

Today: Photoshop intro

Please do your ratings for Best of Web by 5 pm  
Probably no more action in waitlists.

Buy Photoshop

- **CU-Boulder Campus:**

- Login to [MyCUInfo](#) with your CU login name and Identikey password.
- Click on either the "**Student**", "**Teaching Tools**" or "**CU Resources**" tab.
- Select "**Software Resources**" on either the left or right hand side of the page. This will expand to a list of links.
- Finally, click the link "Login to eAcademy" under the "**eAcademy**" section.

\$170.96

Other options: previous versions of PS on eBay etc., but can't open new camera RAW files.

Photoshop Elements: < \$100, probably adequate for this class.

Adobe Lightroom: not as powerful as PS, is designed for professional photography workflow, making same changes to many images at once.

Gimp: Online, open source image processing software.

Most image processing software will be  
adequate for this course: crop, brightness, intensity, spotting

Topics in PS that we'll cover today:

1. Desktop nav
2. Contrast
3. Color channels
4. Crop tool
5. Clone stamp
6. Filters
7. Layers; advanced topic, won't really get to.

1. Desktop nav: menus, tools, toolbar info, history,

2. Contrast

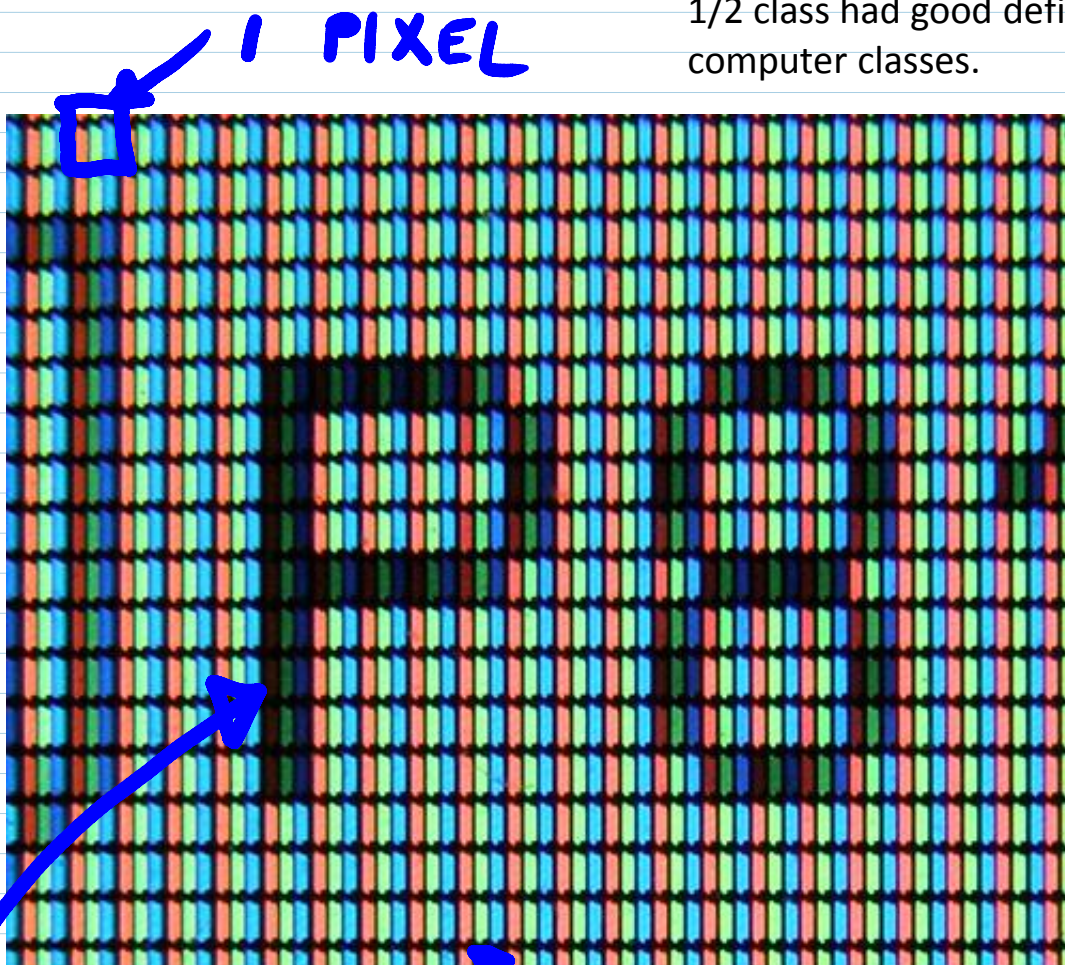
Minute paper: What is a pixel? What is it made of (for software purposes)?

The word *pixel* is based on a contraction of *pix* ("pictures") and *el* (for "element");

Pasted from <http://en.wikipedia.org/wiki/Pixel>

On a screen, = 1 red, 1 blue, & 1 green light emitter.

1/2 class had good definition, learned in computer classes.



R,G,B = 0,0,0 = black, off.

[http://en.wikipedia.org/wiki/File:Closeup\\_of\\_pixels.JPG](http://en.wikipedia.org/wiki/File:Closeup_of_pixels.JPG)

[:Closeup of pixels.JPG](#)

R,G,B = 0,0,0 = black, off.

R,G,B, = 255, 255, 255 = all full on = white (8 bits =  $2^8$  = 256 possible levels)

R,G,B = 0,0, 256 = blue

# bits used per pixel per color = color depth, bit depth

Cameras are often 12 bit depth, but Photoshop has limited capabilities for depths > 8 bits

Values of R=G=B, (i.e. 100,100,100) should be neutral grays. If not, check your screen calibration. Calibrator is available for checkout.

Increase contrast in PS:

Use Image>Adjustments>Curves or hotkey ctrl-m

It's all you need. Avoid automatic adjustments; they will rob you of skill.

Look at info, shows RGB values. Also shows equivalent CMYK, used in hardcopy industry.

Curve = 'transfer function'; maps starting pixel values to final.

Increased contrast has 'S' shape.

Avoid saturating highlights and shadows; try to retain information there by having a non-zero slope at bottom and top.

#### 4. Crop tool:

Make sure specs in toolbar are clear.

Can rotate crop using cursor outside of crop area

Choose 'Perspective' in toolbar to change a non-rectangular area into a rectangular one.

#### 5. Clone stamp

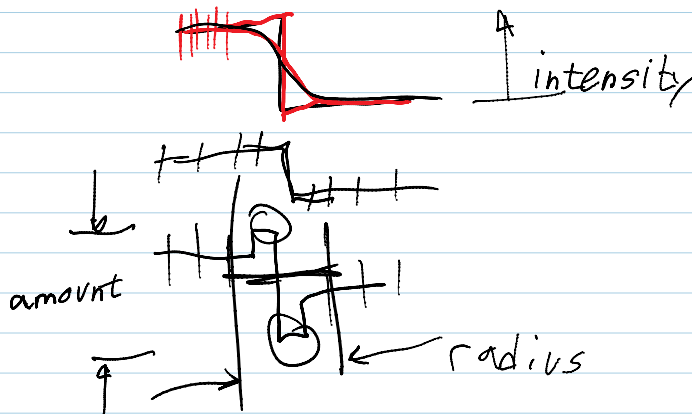
Better than 'healing brush' for corrections, but healing brush really is good for fixing face blemishes.

#### 6. Filters

Can do wild stuff, but algorithms are unknown. When making images for both scientific and artistic purposes,

avoid destroying information whenever possible. Try to get desired effects with known transformations instead of mysterious ones.

Sharpen: amplifies difference between adjacent pixels. Old painting technique; edges outlined by black on one side, white on the other. Use Unsharp Mask.



## File Formats

Information is **lost** when saving in jpeg

[http://cscie12.dce.harvard.edu/lecture\\_notes/2011/20110309/slide42.html](http://cscie12.dce.harvard.edu/lecture_notes/2011/20110309/slide42.html)

Non-Lossy image file formats. These are acceptable for edited images submitted in class.  
RAW, TIF, PNG, PSD

Most PHD cameras store images as jpg. Open in PS, then edit and store as PSD, Photoshop's native format.

DON'T use *Photoshop* RAW. Metadata is lost; images can't be opened.  
*Camera* raw formats, like NEF, CR2 etc, are OK.