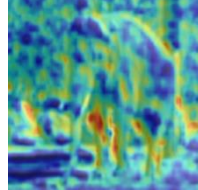
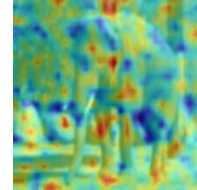
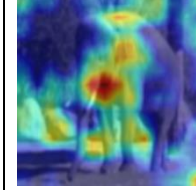
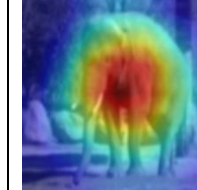
Generate Grad-CAM maps for "Indian elephant" (Class Index 385) class, at different layers of ResNet-152.

Layer	relu	Layer1	Layer2	Layer3	Layer4
Grad - CAM					

Turn the image upside down:

Layer	relu	Layer1	Layer2	Layer3	Layer4
Grad - CAM					

Blurred with Guassian filter:

Layer	relu	Layer1	Layer2	Layer3	Layer4
Grad-CAM					

The attention map is still accurate with Gaussian filter and rotation.

References:

[1] Kazuto Nakashima, Available: [kazuto1011/grad-cam-pytorch](https://github.com/kazuto1011/grad-cam-pytorch): PyTorch implementation of Grad-CAM, vanilla/guided backpropagation, deconvnet, and occlusion sensitivity maps (github.com)