5. Image 1: Mall.jpg

Figure 2: Mall.jpg – Original
775 x 769

Figure 1: Mall.jpg – Seam Carved
675 x 769
100w

Figure 3: Mall.jpg - Resized
675 x 769

The mall example is a failure case since, with the width reduced by 100 pixels, the foremost tree's trunk has been reduced to almost nothing. This is due to the tree having mostly the same color so the energy is low throughout as the derivatives would have been low in both directions. The branches are also much thinner which implies that most of the vertical seams went from a branch to the trunk but since the trunk had lots of intersections but each pixel could only last through one iteration, it quickly died out. Of note is that the second tree was also carved, although the trunk is not thick enough to look unnatural yet. Looking at the image, it seems fairly obvious that a height reduction would have worked well since the grass could have been cut out in a haphazard way and not broken the seeming chaos of the blades without damaging the buildings or trees since the grass is a pretty dull continuum of colors.

Image 2: Prague.jpg

Figure 5: Prague.jpg - Original
640 x 480

Figure 6: Prague.jpg - Seam Carved
640 x 380
100h

Figure 4: Prague.jpg - Resized
640 x 380

While seam carving did succeed in getting rid of the dull sky, it also took off a portion of the domed building on the left, even though it is somewhat hard to spot. So, this is a semi-success that would have been a total success if only a few fewer pixels had been removed. The resizing still looks fairly good, however, since there isn't a clear human figure to give a good look at what the proper height and width ratios should be. A way to improve this would have been to decrease the energy of the water reflections since their natural distortions would hide the seam carving removals.

Image 3: Archery.jpg (www.sports-information.org)

Figure 8: Archery.jpg – Original
530 x 353

Figure 9: Archery.jpg - Seam Carving
330 x 353
200w

Figure 7: - Archery.jpg - Resize
330 x 353

As long as you don't look at the tripod's legs, this is a complete success as it removed the space in-between the targets, the trees, and the field. The field lines look a bit odd but can be easily hand-waved as being due to the image being of the outdoors and on the grass. The idea of "distance" also remains, so the point of the image has remained. The resizing obviously has some ratio issues as the person is stick-thin and the image just has an odd feel to it.

Image 4: Pie.jpg (montaraventure.com)

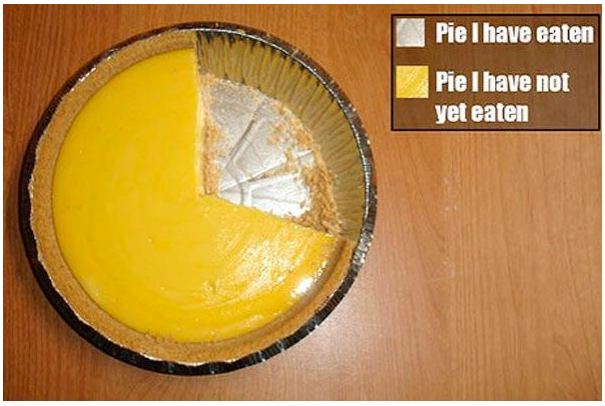

Figure 12: Pie.jpg – Original
600 x 397

Figure 11: Pie.jpg - Seam Carving
550 x 397
50w

Figure 10: Pie.jpg - Resize
550 x 397

The joke hasn't completely been lost since the essence is still kind of there although the misshapenness of the pie will be sure to confuse people as to whether or not they got the entire joke. Taking that into consideration, this isn't a complete failure, although it does showcase the failure of seam carving to take into consideration the importance of objects to the meaning of the image as it will diligently cut through any monotonous portion of the image regardless of whether or not it is important. By that note, seam carving should be used when the focal point of the image is colorful with different intensities and hues in close proximity to each other relative to its surroundings. The resized image, although obviously resized, isn't as good as the seam carving due to it being obviously resized whereas the seam carving seems like it is poking fun at the incompetence of the person who made the pie by some happy coincidence.

Image 5: Chaos.jpg (www.abm-enterprises.net)

Figure 15: Chaos.jpg – Original
800 x 600

Figure 13: Chaos.jpg - Seam Carving
500 x 500
50h 100w 50h 200w

Figure 14: Chaos.jpg - Resize
500 x 500

Contrary to its name, Chaos has predictable and smooth curves which are too curvy for the 8-connected seam to reach. This shows as the curving orange lines have artifacts where they are obviously jagged against the background. Compared to the resizing, the important parts of the image, other than the orange threads, have been kept large and mostly intact. Viewed from more than a small distance, the artifacts from seam carving become imperceptible so it would be okay for mobile phones and the like where the fine details are almost never missed. From afar, seam carving does a better job capturing and displaying the important bits, but from close-up, the resizing is of obvious better quality as the orange threads actually make sense. The lesson to take away from this is that seam carving shouldn't be used on images with sharp curves that make it impossible for a seam to travel along the curve.

Image 6: Suburb.jpg (wwwdelivery.superstock.com)

Figure 16: Suburb.jpg – Original
350 x 350

Figure 18: Suburb.jpg - Seam Carving
250 x 250
50h 100w 50h

Figure 17: Suburb.jpg - Resize
250 x 250

The obvious order of the image has been destroyed to the point where it looks like an artist's interpretation of the hidden disorder and ugliness hidden in the seeming order of the middle-class suburban neighborhood. This is quite clearly a failure as the houses have been given odd angles and walls, the roads have been cleaned unevenly (also due to the slopes of the roads being too great for 8-connected seams to traverse), and it just looks like a gigantic mess. The resizing is obvious of much higher quality. This can be generalized as seam carving cares little for the underlying order of the image and will remove everything depending on color, so the algorithm might best be used with a way to overcome the slope limit or with a way of avoiding the order of the image (unlikely).