1 Methods

1.1 Computing Feature Vectors

1.2 Feature Normalization

2 Visualizations

2.1 Successful Segmentations

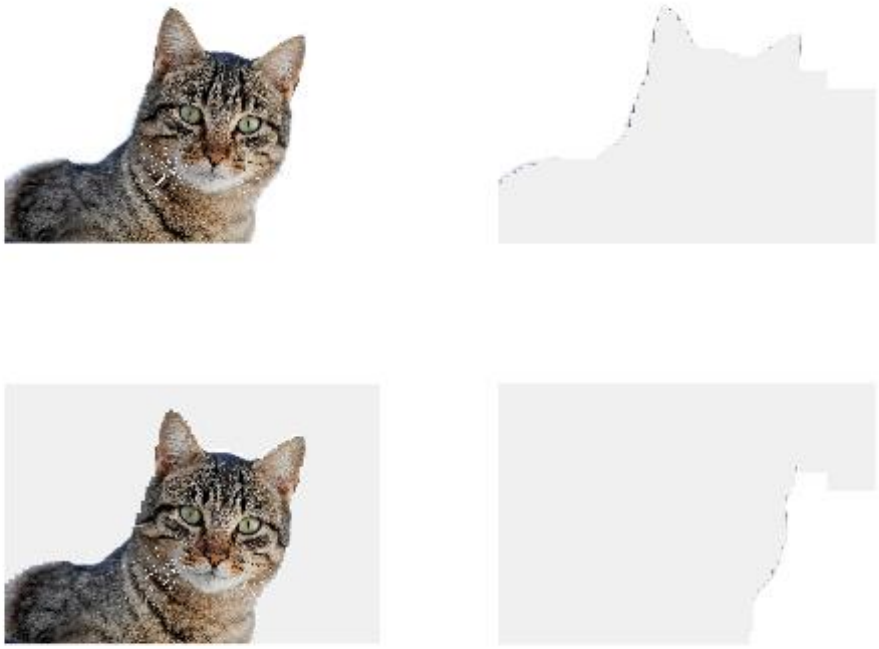

Figure 1: `cat_march.jpg`, using HAC with $k = 3$, position + color features, feature normalization, and a resize factor of 0.025.

Figure 2: `Cat_Bed.jpg`, using k-means clustering with $k = 4$, position + color features, and feature normalization.

Figure 3: `black_kitten_star.jpg`, using k-means clustering with $k = 3$, color features, and no feature normalization.

2.2 Unsuccessful Segmentations

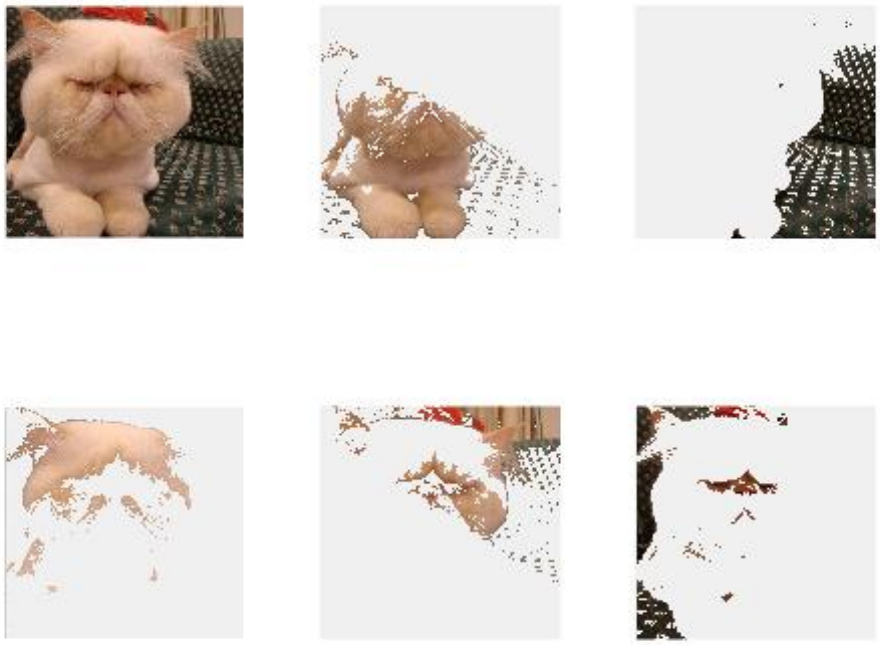

Figure 4: `cat_grumpy.jpg`, using k-means clustering with $k = 5$, position + color features, and no feature normalization.

Figure 5: `cat-jumping-running-grass.jpg`, using k-means clustering with $k = 3$, color features, and feature normalization.

Figure 6: `kitten16.jpg`, using HAC with $k = 3$, color features, feature normalization, and a resize factor of 0.25.

2.3 Composite Images

Using the script titled `GrabCat.m`, we were able to produce composite images by transferring segments from one image to another background image. This allowed us to create the two composite images shown below.

Figure 7: Input: `black_kitten_star.jpg, desert.jpg`, using k-means clustering with $k = 3$, color features, and feature normalization.

Figure 8: Input: `black_kitten.jpg, beach.jpg`, using HAC with $k = 5$, color features, feature normalization, and a resize factor of 0.2.

3 Evaluation