Non Local Means

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1. **INTRODUCTION**

**Non-local means** is an image processing algorithm for [image denoising](https://en.wikipedia.org/wiki/Image_denoising). Local mean filters, take the [mean](https://en.wikipedia.org/wiki/Mean) value of a group of pixels surrounding a target pixel to smoothen the image, whereas non-local means filtering takes mean of all pixels in the image, weighted by how similar these pixels are to the target pixel. This results i much greater post-filtering clarity, and less loss of detail in the image compared with local mean algorithms. If compared with other well-known denoising techniques, non-local means adds "method noise" (i.e. error in the denoising process) which looks more like [white noise](https://en.wikipedia.org/wiki/White_noise), which is desirable because it is typically less disturbing in the denoised product. Recently non-local means has been extended to other image processing applications such as [deinterlacing](https://en.wikipedia.org/wiki/Deinterlacing), view interpolation, and depth maps regularization.

1. IMPORTANCE OF NON LOCAL MEANS
2. IMPLEMENTATION

3.1. Implementation on CPU

3.2. Implementation on GPU

1. RESULTS
2. CONCLUSION
3. REFERENCES