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Computer Vision Problem Set 1
File 2

Prague Original Image
Size = 480 x 640 x 3

Prague Content-Aware Resize
Size = 380 x 540 x 3
Reduce width by 100 then reduce height by 100

Prague my resize

Prague imresize
380 x 540 x 3
Reduce width by 100 then reduce height by 100

Prague imresize

Explanation of Results

The boat in the image is one of the main focal points, so when 100 seams were removed from both dimensions, the algorithm made sure that the boat itself didn't get modified too much. The branches in the upper right corner appear to have bent in order to take place of the removed seams that contained mostly sky. The parts of the buildings that had more sky around them were more affected by the seam removal. The water, its contents, and the bridge remain relatively unchanged.

Mall Original Image
Size = 769 x 775 x 3

Note: the image was unable to fit with it's original proportions and has been scaled down without any removal of content.

# Mall Content-Aware Resize
Size = 569 x 575 x 3
Reduce width by 200 then reduce height by 200

# Mall imresize
Size = 669 x 675 x 3
Reduce width by 100 then reduce height by 100

Explanation of Results

I removed more seams on this image to help better show the differences. The trees in the content-aware image have shrunk significantly and the grass in the foreground has basically disappeared. As a result, the buildings and people in the background have more focus as the content around them has been removed. In the imresize image, everything looks around the same.

Beach Original Image
Size: 453 x 604 x 3

Beach Content-Aware Resize
Size = 403 x 304 x 3
Reduce width by 300 then reduce height by 50

Beach imresize
Size = 403 x 304 x 3
Reduce width by 300 then reduce height by 50

Explanation of Results

Since the ocean, sky, and beach stretch across the entire image, they can be removed relatively easily without affecting the person in the middle. Also, the rocks on both ends of the picture remain in the content-aware resized image. The imresize however can't handle the extreme reduction of width and looks shrunk when compared to the original image.

Profile original image
Size: 519 x 405 x 3

Profile Content-Aware Resize
Size = 319 x 305 x 3
Reduce width by 100 then reduce height by 200

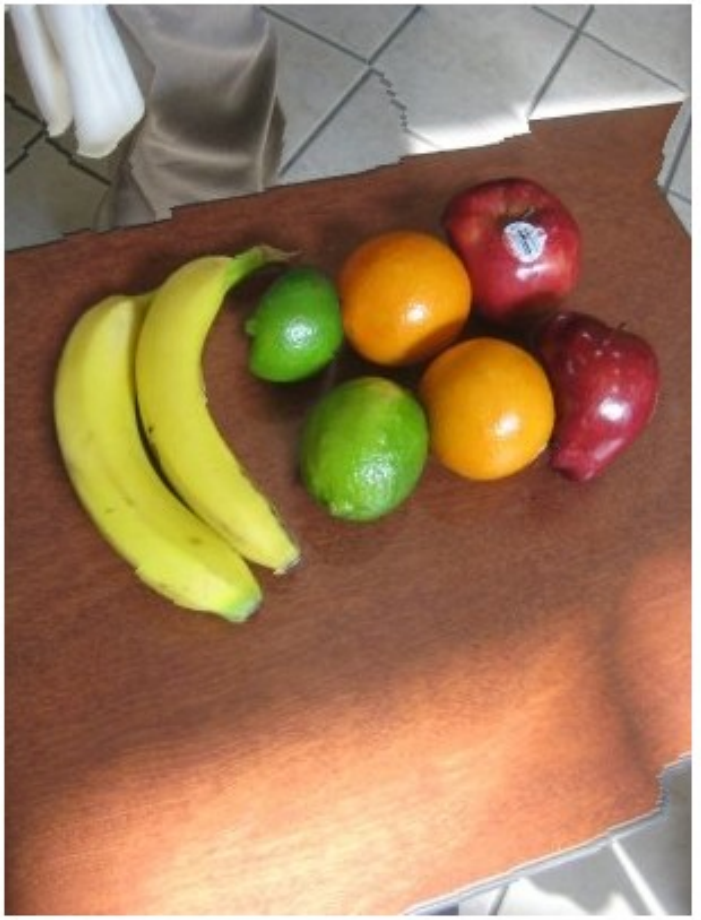
# Profile imresize
Size = 319 x 305 x 3
Reduce width by 100 then reduce height by 200

Explanation of Results

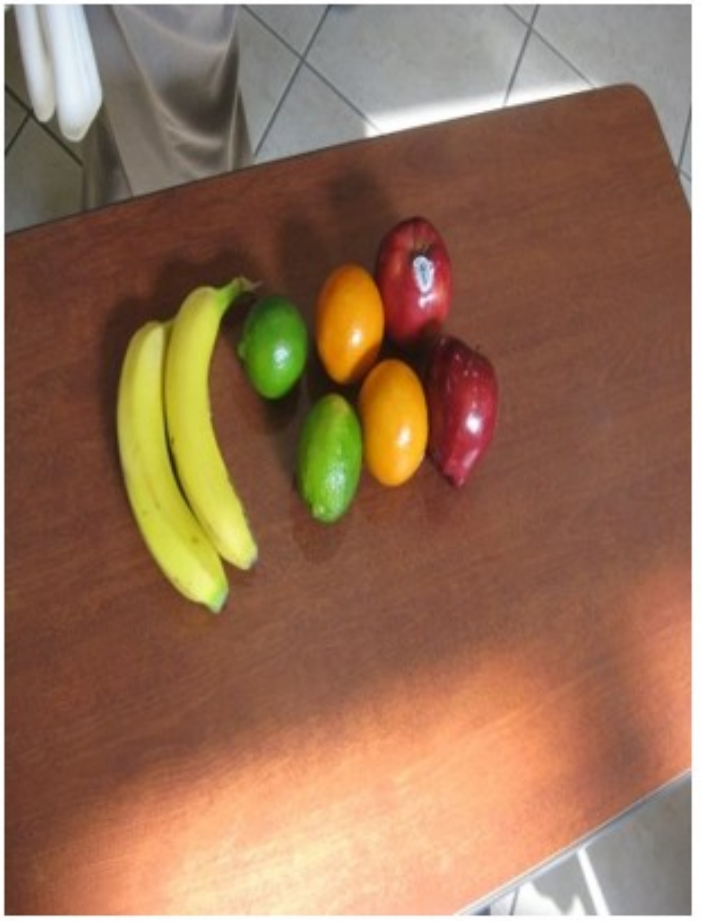
The content-aware resizing of this profile picture is very distorted. Forcing the image to reduce its size by around one half causes the content-aware resize to remove seams that help maintain the shape of the image. The proportions of the imresized image appears a little constrained when compared to the original image, but nothing important was removed.

Fruit Original Image
Size: 453 x 604 x 3

# Fruit Content-Aware Resize
Size = 403 x 304 x 3
Reduce width by 300 then reduce height by 50



# Fruit imresize
Size = 403 x 304 x 3
Reduce width by 300 then reduce height by 50



Explanation of Results

The content-aware resized image easily recognizes the fruit as the important content and preserves its shape. The table and floor, however, are not seen as important and are able to be distorted without any cause for concern. In the imresized image, the original proportions of the fruit are not maintained and cause the fruit to appear shrunk.