Visual Computing Assignment 3: Report

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Source 1 and Mask 1:

Below are the input color image, binary mask image together with its corresponding inpainted image. This is a photo of myself during my travel to British Columbia.

Figure 1: Source 1 Color (Left) and Source 1 Mask (Right)

Figure 2: Inpainted Image

1. I consider this image to be a google choice for inpainting for the following reason:
   (a) My figure is very clear and the color of mine is easy to be distinguished from the background. In other words, my figure has a clear edge.
   (b) The general color of the background is simple as well. Specifically, the cloud is white with some blue strips. The mountain has a general dark green color and the color is the wood.
   (c) Most importantly, since the image itself has a pretty low resolution, it does not contain a lot of details, which means is easier for the inpainting image to work. Specifically, it is easier for the algorithm to determine a circle patch.
2. In my point of view, the general output is fine. However, there are several major defects.
   (a) You may notice that some parts of the sleeves are not well inpainted, which means the color still remains the original color of the sleeve. This phenomena happens on my hair as well. In my point of view, a possible reason is that the boundary of the mask is too irregular and complicated, which means that the algorithm could have difficulty in dealing with these regions.

Source 2 and Mask 2:

Below are the input color image, binary mask image together with its corresponding inpainted image. I took this picture of the wolf during my trip to Parc Omega, Quebec.

Figure 3: Source 2 Color (Left) and Source 2 Mask (Right)

Figure 4: Inpainted Image

1. I consider this task to be a bad example for inpainting is as following:
   (a) There are really a lot of details in this image. For example, specifically, there are a lot of trees with different gestures and different thickness.
   (b) The image contains some light effects, which means we need to deal with the shadows of both trees (both main body and branches). To make it even harder, the shadow and sunshine might have some more light effects in the texture of the snow.
   (c) The boundary of the wolf is very hard to describe as well. For example, its fur and irregular shape and also its ear.
2. In my perspective, the artifacts are as following:
   (a) The head of the wolf is not inpainted. In another direction, we could also say that the color of the snow ground is not well inpainted in the region of the wolf head. Also, this issue happens in the leg and backbone of the wolf as well. One of the possible reason is that the boundary shape of those areas are complicated in my binary mask and also the color-image. Another possible reason is that either the tree and snow ground has very complicated texture, which makes it hard for the algorithm to recognize a patch to inpainting.