Nonlinear Multiresolution Image Blending

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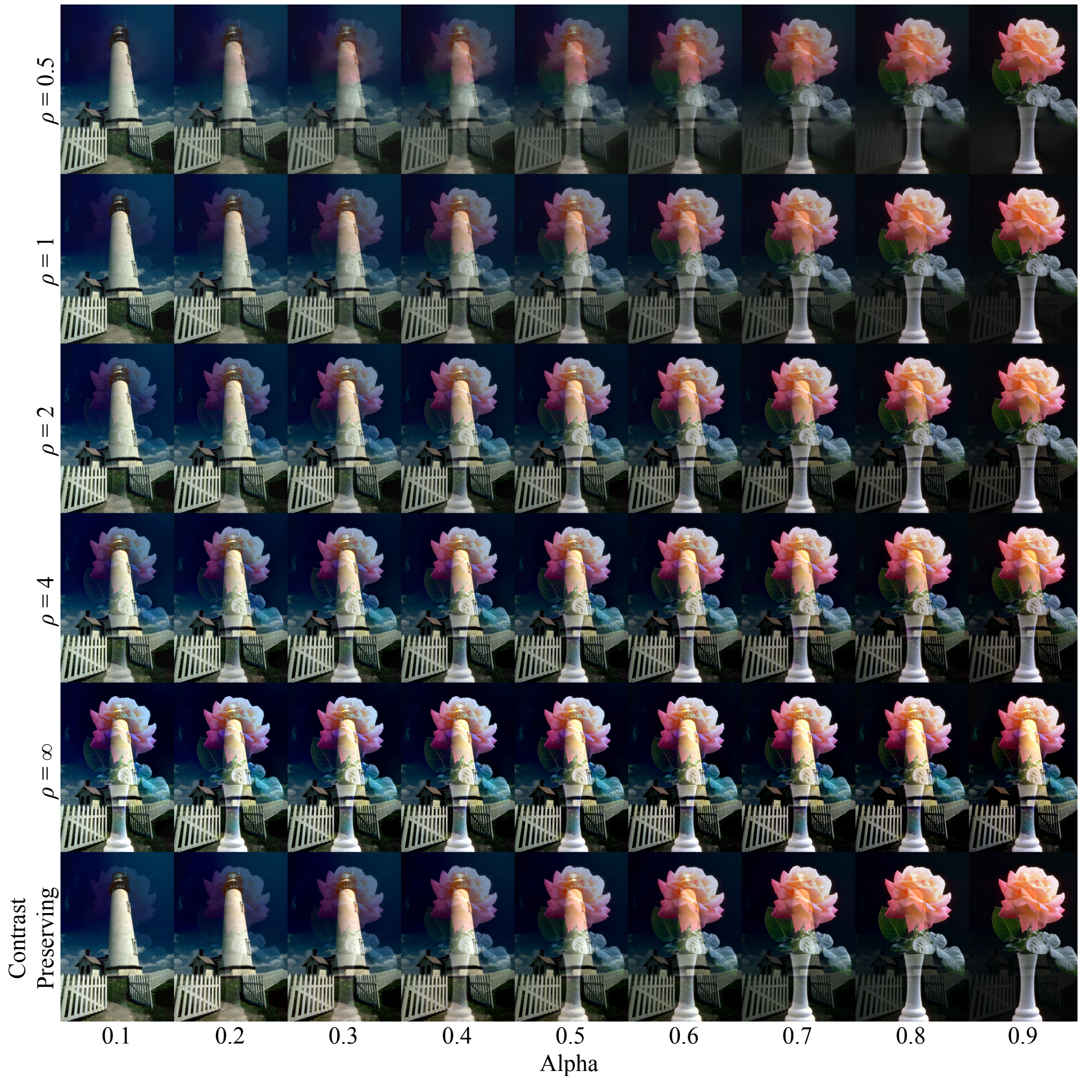
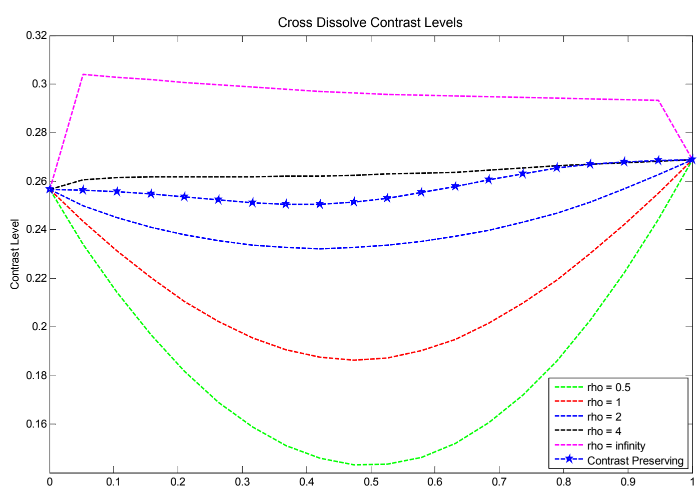
Contrast Variation in Cross Dissolve

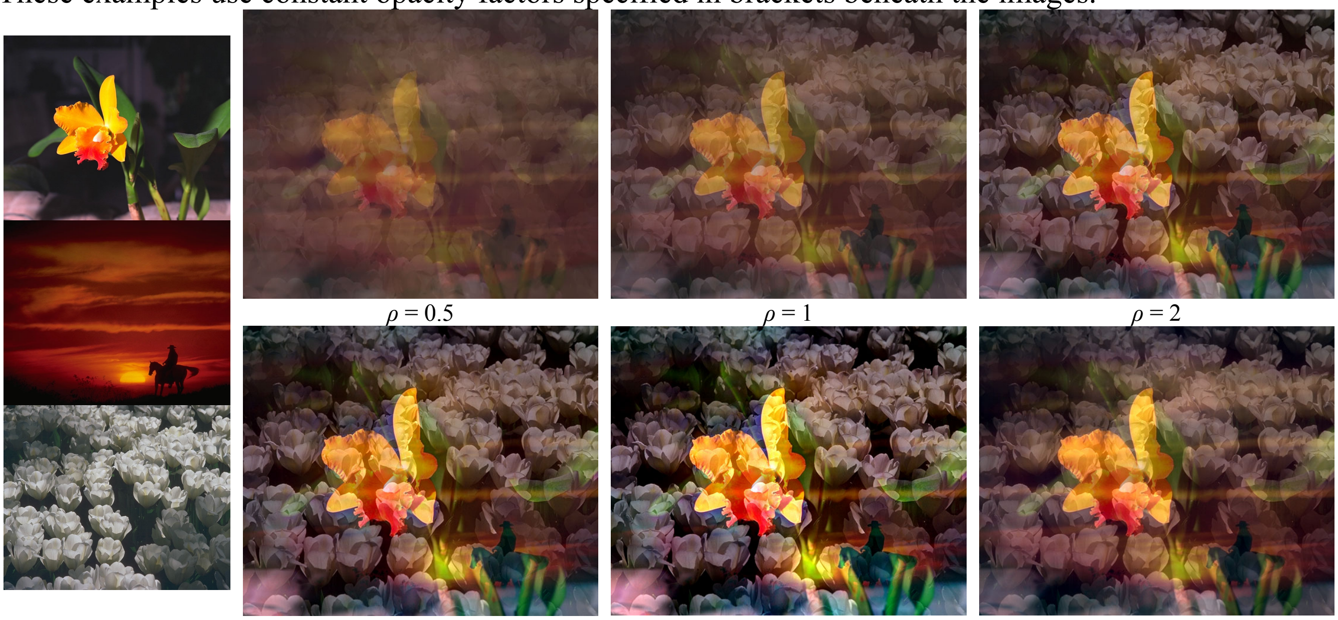




Notice that as ρ increases, the brightest and darkest parts of the images take longer to fade out, as they dominate the weighted signed power mean. Our contrast preserving method does not suffer from this effect, and yet also improves the contrast when compared with linear blending ($\rho = 1$). The graph clearly shows the effects on contrast levels when varying the ρ parameter of the weighted signed power mean. Contrast level is defined as the mean standard deviation of the RGB color channels.

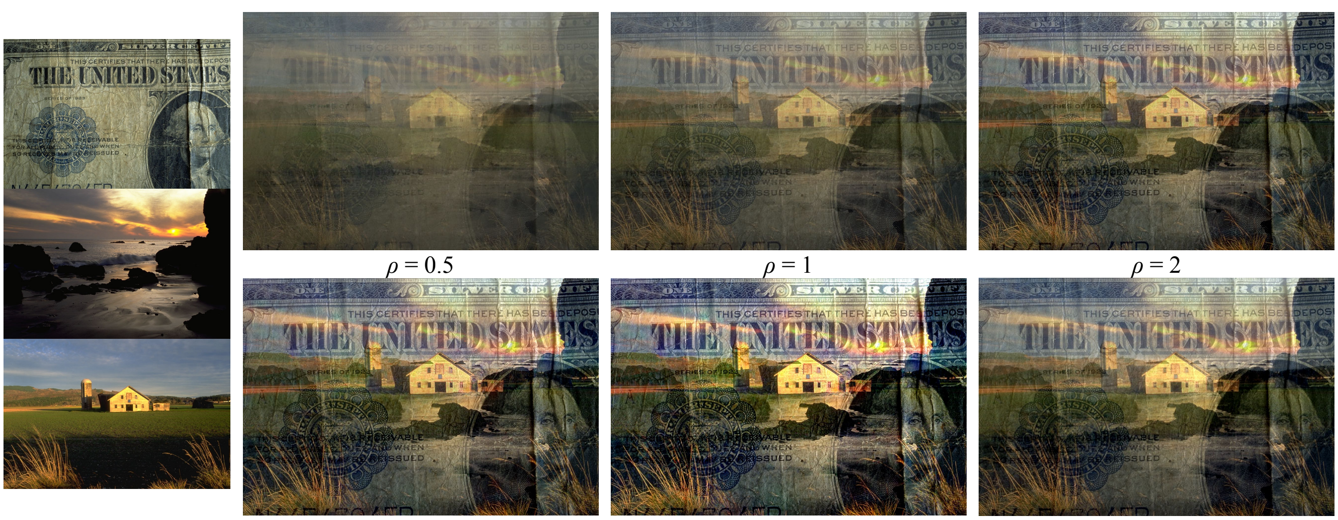
Image Blending

These examples use constant opacity factors specified in brackets beneath the images.



$\rho = 0.5$ | $\rho = 1$ | $\rho = 2$

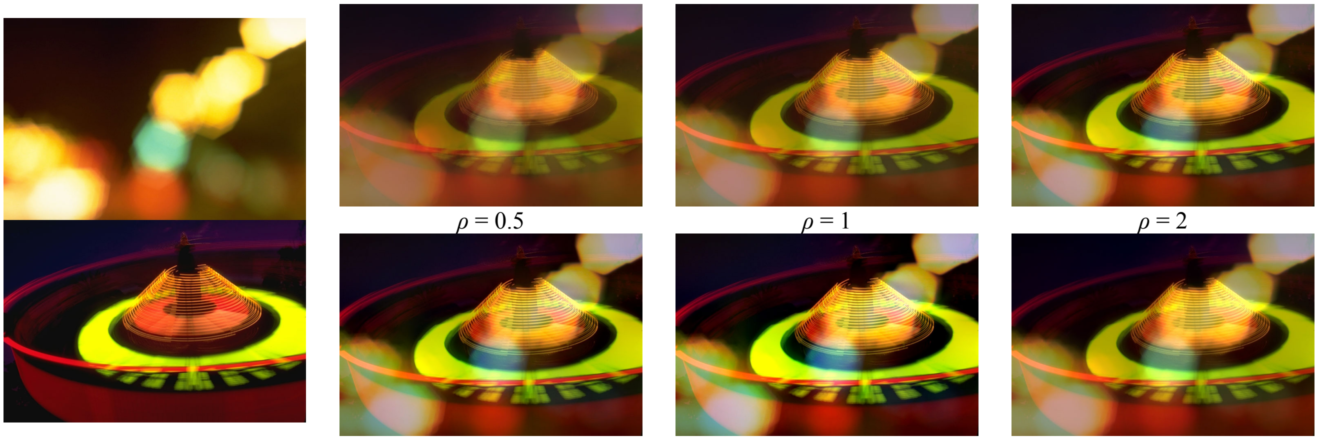
Source Images [0.33, 0.33, 0.33] | $\rho = 4$ | $\rho = \infty$ | Contrast Preserving



$\rho = 0.5$ | $\rho = 1$ | $\rho = 2$

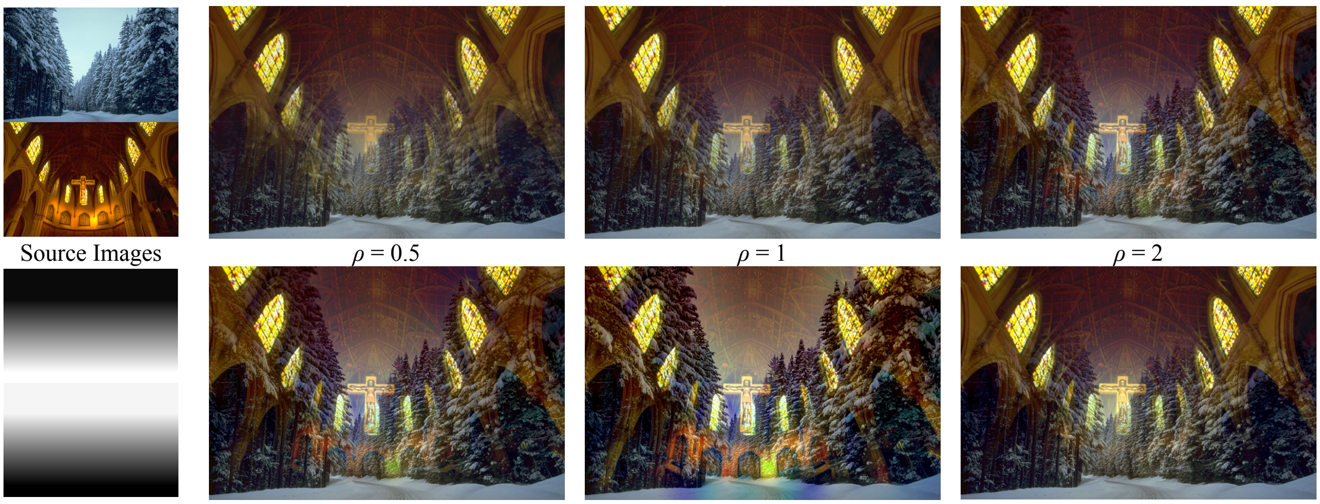
Source Images [0.33, 0.33, 0.33] | $\rho = 4$ | $\rho = \infty$ | Contrast Preserving

These examples show the importance of enabling users to balance the effects of linear averaging and maximal selection. In both examples, $\rho = 4$ produces an effective composite without displaying the contrast loss of linear averaging or the color distortions of maximal selection.

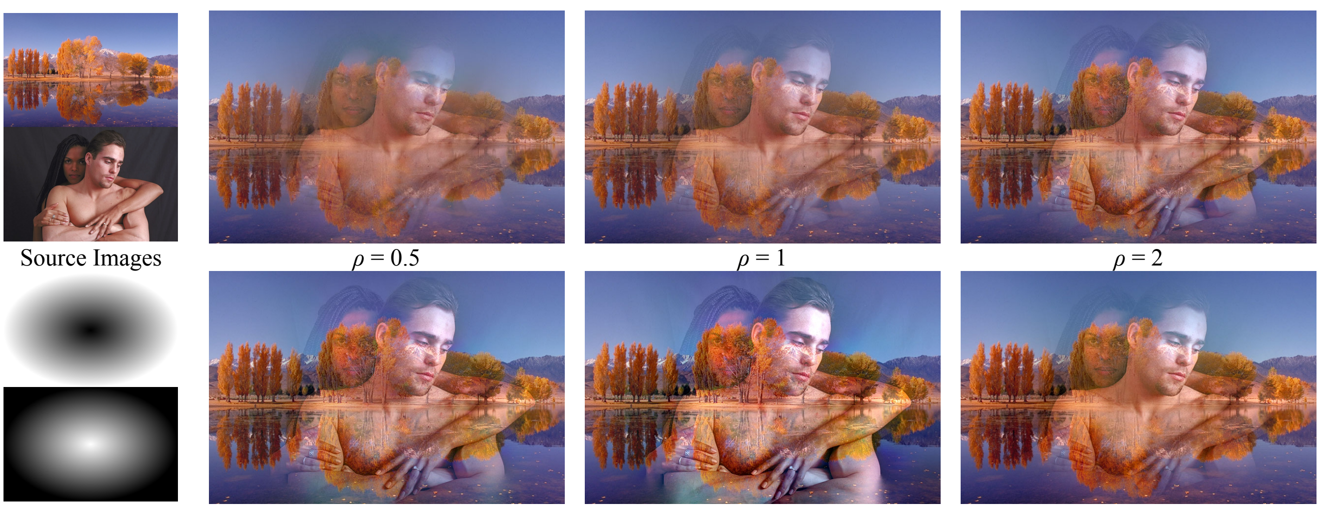


Source Images [0.5, 0.5] | $\rho = 4$ | $\rho = \infty$ | Contrast Preserving

Image Blending with Non-Uniform Image Masks



Opacity Maps | $\rho = 4$ | $\rho = \infty$ | Contrast Preserving



Opacity Maps | $\rho = 4$ | $\rho = \infty$ | Contrast Preserving

These examples show how non-uniform opacity maps interact with our method. As ρ increases the opacity maps become less significant because the largest term in the weighted signed power mean begins to dominate. Furthermore, in both examples when $\rho = \infty$ there is evidence of color distortion which is most noticeable in the blue areas at the base of the church scene.