stencil method is decreased in the non-linear PDE method. That is non-linear method given worst inpainted image. Therefore, linear iterative PDE method gave the best inpainted image

Case 4: Linear iterative PDE and non-linear image inpainting PDE with Lorentz diffusion conductivity

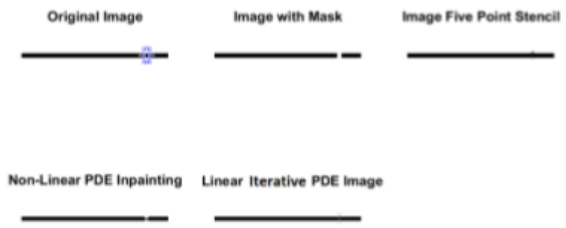

Figure 10. Image inpainting methods with Lorentz diffusion conductivity

Table 5. PSNR value for linear iterative PDE and non-linear image inpainting PDE with Lorentz proportional diffusion conductivity

Inpainting methods	5-point stencil method	Non-linear PDE	Linear iterative PDE
PSNR	34.7837	29.9902	37.3648

Here we consider the Lorentz Diffusion Conductivity. That is,

$$c(p) = \frac{1}{1+\frac{p^2}{k^2}}.$$

Here also, we use the 5-pointstencilvalues as a initial value of linear iterative PDE and non-linear PDE. When we study this table, we have same idea of previous methods. That is linear iterative PDE method gave the best inpainted image.

5. Conclusion

In this paper we solved Poisson's equation using 5-point stencil method. Here we used modified 5-point stencil method. It gave better results than the standard 5-point stencil method. Using modified 5-point stencil method values as an initial condition, we solve liner iterative and non-linear diffusion PDE. Also, here we consider different diffusion conductivity and compare their results. Using a PSNR value, we can see Linear iterative diffusion PDE method given the better results. Also, constant diffusion conductivity PDE had the worst results. Inverse diffusion conductivity PDE is better than that of the constant diffusion PDE. But it is worse than that of the Gaussian and Lorentz diffusion conductivity PDE. Gaussian and Lorentz diffusion conductivity Linear iterative PDE gave the better results for image inpainting.

6. References

[1] Bertalmio, M., Sapiro, G., Caselles, V., Ballester, C., (2000). Image inpainting. SIGGRAPH '00 Proceedings of the 27th annual conference on Computer graphics and interactive techniques, Wesley Publishing Co., NewYork, NY, USA, pages 417-424, 2000.

[2] Chui, C.K., (2009). An MRA approach to surface completion and image inpainting, Appllied and Computational Harmonic Analysis, Elsevier Science, Vol. 26, pages 270-276.

[3] Perona, P., Malik, J., (1990). Scale space and edge detection using anistropic diffusion, IEEE PAML, Vol. 12, pages 629-639.

