

Semester project Observations

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Choice of regularization parameters

An experiment for choosing the regularization parameter σ was run on the HS algorithm. From Figure 1 it is seen that the choice of σ that gives the best result lies somewhere between 0.007 and 0.01. The NE algorithm was then run with $\sigma = 0.007$ for different values of the regularization parameter κ to produce Figure 2. It is seen that the best result comes from choosing $\kappa \approx 1$.

Using the a Sobel filter to approximate the gradients, the maximum value for the term $|\nabla g|^2$ is about $5.5 \cdot 10^5$, which explains why κ can be chosen to be relatively large.

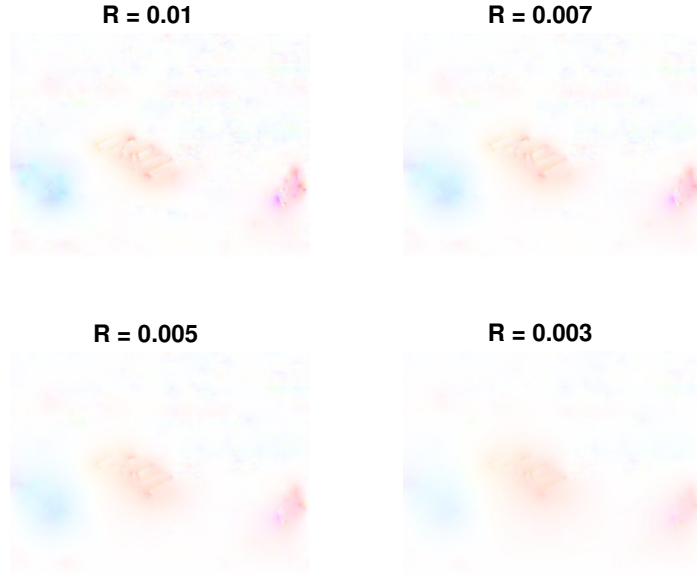


Figure 1: Different choices for regularization parameter σ using the HS algorithm

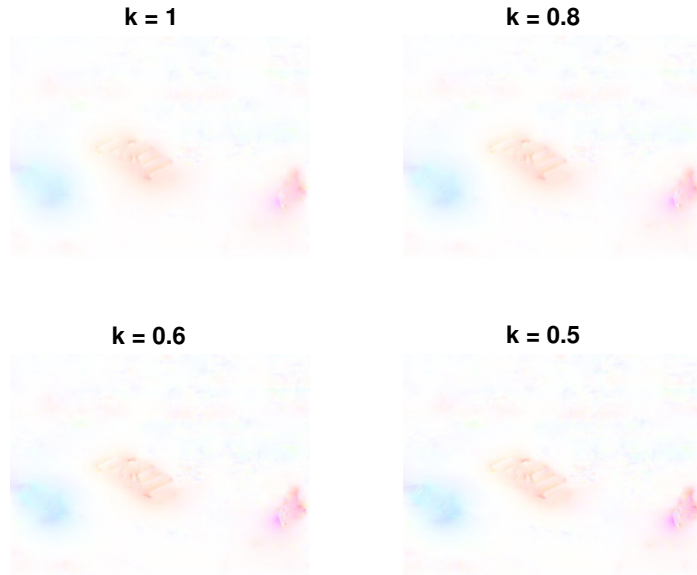


Figure 2: Different choices for regularization parameter κ using the NE algorithm