

# Assignment 3

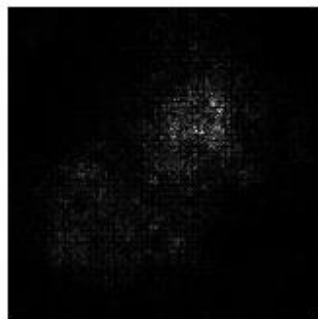
Your name: Peng, Chen

Your GTID: 903646937

# Visualization

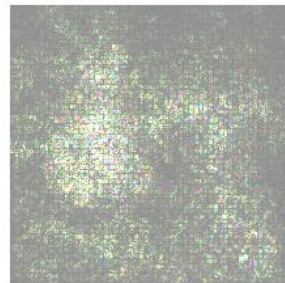
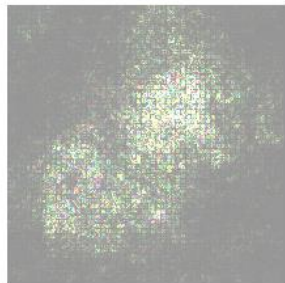
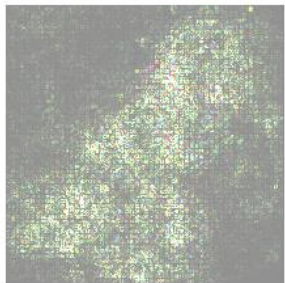
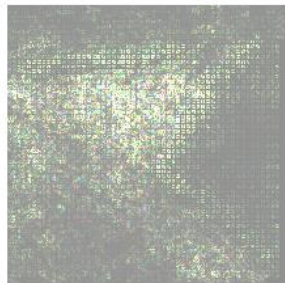
# Saliency Map

- Include your saliency map here



# Saliency Map

- Include your saliency map from Captum here

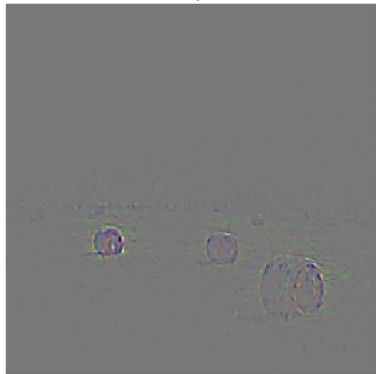


Saliency

# GradCam

- Include your visualization of Guided Backprop here

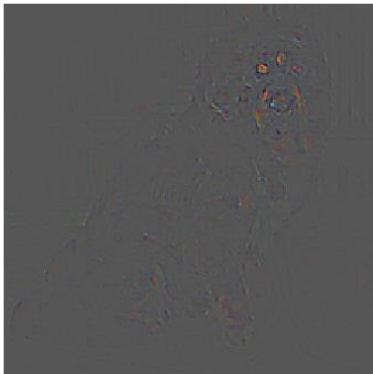
hay



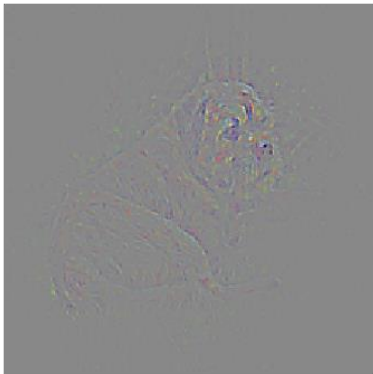
quail



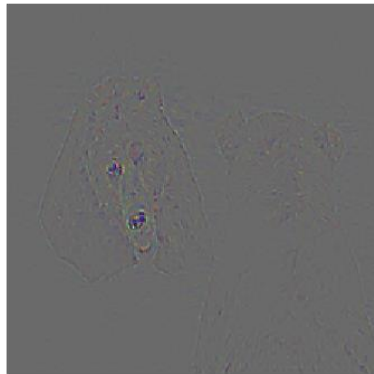
Tibetan mastiff



Border terrier



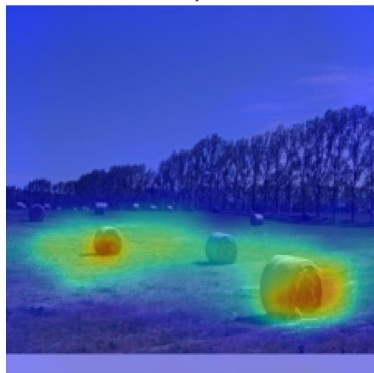
brown bear, bruin, Ursus arctos



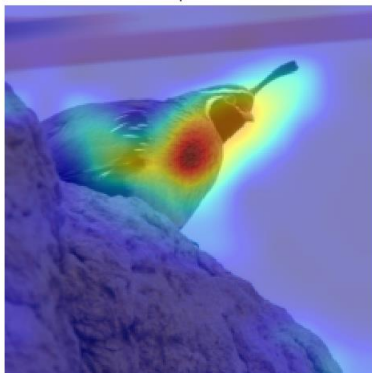
# GradCam

- Include your visualization of GradCam here

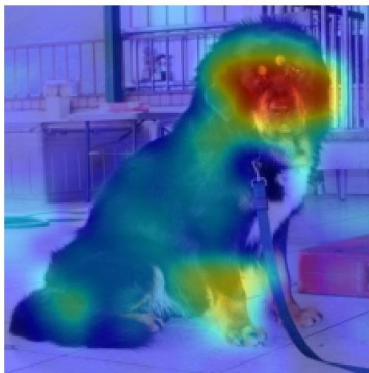
hay



quail



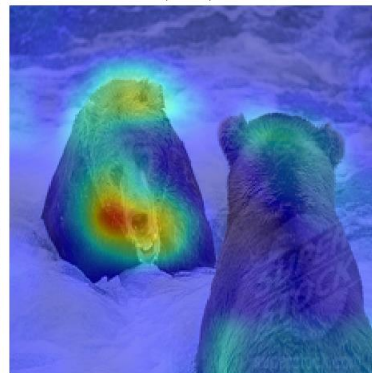
Tibetan mastiff



Border terrier



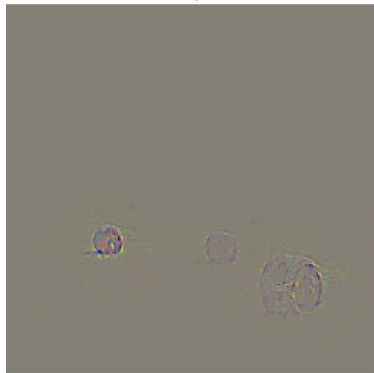
brown bear, bruin, Ursus arctos



# GradCam

- Include your visualization of Guided GradCam here

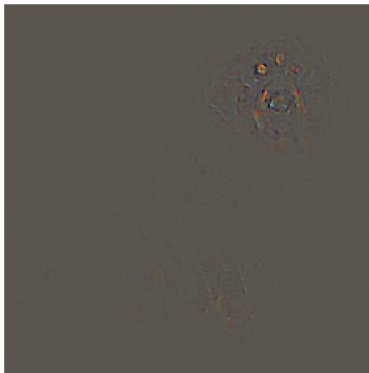
hay



quail



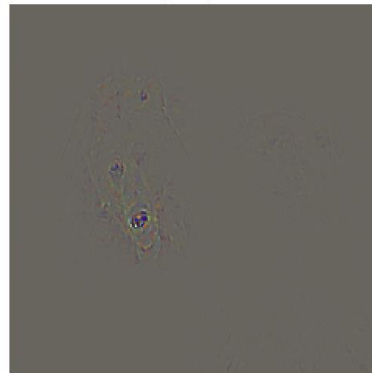
Tibetan mastiff



Border terrier

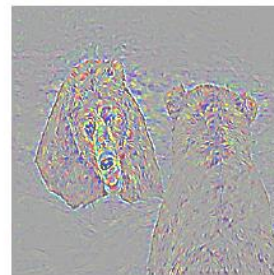
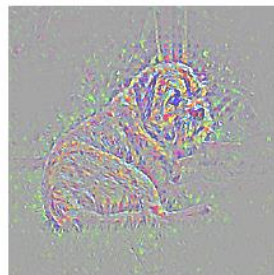
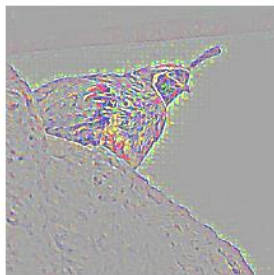
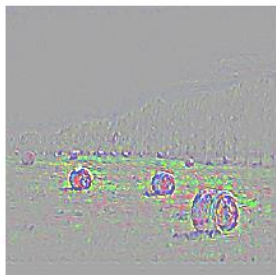


brown bear, bruin, Ursus arctos

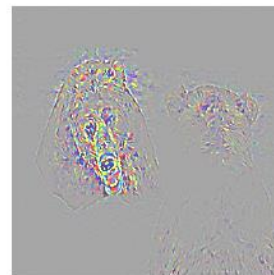
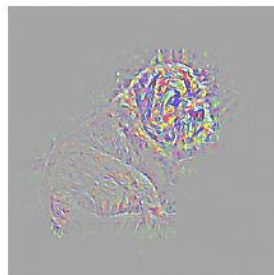
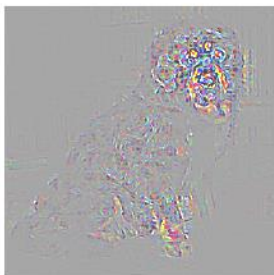
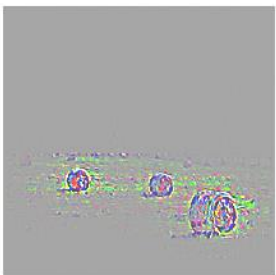


# GradCam

- Include your visualization of Guided Backprop and Guided Gradcam from Captum here



GuidedBackprop

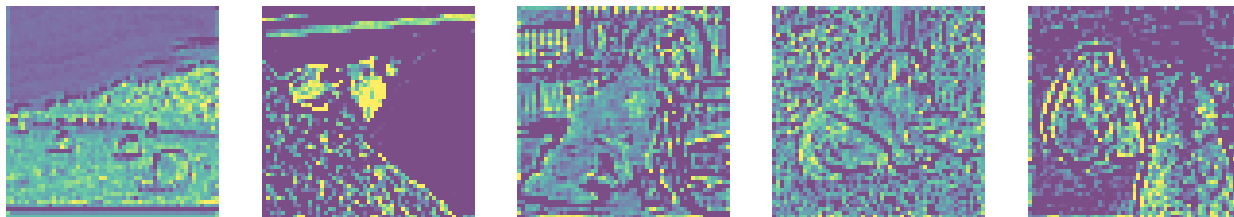


GuidedGradCam

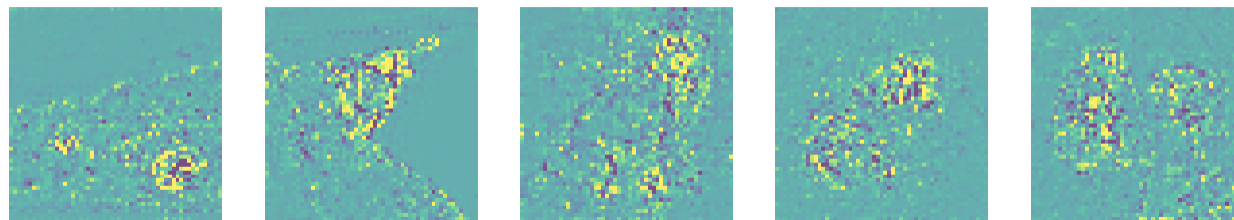


# GradCam

- Visualization of layers and neurons using Captum here:



LayerGradCam



LayerConductance

# What do saliency map and Gradcam tell you

- Answer: Saliency map calculate the impact of each point on the prediction category. The higher the brightness of the area, the greater the impact of this pixel on the prediction result.
- Grad-CAM uses the gradient of any target concept (such as the logits of a certain category in the classification category, or even the output in the caption task), flows into the final convolutional layer, and generates a rough positioning map to highlight the use of the image Important areas for forecasting.
- There techniques are very helpful for understanding the working principle of neural network. In the process of iterative training of the model, such a visualization method can also show the model's decision-making method to a certain extent.

# Fooling Image

- Include the fooling image here

hay



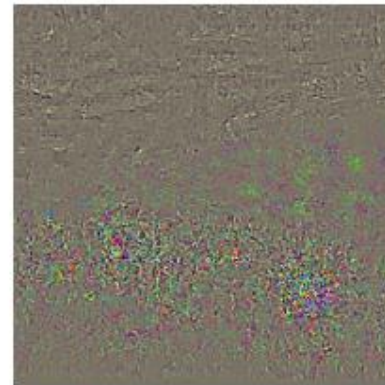
stingray



Difference



Magnified difference (10x)



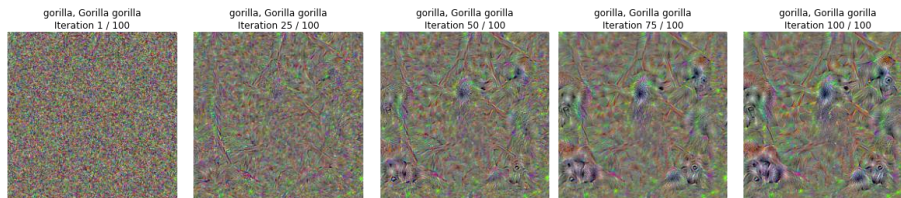
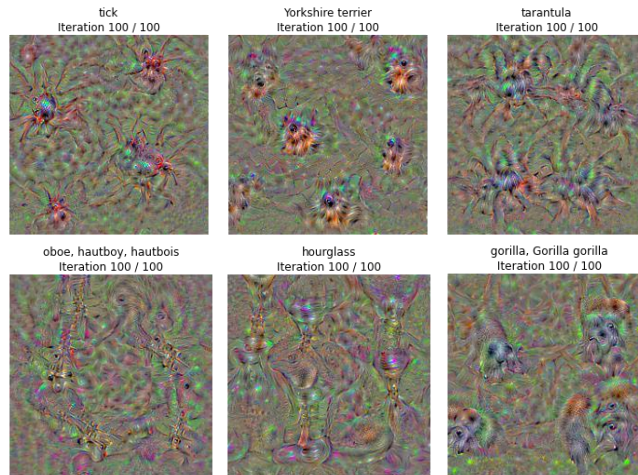
# Fooling Image

What insights do you get from fooling images:

- The fooling image adjusts the picture to make it fool the trained network, with iteratively update the input picture with the gradient of the target classification to the input picture.
- The features caught by the network are very different from humans. After we understand which pixels have a greater impact on the prediction results, by adding some noise that is difficult for humans to detect, it can significantly interfere with the prediction results.
- We can use the fooling image to train the network and make the results more stable.

# Class Visualization

- Include class visualization of Gorilla here



# Style Transfer

# Composition VII + Tübingen

- Include both original images and the transferred image

Content Source Img.



Style Source Img.



# Scream + Tübingen

- Include both original images and the transferred image

Content Source Img.



Style Source Img.





# Starry Night + Tübingen

- Include both original images and the transferred image

Content Source Img.



Style Source Img.

