How to Take/Make Better Pictures

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Poisson image editing

- Two aspects
  - When the new gradient is conservative: Just membrane interpolation to ensure boundary condition
  - Otherwise: allows you to work with non-conservative vector fields and

- Why is it good?
  - More weight on high frequencies
    - Membrane tries to use low frequencies to match boundaries conditions
  - Manipulation of the gradient can be cool (e.g. max of the two gradients)
    - Manipulate local features (edge/gradient) and worry about global consistency later

- Smart thing to do: work in log domain

- Limitations
  - Color shift, contrast shift (depends strongly on the difference between the two respective backgrounds)
Other functionals

- I lied, some people have used smarted energy functions:
  Todor Georgiev’s initial implementation of the Photoshop healing brush.
Plan

- **How can you improve?**
  - Critique
  - Look at good pictures
  - Be critiqued
  - Missions
  - Find something you like
- **20 tricks**
- **Composition**
  - Viewpoint
  - Rule of thirds
    - Harmonic analysis
  - Background, clutter
  - Gaze, saliency
  - Gestalt
- **Photos that “pop”**
- **Portrait**
  - Lighting
  - Makeup
  - Digital makeup
What do I know about good pictures?

- Not much: amateur photographer, mostly birds and candid portraits
Is there a science of aesthetic?

- Well, that’s an interesting question...
Are there rules of aesthetic?

• Well, that’s an other interesting question…
View it as a vocabulary to talk about pictures

• It’s like wine: you describe taste with lots of poetic and metaphorical words
• It does not matter if they’re meaningful
• It gives you a support to think about it

• If you don’t need it: good for you, ignore what I say
Computational photography

• When studying good photography principles & techniques, you might want to wonder:
  – Can we automate?
  – Can we facilitate? Provide easier manipulation tools?
  – What are the dimensions of variation, what “aspects,”
    or “components” of images are important
How to improve?
Take pictures, critique your pictures

• And get them critiqued
Look at good pictures!
Copy photographs
Check out the web
Missions

• Give yourself a theme, constraints
• Look at contests online:
  – http://www.dpchallenge.com/
  – http://www.fredmiranda.com/
• Work with friends, critique
Tips
Technical points

• **Know your equipment**

• **Understand the parameters**
  – Shutter speed, aperture, focal length, depth of field
  – Debrief your photos, look at the EXIF metadata

• **Check your exposure**
  – Histogram, blinking highlights
  – Unless you shoot HDR

• **Sharpness matters**
  – Choose the right shutter speed
  – Use a tripod
  – Image stabilization rocks
  – Focus on the appropriate thing

• **Optics matters**
  – Use a good lens
  – Put the hood on
42 advice

• Collected from random books,
• Just guideline
• When you do an effect, exaggerate. No middle ground. In particular, if you break one of the advice after, do it frankly

• Don’t just take photos, edit them, study what went well, what’s wrong
Composition

- Find a center of interest
- Don’t center everything (e.g. rule of the thirds)
  - Careful with autofocus
- Change your viewpoint, move your feet!
  - Get close (if you can’t get it good, get it big [John Shaw])
  - Try unusual viewpoints
- Try different focal lengths
  - Telephoto, wide angle
  - Focal length allows you to control the relative size of elements at different depth (moon in particular)
- Careful what you cut off
  - Sweep edges of frame
- Build on lines and curves
  - But careful with near-parallelism
  - Careful with converging perspective
- Include framing elements
Framing
Don’t center
Rule of the thirds

The rule of thirds is a guideline developed by artists centuries ago. When the subject—or its most important element—is placed near one of the intersecting points of an imaginary grid, the viewer’s eye is led through the frame. The result is an aesthetically strong image.
Quaking Aspen Grove, Colorado.

Nikon F5, Nikon 300mm lens + 1.4X teleconverter, Fuji Velvia.

Photo John Shaw
Don’t center: Crop
Don’t center, especially for motion
Sweep the frame to check for trouble

- Cropped element, distracting object, non-parallel line
Careful with frame edges
Photoshop

figure 7.27

BEFORE

figure 7.28

AFTER

© Laurie Thompson, Imagination Studios
Frame your subject

Frame Your Subject
Try framing your picture with foreground objects to add depth to the image.

http://www.fotofinish.com/resources/centers/photo/takingpictures.htm
Use natural frames
Tighten the composition (Photoshop)
Viewpoint, perspective, focal length
Get close

- Our eyes tend to “zoom” and forget how small the subject is
- or crop (but then you lose resolution)

http://www.fotofinish.com/resources/centers/photo/takingpictures.htm
Viewpoint

• High viewpoint
Use unusual viewpoints

Photo National Geographic
Avoid accidental alignment

Avoid Mergers
As you position yourself to avoid a cluttered background, also look out for trees, lamp posts, and other background objects which might merge with your subject in unfortunate ways.

Don’t let a tree grow out of your subject’s head
Reposition your subject or yourself to avoid mergers

http://www.fotofinish.com/resources/centers/photo/takingpictures.htm
Avoid accidental alignment…

• Unless you mean it
Special effects

• In general, accidental alignments are bad
## Lenses

### National Geographic Photography field guide

<table>
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<tr>
<th>Situation or Subject</th>
<th>Most Appropriate Lens</th>
<th>Other Lens Choices</th>
<th>Other Lens Choices</th>
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</thead>
<tbody>
<tr>
<td>A small coin, butterfly, or a single blossom</td>
<td>True macro lens for high magnification</td>
<td>Macro zoom lens for lower magnification</td>
<td>Extension tube or supplementary close-up lens (see glossary)</td>
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<tr>
<td>Distant sports or racing action</td>
<td>Telephoto lens of 400mm or longer</td>
<td>Zoom lens including 300mm or longer focal length</td>
<td>2x or 1.4x teleconverter on a shorter telephoto lens; tripod or monopod</td>
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<tr>
<td>Tall buildings or trees</td>
<td>24mm to 35mm perspective-control lenses</td>
<td>Conventional wide-angle lens, or short telephoto from a greater distance</td>
<td>n.a.</td>
</tr>
<tr>
<td>Distant bird or small animal</td>
<td>500mm telephoto</td>
<td>500mm f/8 mirror lens or zoom including 400mm focal length</td>
<td>Teleconverter on a 200mm or 300mm lens; tripod in all cases</td>
</tr>
<tr>
<td>General wildlife</td>
<td>300mm lens or zoom with 300mm</td>
<td>400mm lens or zoom with 400mm</td>
<td>Teleconverter on 300mm lens; tripod</td>
</tr>
<tr>
<td>Cramped interiors</td>
<td>Ultra wide-angle lens, e.g. 20mm. Full-frame fish-eye lens if distortion is acceptable</td>
<td>Wide-angle lens, e.g. 28mm</td>
<td>May need tripod or fast film</td>
</tr>
<tr>
<td>Indoors, where flash and tripod are not allowed</td>
<td>“Fast” 50mm f/1.4 or f/1.8 lens</td>
<td>Any f/2.8 lens</td>
<td>Table-top tripod: “fast” ISO 400 or 800 film</td>
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<tr>
<td>Sports subjects at various distances</td>
<td>100-300mm (or similar zoom)</td>
<td>Longer zoom</td>
<td>Teleconverter with a 200mm or longer lens; ISO 400 film to stop action</td>
</tr>
<tr>
<td>Landscape or cityscape from a fixed position</td>
<td>20-35mm focal length</td>
<td>28-80mm zoom or 80-200mm for compressed perspective</td>
<td>n.a.</td>
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<tr>
<td>Head and shoulders portraits of people</td>
<td>85mm to 135mm</td>
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<tr>
<td>Large groups or family gathering</td>
<td>28mm lens or wide-angle zoom</td>
<td>24mm or shorter focal length in cramped quarters</td>
<td>n.a.</td>
</tr>
</tbody>
</table>
Perspective vs. viewpoint

- Focal lens does NOT ONLY change subject size
- Same size by moving the viewpoint
- Different perspective (e.g. background)

Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-Make up-Retouching
Focal length & composition

• With the focal length, you control the relative size of objects at different depths
Try unusual focal length

- Wide angle for portrait
- Telephoto for landscape & architecture
Isolate detail (crop)
Isolate detail

+ boost colors with curves
Detail/pattern
Changing viewpoint
This conventional view of the Mesquita of Cordoba, Spain (above), works well as a record shot, but it is not the product of careful observation. Looking down from the same shooting position, I noticed the tower of the building reflected in a puddle of water. Placing the camera nearly in the water, a wholly more intriguing viewpoint was revealed (right). An advantage of using a digital camera with an LCD screen is that awkward shooting positions are not the impossibility they would be with a conventional camera.

Nikon Coolpix 990.

From Digital Photographer’s Handbook
A little bit of geometry

• Build on lines, curves, convergence, and repetition
Build on lines
Build on lines and curves

From Digital Photographer’s Handbook
Build on lines and curves

Yellow-crowned night heron
© 1999, Joe and Mary Ann McDonald
Build on lines and curves
Warning: near-parallelsim

- In particular, keep horizon level
- Use crop with rotation to fix this

Don't let lines unintentionally throw your photo off balance. When you shoot the horizon or a building, keep the straight lines level—unless you're shooting at a dramatic, intentional angle.

http://www.fotofinish.com/resources/centers/photo/takingpictures.htm
Try unusual angles

Try Unusual Angles
Be bold! Try turning your camera to 45 degrees before snapping a picture. Or instead of snapping it from eye level, kneel down or lie on the ground to get a more interesting shot.

http://www.fotofinish.com/resources/centers/photo/takingpictures.htm
Unusual angles
Avoid near-parallel lines…

• Unless you mean it
Correct perspective (perspective crop)

+ you control reflection and perspective independently
A hellish landscape yields scant forage for camels wandering beneath the black plumes of burning oil wells in Kuwait. Retreating Iraqis had ignited the wells, poisoning lands and air. “There were fires shooting out of the ground for as far as I could see,” says photographer Steve McCurry. “It was like the end of the world.” Across the fiery face of Africa’s Namib Desert, a sidewinding adder sculpts artistic body prints in sunbaked sand. Stretching for 1,300 miles along the continent’s southwest coast, the Namib is moistened by sea fogs that sustain a host of creatures, many of which are still being discovered and named.
Look for patterns
Background, clutter

• Pay attention to negative spaces
  – Accidental alignments
  – Cluttered background
  – Sweep the edges of your frame

• Manage depth of field

• Simplify composition
Negative space

- The ground defines the negative space
- Usually overlooked
- Fundamental for balance
  - Also for typography

[Diagram showing a picture, figure, and negative space]
Avoid cluttered background

• Again, move your feet

Avoid Cluttered Backgrounds
Don't let a cluttered background overwhelm or obscure your subject. Move around, or lie down, to get a clear shot at your subject without the distractions.
Photoshop
Photoshop

**figure 9.5**
Exceeding the original image reveals distracting elements.

**figure 9.6**
Negative spaces (& Bokeh)
Making the Subject Pop

Creating one big, blue slate. Close observation may reveal a background reflection of whatever is immediately behind the water, which could be dark shrubs, trees, a bank, and even clouds. This changes the reflection, giving depth and tonality to the water. Moving in the process.

The contrary is true as well. The background can squelch a great waterfowl or shorebird photograph. The busy patterns of reflected reeds, tangles of cordgrass, or intertwined tree branches can interfere with a subject as effectively as the real things. Reducing the depth of field...
Distracting background
Get rid of exit signs
Isolate using blur

• Don’t over-do it
Simplify, crop, clone/healing brush
**Problem...**

**Background distractions**
In the chaos of a young child’s room, it is neither possible nor desirable to remove all the distractions, but toning them down would help to emphasize the main subject.

- Bronica SQ-A with 40 mm lens. ISO 64 film. Heidelberg Saphir II scanner.

**Desaturated background**
Applying Desaturate to the background, turning all the colors into gray has helped separate the girl from the numerous objects surrounding her. A large, soft-edged Brush tool was chosen and the printing mode was set to desaturation at 100 percent.

From Digital Photographer’s Handbook
Light & color

- Avoid harsh light… unless you want to play with shadows
- Sunrise & sunset are best
- Avoid direct flash
- Cloudy days are great as long as the sky is not in the picture
- For sunny days, shade areas are best

- Use polarizers to reduce highlights, enhance colors
  Try black and white
    It’s cool
    It might address confusing/messy colors
Add fill-in

3. Use flash outdoors

Bright sun can create unattractive deep facial shadows. Eliminate the shadows by using your flash to lighten the face. When taking pictures on sunny days, turn your flash on. You may have a choice of fill-flash mode or full-flash mode. If the person is within five feet, use the fill-flash mode; beyond five feet, the full-power mode may be required. With a digital camera, use the picture display panel to review the results.

On cloudy days, use the camera's fill-flash mode if it has one. The flash will brighten up people's faces and make them stand out. Also take a picture without the flash, because the soft light of overcast days sometimes gives quite pleasing results by itself.

Learn more about composing people pictures

Direct, on-camera flash is harsh and unflattering. Removing the flash from the camera, or bouncing the flash light from a nearby surface produces different effects. Light bounced from a ceiling, although commonly used, causes dark shadows in the eye sockets and under the nose and chin. The most successful technique indoors is to bounce light from a nearby light-colored wall.
Illustrated here are the lighting effects produced by direct, wall bounce, ceiling bounce, and off-camera direct flash. The location and quality of the subject's shadow changes, depending on the flash technique used. Direct flash, although sometimes necessary, produces a harsh image. Bounce flash produces softer light and softer shadows. Wall-bounce flash is similar to ceiling bounce flash with the added benefit of better revealing the subject's shape.
Paint light

From Digital Photographer’s Handbook
Correct blown highlights

- Selection based on luminance + curve
Correct blown highlights

- Selection based on luminance + curve
Correct tonal balance
Correct tonal balance
Try black and white

• Tons of options in Photoshop
  – Gradient map, saturation, color channels, Lab, channel mixer
Color theory

Comparing channels
The three grayscale images that make up the original color image (top left), photographed in Kenya, can be seen in the Channels screen shot (above). An image from the blue channel alone is very dark because there is little blue in the image. In contrast, the red channel is too light and seems to make the girl’s face look insubstantial, while the dress is nearly white because of its high red content. The green channel is, overall, the best balanced since it carries much of the detail information. As a final experiment, the color image was converted from RGB to Lab mode and the Lightness channel extracted (right) – the other two carry hardly any detail information. The advantage of this approach is that, given a well-balanced original, it needs no further manipulation.

Lab mode
When you convert a color image to LAB, or Lab mode, the L channel carries the lightness information, which contains the main tonal details about the image. Using software such as Photoshop, you can select the L channel and manipulate it with Levels or Curves. With the L channel selected, you can now convert to grayscale and the software will use only the data in that channel. If your software gives you this option, you will come to appreciate the control you have over an image’s final appearance, and results are also likely to be sharper than if you extracted another one of the channels to work on. The extracted file is a true grayscale, and so is only a third the size of the original color file.
Separating tones

Starting with this color image (top left), a standard grayscale conversion gives acceptable results (middle left), but channel mixing separates out the tones more effectively, particular in shadow areas (bottom left). The settings required were complicated, and arrived at by trial and error (screen shot above). The work done reduces the need for further processing of the image, but if you want to refine the results further, a channel-mixed image makes such techniques as burning-in and dodging (pp. 244-5) easier to apply, since, as you can see, the shadows on the shirts are far more open and susceptible to local density control.

*Canon EOS-1n with 300 mm lens. ISO 100 film. Microtek 4000r scanner.*

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**TRY THIS**

To help learn how to isolate colors using the tools available in your software, start by selecting a bright, multicolored image – perhaps a collection of fruit, a flower stand, or something similar. Working on a copy of the image, now decide which color you wish to emphasize by making it light after conversion to grayscale. Use Color Balance, Replace Color, Hue and Saturation, or Channel Mixer tools to obtain the required result. If your first try does not work, return to the image and try a series of new settings. When you have a result you are happy with, note the settings. Use this information to replace another color in the image, and see if you can get to the desired result more quickly than the first time.
Polarizers make colors more vivid

• by reducing glare, especially in vegetation
Landscape:

• Try telephoto, isolate detail
• Add a foreground focus
• Manage dynamic range
Landscape: put a foreground object

Photo John Shaw
Landscape: put a foreground object
Portrait (and animal)

- Exploit shallow depth of field
- Make sure the face is illuminated (flash, post-process with photoshop)
- Focus on the eyes
- Shoot at eye level (unless you want a dramatic effect)
- Be patient, work with your subject, take lots of pictures
- Don’t ask people to look at the camera
- Ask your subject to do something silly to relax them. Take the picture afterwards.
Shallow depth of field
Enhancing and Brightening Eyes

This is another one of those "30-second miracles" for brightening eyes, enhancing the catch lights, and generally drawing attention to the eyes by making them look sharp and crisp (crisp in the "sharp and clean" sense, not crisp in the "I burned my retina while looking at the sun" kind of crisp).

Step One:
Open the photo you want to retouch. Go under the Filter menu, under Sharpen, and choose Unsharp Mask. When the Unsharp Mask dialog appears, enter your settings (if you need some settings, go to the first technique in Chapter 11, "Professional Sharpening Techniques"); then, click OK to sharpen the entire photo.

Step Two:
After you’ve applied the Unsharp Mask filter, apply it again using the same settings by pressing Command-F (PC: Control-F), and then apply it one more time using the same keyboard shortcut (you’ll apply it three times in all). The eyes will probably look nice and crisp at this point, but the rest of the person will be severely oversharpened, and you’ll probably see lots of noise and other unpleasant artifacts.
**Step Four:**
Go under the Image menu, under Adjustments, and choose Hue/Saturation. When the Hue/Saturation dialog appears, choose Reds from the Edit pop-up menu at the top (to edit just the reds in the photo). Now, drag the Saturation slider to the left to lower the amount of saturation in the reds (which removes any bloodshot appearance in the whites of the eyes).

**Step Five:**
While you’re still in the Hue/Saturation dialog, from the Edit menu, switch back to Master. Drag the Lightness slider to the right to increase the lightness of the whites of the eyes (as shown here). Click OK in the Hue/Saturation dialog to apply your adjustments, and then press Command-D (PC: Control-D) to deselect and complete the enhancement. The enhancement appears fairly subtle in the capture shown below, but when you try it yourself at full size, the effect appears much more pronounced.

*Before.*  
*After (bloodshot eyes lessened, and whites brightened).*
Glasses highlight

- Clone brush
Add fill in light on faces
Add fill in light on faces
When You Forget to Use Fill Flash

Wouldn't it be great if Photoshop had a "fill flash" brush, so when you forget to use your fill flash, you could just paint it in? Well, although it's not technically called the fill flash brush, you can create your own brush and get the same effect. Here's how.

Step One:
Open a photo where the subject or focus of the image appears in shadows. Go under the Image menu, under Adjustments, and choose Levels.

Step Two:
Drag the middle Input Levels slider (the gray one) to the left until your subject looks properly exposed. (Note: Don't worry about how the background looks—it will probably become completely "blown out," but you'll fix that later. For now, just focus on making your subject look right.) If the midtone slider doesn't bring out the subject enough, you may have to increase the highlights as well, so drag the far-right Input Levels slider to the left to increase the highlights. When your subject looks properly exposed, click OK.

Step Six:
Choose the History Brush tool from the Toolbox (as shown here), and choose a soft-edged brush from the Brush Picker in the Options Bar.

Step Seven:
Begin painting with the History Brush over your subject, avoiding the background area entirely. (Here, I'm painting over the left side of the subject's face.) As you paint, you'll notice that you're actually painting in the lightened version of the subject you adjusted earlier with Levels.

Step Eight:
Continue painting with the History Brush until your subject looks as if you used a fill flash. When you're painting, if it appears too intense, just lower the Opacity of the History Brush up in the Options Bar. That way, when you paint, the effect appears less intense. You can see the final repair here, with the background unchanged, but the subject in shadows is "brought out."
They don’t need to look at you
Make them be silly... and wait
When most people first start to smile, it is enormous (A). A moment after a person smiles that laughing smile, the expression starts to relax (B). This is the expression that is most appealing.

The only clients that don’t have a problem with expression are the cheerleader-type girls or the few people that have that perfect “Colgate™ smile.” Although these types of clients will smile easily, the smile can have a “pasted on” look—one without feeling or emotion. I call it a perform-
Shoot at eye level

- Important for small animals and kids

Not good

Better
Shoot at eye level

• Get low!
Sociable cat
Harmony of tone and hue come together in this image with contrasts in texture and line. But it is only a friend’s cat being sociable and wanting to sit between us. As a digital photographer, you can take as many shots as you like and simply discard the unsuccessful ones. You can clean them up, too: here, the boards could be straightened a little and the object near the tip of the cat’s tail could easily be removed.

- Canon D30 with 28–135 mm lens
Add vignetting
Vignetting

Adding a gobo restricts the spread of light. In this low key portrait (A) a gobo was used to block light from the lower part of the image (B), reducing the visibility of the lower torso and drawing attention to the subject’s face.

From Corrective Lighting and Posing
Play with reflections
Hardcore Photoshop for portrait

- Vie before/after
Step Six:
To keep from simply painting in a blurry version of our photo, go up to the Options bar and change the History Brush's Blend Mode to Lighten. Now when you paint, it affects only the pixels that are darker than the blurred state. Ahhh, do you see where this is going? Now, you can take the History Brush and paint over the acne areas, and as you paint, you’ll see them diminish quite a bit (as shown below). If they diminish too much, and the person looks “too clean,” press Command-Z (PC: Control-Z) to undo your History Brush strokes, then go up to the Options bar and lower the Opacity of the brush to 50% and try again.
Chapter 9 Portrait Retouching

figure 9.47 BEFORE

figure 9.48 AFTER
Step Three:
Press the Left/Right Bracket keys on your keyboard to adjust the brush size until it’s about the size of the person’s cheek. Place the brush near the corner of the mouth (as shown here), click and “tug” slightly up. This tugging of the cheek makes the corner of the mouth turn up, creating a smile.

Step Four:
Repeat the “tug” on the opposite side of the mouth, using the already tugged side as a visual guide as to how far to tug. Be careful not to tug too far, or you’ll turn your subject into the Joker from Batman Returns. Click OK in Liquify to apply the change, and the retouch is applied to your photo (as shown).
Step Four:
Press Command-T (PC: Control-T) to bring up the Free Transform bounding box. Hold Shift-Option-Command (PC: Shift-Alt-Control); then, grab the upper-right corner point of the bounding box and drag inward to add a perspective effect to the nose. Doing this gives the person a pug nose, but you fix that in the next step.

Step Five:
To get rid of the “pug-nose” effect, release all the keys, then grab the top-center point (as shown) and drag straight downward to make the nose look natural again, but now it’s smaller. When the new size looks about right, press Return (PC: Enter) to lock in your changes. If any of the old nose peeks out from behind the new nose, click on the Background layer and use the Clone Stamp tool to clone away those areas. Sample an area next to the nose, and then paint (clone) right over it. Below, see the difference our 30-second retouch made in the image.
Hardcore Photoshop for portrait

figure 9.35  BEFORE

figure 9.36  AFTER
figure 9.37
Selecting the entire left side of the image avoids potential artifacts.

figure 9.38
Dragging a Free Transform handle to narrow the selected area.

figure 9.39
The Liquify filter's Warp tool pushes pixels forward as you drag.
Step Three:
Get the Push Left tool from the Toolbar (as shown here). It was called the Shift Pixels tool in Photoshop 6 and 7, but Adobe realized that you were getting used to the name, so they changed it, just to keep you off balance.

Step Four:
Choose a relatively small brush size (like the one shown here) using the Brush Size field near the top-right of the Liquify dialog. With it, paint a downward stroke starting just above and outside the love handle and continuing downward. The pixels shifts back in toward the body, removing the love handle as you paint. (Note: If you need to remove love handles on the left side of the body, paint upward rather than downward. Why? That’s just the way it works.) When you click OK, the love handle repair is complete.
Photoshop tailor
What’s your additional favorite tip?
42 Photoshop advice

- Shoot RAW, edit in 16 bits
- Try Lab, you might like it
- Use layers: not destructive, flexible
  - There are very smart ways to create masks
  - E.g. copy the luminance, invert it, threshold it, blur it
- Crop
  - Avoid centered subject, simplify composition
  - Rotate when important lines are oblique
- Manage contrast and brightness
  - Use the curve and layer masks [http://luminous-landscape.com/tutorials/command_primer.shtml](http://luminous-landscape.com/tutorials/command_primer.shtml)
  - Highlights and shadow
  - HDR local adaptation
- Correct colors and white balance
- Manage focus of attention
  - Blur/sharpen
  - A tad of saturation/desaturation
  - Edge burning, vignetting
- Remove distracting elements
  - Clone brush, healing brush
- Minor face makeup
  - Remove harsh shadows
  - Red eye
  - Reduce wrinkles with the healing brush. Do it on a separate layer, partial opacity
- Correct perspective keystone
  - Use the perspective crop
  - [http://luminous-landscape.com/tutorials/perspective.shtml](http://luminous-landscape.com/tutorials/perspective.shtml)
- Try black and white
- Whatever you do, do it less
  - Opposite of previous page (it’s too easy to exaggerate with digital)
Gestalt
Context: Gestalt psychology

• Early 20th century
• Inspired by field theory in physics
• Holistic philosophy of vision
  – “spontaneous” organization
  – Opposed to unconscious inference
• Has been integrated recently into modern framework
• Very popular in design
Prägnanz

• “Goodness”
• “Simplest” possible figure or organization

• Has recently been related to information theory
  (simple in terms of amount of information required
  to encode it)
Overview

• After low-level vision, we only know local frequency content, edges

• Need to organize the image
  – Segment by region, find structure
Prägnanz

• Cornerstone of Gestalt
• “Goodness”
• “Simplest” possible figure or organization
• Things are organized spontaneously and assumed to be in the simplest configuration

• Has recently been related to information theory (simple in terms of amount of information required to encode it)
Grouping

- By Proximity

- By Color

- By size
Grouping

• By Shape

• By Orientation

• By Synchronicity (simultaneous motion)
Grouping

- By Region

- By connectedness
Grouping and photo

Edward Weston
Grouping and photo

Jean-Pierre Sudre
Plan

- Grouping
- Figure-ground
- Completion and illusory contours
Figure-ground

- What is in front (figure), and behind (ground)?
- There has to be one figure and one ground
- Related to occlusion and thus to depth
- Less attention is dedicated to the ground

Redrawn after [Palmer 99]
Figure-ground

- The shape with the best "Prägnanz" is the figure
- Can be bimodal: we switch from one interpretation to the other
  - Visible on brain imagery
- But only one at a time

Redrawn after [Palmer 99]
Figure-ground painting

- Vassarely
Figure-ground pun

- Rubin vase
Figure-ground transition

- grouping
Figure-ground simplification

• For depth enhancement
• The contrast at the occlusion edge is enhanced
• The figure is easier to extract
Figure ground simplification

- Using rim-lighting (a.k.a. back-lighting)
- See notes on limitations p.27
Closure & Negative space

- George Seurat
- Negative space are enclosed in the picture frame
Visual completion

• We complete the occluded part with the simplest shape (best “Prägnanz”)
• Related to continuation and closure

Redrawn after [Palmer 99]
Visual completion

- With no context

- With context

Redrawn after [Palmer 99]
Relatable edges

- Completion can occur along relatable edges

Relatable Edges

Unrelatable Edges

Redrawn after [Palmer 99]
Visual completion

• Greg Brown (mural)
Completion

- Marc Riboud
- Completion is challenged
Further reading

Vision Science, from photons to phenomenology
Stephen E. Palmer, MIT Press, 1999
– Excellent reference on all aspects of vision
– Introduces modern theories of Gestalt and visual organization

Visual Perception: Physiology, Psychology And Ecology
Vicki Bruce, Patrick R. Green, Mark Georgeson, M.A. Georgeson, Psychology Press, 1996
– Very good introduction to vision following three approaches, include Gestalt

Cognition and the Visual Arts
Robert Solso, MIT Press, 1996
– Introduction to visual perception and relation with the visual arts
Further reading

**Art and Visual Perception: A Psychology of the creative eye**  
– Seminal work on the relation between psychology and art history

**The Power of the Center: A Study of Composition in the Visual Arts**  
– Art history, on composition and picture layout

**Perception and Imaging**  
Richard D. Zakia, Focal Press, 1997  
– More a design manual based on Gestalt principles
Portraits
Diffusion

I hate to say "always," but 98% of the time we diffuse each portrait that is taken. Since we are working with subjects who are at an age when skin clarity can be a problem, we recognize that their complexion can’t handle the clarity of today’s lenses. We use the Glamour Softs by Sailwind (#1). It softens the portrait without losing the critical sharpness in the eyes. I like to use a drop-in filter for easy focusing, especially as I get older.

From Corrective Lighting and Posing
Pose: chin

From Corrective Lighting and Posing
Pose: waist

From Corrective Lighting and Posing
Arm position

From Corrective Lighting and Posing
Pose: ears

From Corrective Lighting and Posing
From Corrective Lighting and Posing
thin and toned as possible. Again, this isn’t a problem for most men, because only athletic men normally ask to take a photograph in clothing that shows their legs or thighs. Women, however, are often told they should wear dresses, tight skirts and pants—even when it would be in their best interest not to.

When posing female subjects in a full length pose, I always have the person sitting or laying down. Unless a person is very tall and thin, she will always look better posed in

With feet flat on the floor, legs don’t look their best (A). Lifting the heel flexes the calf and thigh muscles, making the legs appear longer and firmer. This can be accomplished by wearing high heels, or simply lifting the heel into the same position as if the subject were wearing high heels (B).
you will encounter. As you start practicing corrective lighting and posing you will find it gets progressively easier and faster to find and fix your client’s problems.

Using wide-angle distortion to your advantage can give your subject the appearance of longer legs.
glossary of lighting terms

Lighting, like any other craft, has its own jargon and slang. Unfortunately, the different terms are not very well standardized. Often the same object may be described in two or more ways or the same word used to mean two or more different things. For example, a sheet of black card, wood, metal or other material that is used to control reflections or shadows may be called a flag, a French flag, a donkey or a gobo—though some people would reserve the term “gobo” for a flag with holes in it, which is also known as a cookie. In this book, we have tried to standardize terms as far as possible. For clarity, a glossary is given below, and the preferred terms used in this book are asterisked (*).

*Acetate
see Gel

*Acrylic sheeting
Hard, thin plexiglas sheeting, usually methyl methacrylate, used as a diffuse (“spud”) or in a range of colours as a background.

*Barn doors
Adjustable flaps affixed to a lighting head that allows the light to be shaded from a particular part of the subject.

*Beam
Extension arm allowing a light to be cantilevered out over a subject.

*Bounce
A passive reflector, typically white but also, for example, silver or gold, from which light is bounced back onto the subject. Also used in the compound term “Black Bounce”, meaning a flag used to absorb light rather than to cast a shadow.

*Continuous lighting
What its name suggests: light that shines continuously instead of being a brief flash.

Contrast
see Lighting ratio

Cookie
see Gobo

*Diffuser
Translucent material used to diffuse light. Includes tracing paper, scrim, umbrellas and translucent plastics such as Perspex and Plexiglas.

Effects light
Neither key nor fill: a small light, usually a spot, used to light a particular part of the subject. A hair light on a model is an example of an effects (or “FX”) light.

*Fill
Extra lights, either from a separate head or from a reflector, which “fill” the shadows and lower the lighting ratio.

Fish eye
A small Soft Box.

*Flag
A rigid sheet of metal, board, foam-core or other material used to absorb light or to create a shadow. Many are painted black on one side and white or brushed silver on the other, so they can be used either as flags or as reflectors.

Flat
A large Bounce, often made of a thick sheet of expanded polystyrene or foam-core (for lightness).

Foil
see Gel

French flag
see Flag

*Frost
see Diffuser

*Gel
Transparent or more rarely, translucent coloured material used to modify the colour of a light. It is an abbreviation of “gelatine filter”, though most modern “gels” are acetate.

*HMI
High intensity discharge (HID) lamps; used for continuous lighting.

*Honeycomb
Grid of spun-synthetic hexagonal cells, so-called because it closely resembles a honeycomb. This increases the directional quality of light from any head.

*Ink
Ink, or ink jet print, a technique used to create realistic or stylized light effects.

Incandescent lighting
see Tungsten

Inky-dink
Small irregular spots.

Key or key light
The main or principal light, the light which casts the shadows.

Kit split
A large flat that is used to block light.

*Light
see Soft box

Perforated
A brand name for acrylic sheeting.

*Plexiglas
A brand name for acrylic sheeting.

Projector spot
A projector head fitted with projection optics for casting a clear image of a slide or slide film.

*Re
Reduced

Scrim
A fine metal mesh.

*Scrim
A fine metal mesh.

*Soft box
Large, diffused light source made to cover one or both lights of a soft box. Soft boxes come in various shapes and sizes, from about 80cm x 80cm to 300cm x 300cm.

Soft light
Light that varies from a direct light to a soft light, with or without a diffusion screen.
Hair lighting

The number one complaint from clients with dark hair is how, in many previous portraits, they seemed to blend into the background (A). With all clients who have hair (not bald), we typically use a strip light overhead to add soft separation to the head and shoulders. For someone with long hair like this, we add two accent lights with barndoors at a 45 degree angle, and a final light is placed directly behind the subject’s head. This light is angled back through the hair toward the camera (we call it a halo light). This can cause stray hairs to become very visible (B). In Image C, stray hairs have been reduced by reducing the intensity of the halo light. Sometimes this isn’t enough, and we eliminate the halo light (D).

From Corrective Lighting and Posing
Butterfly lighting can reduce the apparent size of the subject’s nose.

From Corrective Lighting and Posing
The face, the pose, the colours all are reminiscent of a Victorian chronolithograph. The effect is achieved in large measure by careful control of the lighting ratio, while retaining as much chiaroscuro as possible.

The key is a snooted spot to camera left, fairly close to the child’s face and very slightly back-lighting her. Opposite this, to camera right, is a 60x60cm (2x2ft) soft box. This is set to give quite a close lighting ratio, but because it is diffuse and the key light is highly directional, the impression of modelling is very clear: modelling is all the more clean, of course, because of the very careful angling of these two lights.

A white reflector to camera left, just out of shot, provides a little more fill to the front of the face but also creates the catchlights in the eyes. They would not be there otherwise: the key is a back light, and the fill is shaded from both eyes.
susan
photographer: Massimo Robecchi

This picture well illustrates that an overcast day can be vastly superior to sunshine, especially if you are shooting in monochrome. With light coming more or less evenly from all directions, the tonality can be exquisite.

Even so, Massimo Robecchi added a white bounce in front of the model to even out the light still further: the white drop of the tablecloth is thereby brought nearer to the tone of the clothes and the background, and the dark stockings are made to read just a little better. This is one of those cases where a collapsible reflector such as a Lastolite or a Scrim Jim can be extremely useful - and where the effect is completely different from fill-flash, touted by camera manufacturers as the answer to everything.
Daylight is an obvious choice for the natural look, and 35mm often has a sense of immediacy that is not readily obtainable with larger formats. This is, however, a very long way from the casual snapshot that it seems to evoke.

To begin with, the choice of “pushed” Tri-X adds a note of gritty realism. Boylan normally uses Agfa APX in black and white, but he switched to a faster, grainer, “old-technology” film and then accentuated its vintage qualities by pushing it to EI 1600.

Few people who saw the advertisement would have known how it was created, but they would recognize the James Dean/Marlon Brando 1950s style of the image. A 200mm lens compresses perspective for a strongly graphic appearance, and creates a shallow depth of field. A long lens has been used to echo the cinematic style. Close-ups like this in the movies are often made with surprisingly long lenses.

Finally, choosing the right tree, and the right side of the tree, so that the light falls right (the subject is shaded by the tree), distinguishes the skilled photographer from the snapshotter.
niña detrás de la ventana
photographer Dolores Porredon

A perfect moment, captured by chance - or careful planning? The latter, of course. The window is part of a built set, transilluminated with a 100x100cm (40x40in) soft box, supplemented only by a white bounce to camera left.

key points
- Soft yet directional lighting is often very effective with children
- Flash is usually best for children, as they may screw up their eyes against tungsten lighting
- Some photographers believe that flash can damage the eyes of young children, but there is absolutely no evidence to support this: it seems to be an old wives’ tale

Although this was designed for a poster, the same techniques (and forethought, and organisation) could equally be applied to a picture for less public consumption. Window sets are not particularly hard to build, a selection of hats can be kept at hand; the rest of the clothing is hardly elaborate, though the light colour emphasizes purity and innocence; and the lighting is elegantly simple. It is true that, often, surprisingly complex lighting set-ups are used to mimic simplicity; but it is also true that a simple lighting set-up can (if it is well executed) be remarkably effective. Diffuse light generally works very well with children, emphasizing the delicacy of their skin texture and the roundness of their features. "Character" lighting is considerably more difficult before the features have reached their adult lineaments.
smile
photographer Jeff Manzetti

A large assortment of lights contribute to the dazzling look of this beautiful cover shot.

The dazzling smile and gleaming complexion are shown to good advantage as they are bathed in an even spread of light emanating from a virtual wall of light in the form of a series of umbrellas arranged in an arc behind and around the photographer. These all shoot through a curtain of diffusion material, softening and evening the effect on the subject. In addition to this is a key light, a daylight-balanced HMI to camera right, which is the only direct light on the model. It is positioned just high enough to give a gentle amount of modelling below the chin.

On the background are four more umbrellas, one pair on either side. The resulting lightness and evenness of a large part of the final image makes a good background against which the necessary cover text can 'read' clearly. A very mottled or light-and-dark image makes it difficult for text to show up well, and this is always a major consideration for a cover shot.
From Photographing People, Portrait, Fashion, Glamour
Make-up

• Scars, monsters, etc.
• “Creative” make-up
  – Fancy!
• Corrective make-up
  – Hide wrinkles, etc
  – Balance the face
  – Not limited to the face!
• Make-up for pictures
  – Avoid highlights
Shading and highlighting
Corrective Make Up

• Depending on the shape of the face
An example

Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-Make up-Retouching
Is it fair?

Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-Make up-Retouching
Touch-up: too dark face

Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-Make up-Retouching
Touch-up: silhouette
Touch-up: undesirable lines

Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-Make up-Retouching
Touch-up: stretch and arm

Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-Make up-Retouching
References
• http://www.nyip.com/sub_idx_pgs/tipsidx/tips_idx.php
• http://www.betterphoto.com/home.asp
• http://www.fotofinish.com/resources/centers/photo/takingpictures.htm
• Fun interactive demo: http://www.kodak.com/eknec/PageQuerier.jhtml?pq-path=6369&pq-locale=en_US
• http://sd.essortment.com/howtotakebetter_jbg.htm
• http://photography.about.com/library/weekly/aa080502e.htm
• http://www.photosafaris.com/Articles/CompositionsTen.asp
• http://luminous-landscape.com/essays/books-12-03.shtml
Photoshop refs

• http://www.luminous-landscape.com/tutorials/instant_photoshop.shtml
DVD recommendation

- Visions of light
- Scorsese
Photo books

- *John Shaw's Nature Photography Field Guide*
- *National Geographic Field Guide: Photography*
- *Corrective Lighting and Posing: Techniques for Portrait Photographers*
- *Digital Photographer's Handbook*
Photoshop
Art, science & depiction

• Self-promotion:
Cool retouching

- http://medialit.med.sc.edu/aniston.htm
- http://www.eonline.com/News/Items/0,1,12006,00.html
- http://medialit.med.sc.edu/isbmag.htm
- http://www.glennferon.com/portfolio1/

http://www.fluideffect.com/
  Go to Portfolio, click Agree, then click Before/After.

http://www.i-am-bored.com/bored_link.cfm?link_id=14537
Ethical issues in retoucing

• http://luminous-landscape.com/essays/cloning-the-can.shtml
Interactive
• Who takes pictures?
• What’s your style?
• What’s your goal?
• What’s your technique?

• What’s your favorite Photoshop tool?
• What’s your main challenge?
• What’s your keep rate?
What to do with questionable talks?

• See if they can inspire you
Anecdote about brainstorming

- **From Chuck McVinney**
  - (but my memory might be faulty)
- **Interesting technique to think out of the box:**
  - Brainstorm for a little while
  - Then select the stupidest idea that was given
  - Work to make it into something useful
- **One successful example:**
  - A luminaire factory discovered they had a productivity problem. The luminaires had to be protected before getting packed, which was done by wrapping them into newspapers. Unfortunately, the workers were getting distracted and read the newspapers.
  - The most stupid idea during brainstorming was to poke their eyes.
  - The practical solution was to hire blind people, which had a number of benefits, in addition to alleviating the journal-reading problem. These people traditionally had a hard time finding a job and became extremely dedicated to their employer. In addition, the company acquired a glowing reputation as a social employer.
Next time: Markov random fields

Could not find the photo of an MRF