





















## 5. Conclusions

We proposed and demonstrated an improved, efficient, fast and hybrid algorithm known as Polar Wavelet-Gaussian filter (PoWer) for ring and other stripe artifacts suppression. It is designed to suppress ideal stripe artifacts consisting of straight horizontal or vertical constant offsets traversing the entire image. Tight contraction and classification of such ring artifact information is achieved by wavelet-Gaussian filter in polar domain, guaranteeing high preservation of all structural information with minimum blurring and reduced computational complexity. Four free parameters (i) reshaping the polar transformed image, (ii) the choice of the wavelet, (iii) the highest decomposition level  $L$ , and (iv) the damping factor  $\sigma$ , allow to control the filter behavior and extend its applicability to artifacts deviating from ideal stripes.

In addition to qualitative visual assessment, the filter performance was validated quantitatively by three parameters energy metric, blur metric and psnr. If only few stripe artifacts are present, a relatively small loss of signal energy, low blur metric and low psnr are usually achieved, indicating that most of the remaining image information is being preserved in a quantitative sense. Several case studies are presented and these examples demonstrate a wide range of applicability and a good adaptability of the filter to different situations and requirements. Compared to previous approaches, the new technique shows a very high selectivity.

## 6. References

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