

Sharpening in Photoshop & Photoshop Lightroom

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Nondestructive Image Processing in Photoshop

Overview

- ▶ Sharpening is an illusion created by
 - ▶ Color
 - ▶ Contrast
 - ▶ Edge
- ▶ It is essentially a restorative process not one that makes fuzzy sharp
- ▶ There is no “one size fits all” sharpening

Tools and Concepts

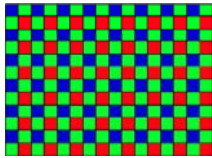
- ▶ In Photoshop
 - ▶ Layers
 - ▶ Layer Masks
 - ▶ Blend Modes
 - ▶ Filters
 - ▶ Reduce Noise
 - ▶ Unsharp Mask
 - ▶ High Pass Filter

Tools and Concepts

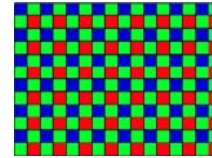
- ▶ In Photoshop Lightroom
 - ▶ Clarity
 - ▶ Detail
 - ▶ Sharpening
 - Amount
 - Radius
 - Detail
 - Masking
 - ▶ Noise Reduction
 - Luminance
 - Color

Bayer Pattern

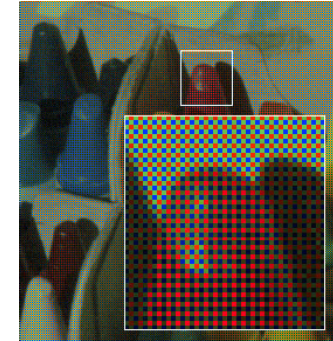
- ▶ Image is recorded on pixels under different color filters forming the RGB information
- ▶ This mosaic pattern needs to go through “demaicing”



Bayer Pattern Demosaicing



Red crayon registers under red filtered pixels and the missing parts of the mosaic has to be constructed by looking around the surrounding pixels. This results in the slight loss of sharpness that needs to be reconstructed.



http://4freephoto.com/en/?page_id=56



When to sharpen

- ▶ **Single-pass sharpening is inadequate**
 - ▶ We need to cover up for the camera
 - ▶ Bayer demosaicing process
 - ▶ We need to apply creative sharpening
 - ▶ To enhance the feeling of sharpness
 - ▶ We need to apply output sharpening
 - ▶ Different output needs different sharpening
- ▶ So sharpening is a three stage process with the middle one being optional



Three stages

- ▶ **Capture sharpening**
 - ▶ Gentle sharpening to regain the lost acuity
- ▶ **Creative sharpening**
 - ▶ To enhance sharpening in selected parts
- ▶ **Output sharpening**
 - ▶ To produce the best output on different devices



Capture sharpening

- ▶ **Determinants**
 - ▶ Capture device
 - ▶ Image content
 - ▶ Noise, noise, noise (to quote Grinch!)



Image study



The difference is

- ▶ **Frequency**
 - ▶ Low frequency images have fewer transitions with fewer edges
 - ▶ High frequency images have many transitions with many edges
- ▶ **Needing different kinds of sharpening**
- ▶ **Other images will be in between**
- ▶ **Consider the preponderance of low or high frequency**



Rule of Thumb

- ▶ **Use lower radius settings for HF**
- ▶ **Use higher radius settings for LF**
- ▶ **OK, but, what the heck is “radius”**
- ▶ **Let’s dig in**



Sharpening Tool Controls

- ▶ **In Photoshop**
 - ▶ Radius, controls the width of halos
 - ▶ Amount, controls the added contrast
 - ▶ Threshold, controls what to leave alone
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Sharpening Tool Controls

- ▶ **In Lightroom / Adobe Camera Raw (ACR)**
 - ▶ Radius
 - ▶ Amount
 - ▶ Detail
 - ▶ Masking
 - ▶ In an indirect way, Luminosity noise reduction
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Concepts to Explore

- ▶ Lightroom sharpening
 - ▶ Photoshop sharpening
 - ▶ Unsharp mask
 - ▶ Edge sharpening
 - ▶ Surface noise reducing
 - ▶ High Pass sharpening
 - ▶ All in three stages, capture, creative, output sharpening
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