

Conclusion

After testing the demosaicking algorithms on a wide range of test images the color difference space interpolation outperforms the cubic spline interpolation with regard to error metrics and computation time. Though both methods show artifacts in high spatial frequency locations, images demosaicked by the color difference space method show very few visible artifacts, while the cubic spline method yields discoloration artifacts due to the fact that it only interpolates well on the green channel. The results prove the effectiveness of interpolating on color difference channels by taking advantage of the correlation between the original R, G, and B channels. Exploiting the similarities between channels while making adaptive edge detection decisions proves to boost the quality of demosaicked images substantially. Finally, it is important to consider computation time and ease of implementation in hardware when analyzing demosaicking algorithms since interpolation must often occur within digital camera hardware.