6.8371 Digital and Computational Photography
6.8370 Advanced Computational Photography

CSAIL

How to Take/Make Better Pictures



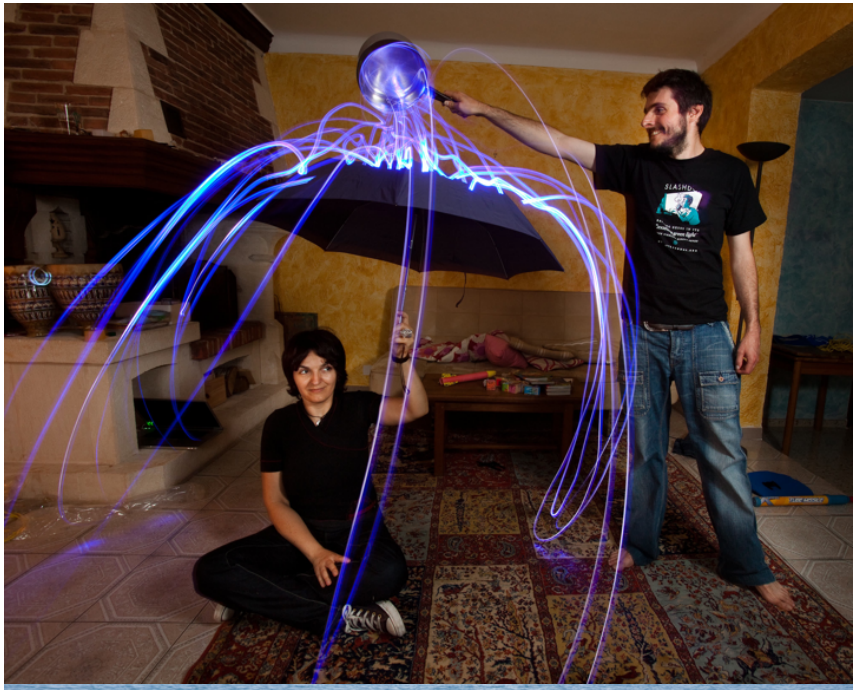
Frédo Durand MIT - EECS

Making better pictures

What do I know about pictures?

- **Not much: amateur photographer, wildlife, travel, portrait**





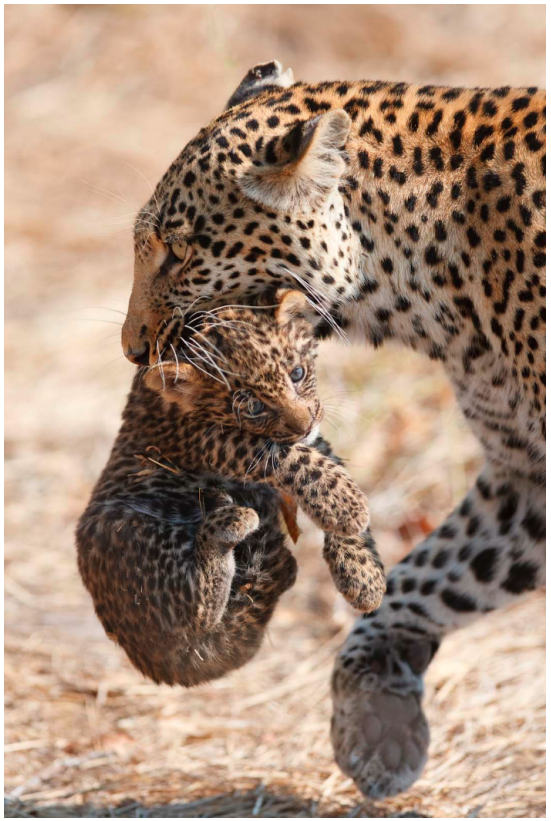




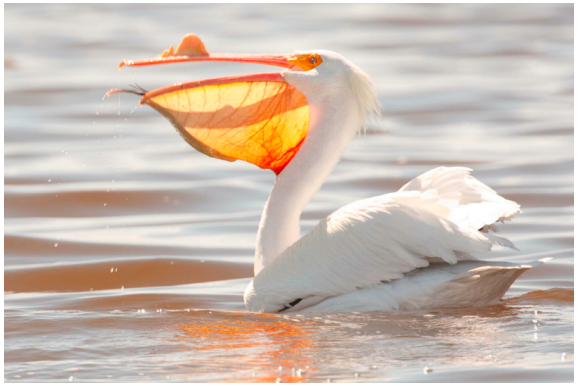
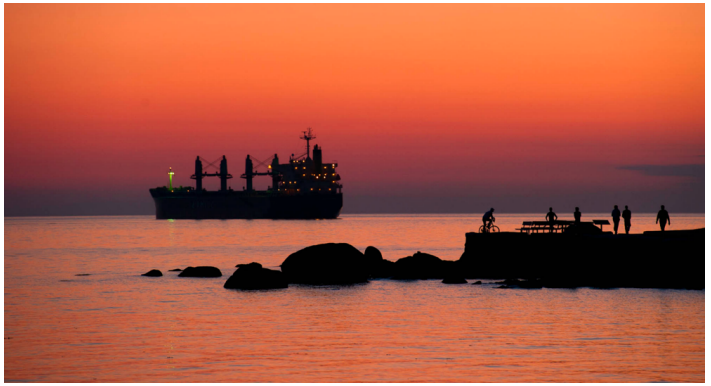
Photography

http://fredodurand.net/













I like equipment





Lately monomaniacal

















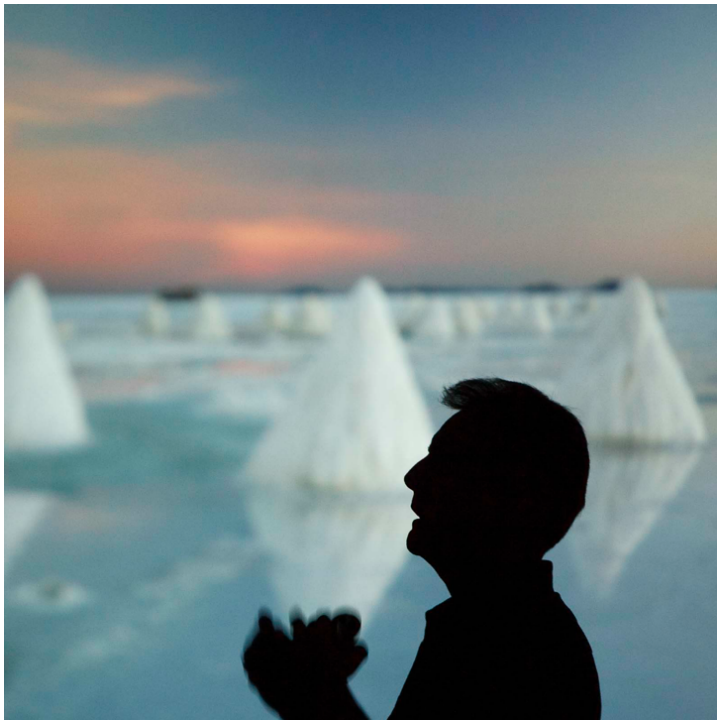


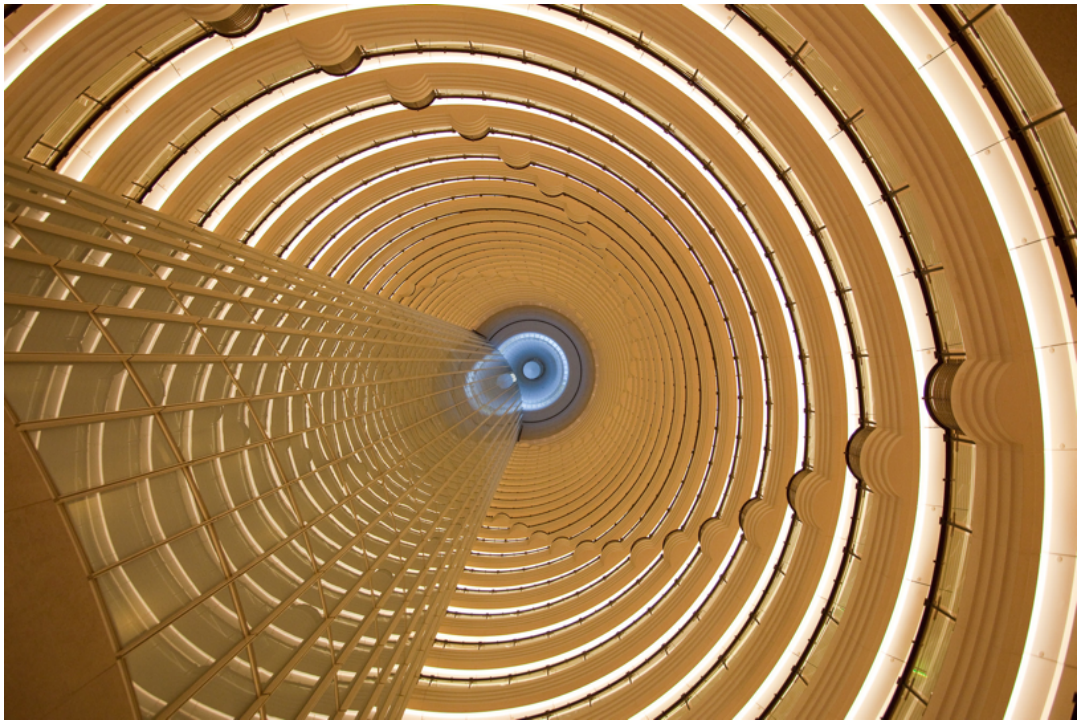




Not a creativity session

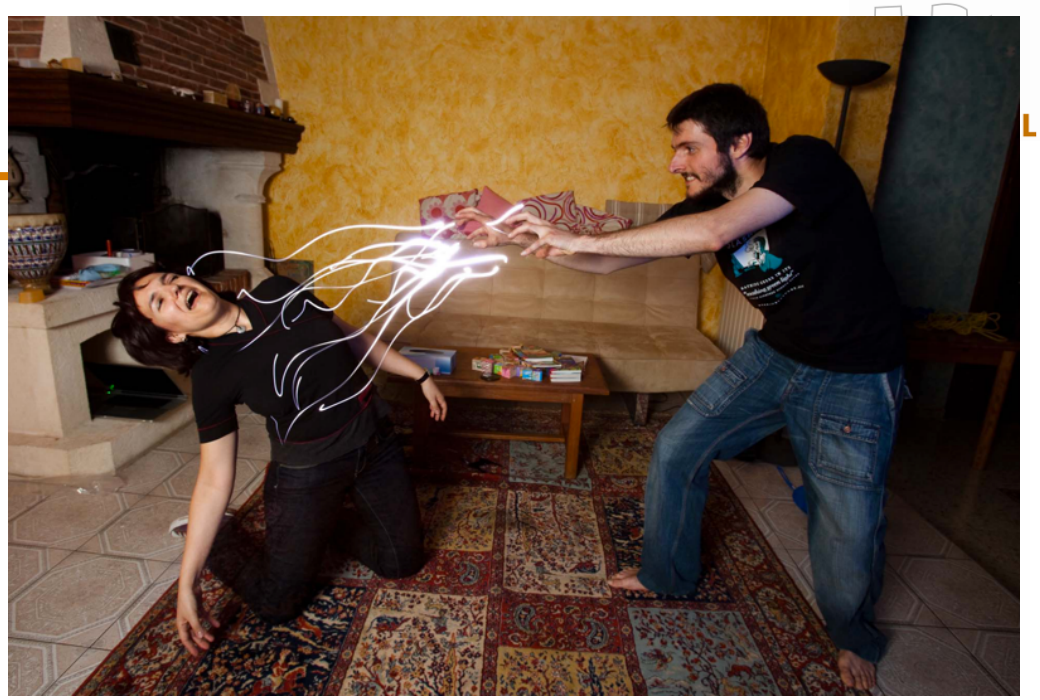
- For those of us who are NOT talented photographers
- Heuristics, issues, that help get better photographs. Maybe not great photographs, but better
- If you are talented, good for you. Forget those “rules”, keep taking good photos.





Special effects

- Light painting
- Night
- Time Lapse
- MultiFredo™
- Collages
- See e.g. http://photoextremist.com/

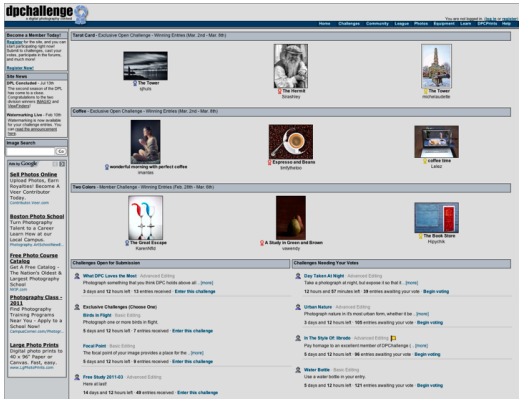




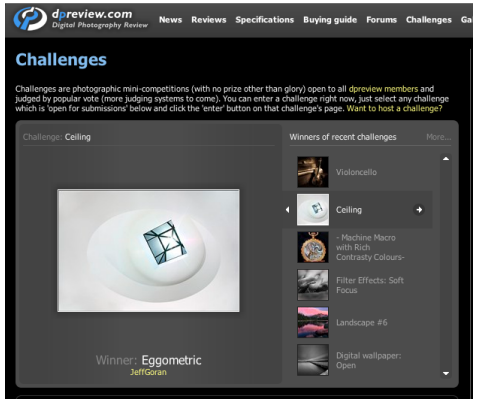


Take pictures, critique your pictures

- **And get them critiqued (friends, internet)**
- **Give yourself a theme, constraints**
- **Look at contests online:**
  - You don't need to enter the contest, but use the theme
  - http://www.dpreview.com/challenges/
  - http://www.dpchallenge.com/
  - http://www.fredmiranda.com/forum/
  - http://gizmodo.com/#!shooting-challenge

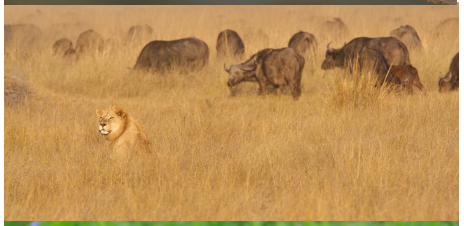






Advice overview

- **Simplify, avoid cluttered background**
- **Don’t center things**
- **Avoid harsh light**
- **White balance**
- **Portraits are all about the eyes**
- **Follow rules or really break them. No middle ground.**

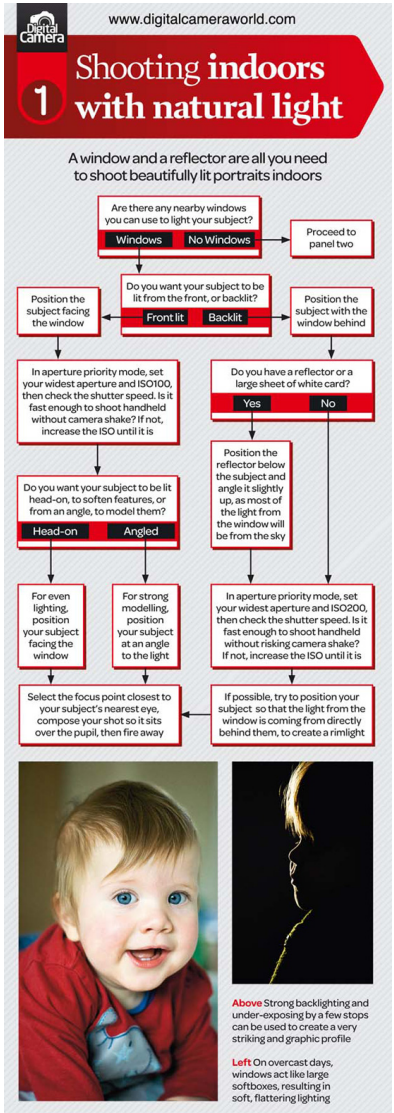



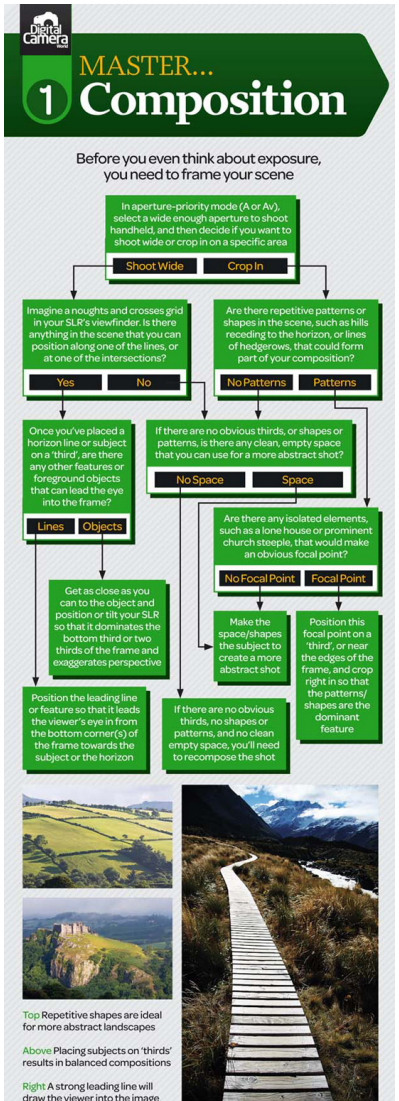


Cheat sheets

- http://www.hongkiat.com/blog/cheetsheets-for-photographers/







Photography tips

- **http://www.petapixel.com/2012/05/31/50-quick-photography-tips-in-less-than-15-minutes/**

1. UV filters are a waste of time
2. Lens hoods aren't a necessity
3. If you're not using the hood, put it away
4. Don't treat your DSLR like it's your baby
5. Stop hating on others
6. Get cheap lens caps
7. Pack light
8. Use a zoom for convenience
9. Prime will make you think more
10. The 35mm is the most practical one lens setup (on the 1.5 crop)
11. The 50mm looks better
12. Better cameras don't make better photos
13. Know how your camera works before you go out to shoot
14. Always be ready for the shot
15. P-mode isn't just for beginners
16. Bump the ISO if needed
17. Auto ISO is your best friend
18. Rely on the Rule of Thirds
19. Take lots of shots
20. Don't take photos of any old sh*t
21. "If your pictures aren't good enough, you're not close enough" — Robert Capa
22. Contemplate your shot
23. The best equipment doesn't help if you're not standing in the right spot
24. Sharpness is overrated
25. Concept is king
26. Don't look like a wrongun (i.e. a creep)
27. Don't drink and shoot
28. Shoot when you're full of energy
29. Sometimes it feels great to wake up really early and shoot
30. Think about what light you want
31. Emulate the style of the greats to get started
32. …but don't keep doing it
33. Photography is as much a reflection of the person taking the photo
34. Shoot to please no one apart from yourself
35. Discreet or direct — it isn't all that important
36. Setting themes keeps you focused
37. Change things every once in a while to keep things fresh
38. Everyone has creative blocks
39. Be critical of yourself
40. "Seeing is not enough, you have to feel what you photograph" — Andre Kertesz
41. You need to be there with the camera
42. The relationship is about you and the subject, not you and the camera
43. Stop chimping
44. Be brutal when it comes to deleting awful photos
45. Show only your best work
46. Changing photos to B&W doesn't make an uninteresting shot interesting
47. Look at other people's work
48. Post your work online, let others critique your work
49. There is no easy way
50. ???

- **http://petapixel.com/2014/01/24/40-tips-take-better-photos/**

1. Get in close

It was the famous photojournalist **Robert Capa** who once said "If your photographs aren't good enough, you're not close enough." He was talking about getting in amongst the action. If you feel like your images aren't 'popping', take a step or two closer to your subject. Fill the frame with your subject and see how much better your photo will look without so much wasted space. The closer you are to the subject, the better you can see their facial expressions too.

2. Shoot every day

The best way to hone your skills is to practice. A lot. Shoot as much as you can – it doesn't really matter what. Spend hours and hours behind your camera. As your technical skills improve over time, your ability to harness them to tell stories and should too. Don't worry too much about shooting a certain way to begin with. Experiment. Your style – your 'voice' – will emerge in time. And it will be more authentic when it does. — Leah Robertson

*Leah Robertson is a super talented Melbourne based photographer and videographer, specialising in music and documentary photography.You can see her work **here**.*

3. See the light

Before you raise your camera, see where the light is coming from, and use it to your advantage. Whether it is natural light coming from the sun, or an artificial source like a lamp; how can you use it to make your photos better? How is the light interacting with the scene and the subject? Is it highlighting an area or casting interesting shadows? These are all things you can utilise to make an ordinary photo extraordinary.

4. Ask permission

When photographing people, especially while in countries with different cultures and languages, it can be hard to communicate. In certain countries if you photograph someone you are not 'supposed' to photograph, it can get ugly and rough very quickly if you are not careful. So out of respect you should always ask permission. I have started shooting a series of school children in Pakistan. These are all posed portraits and they are looking down the lens. My guide helps me with the language and I limit myself to smiling, shaking hands, giving 'hi-five' and showing them the image on the back of my camera once it is done. You would be amazed how quickly people open up. — Andrea Francolini

*Andrea Francolini is a well known Italian born, Sydney based sports photographer. He is also the founder of **My First School**, as trust which has the aim to facilitate educations in Northern Pakistan. You can see his work **here**.*

5. Use flash during the day

You might think that you should only use flash at night time or indoors, but that's not the case at all. If it is an extremely bright day outside and the sun is creating harsh shadows on your subject, switch on your flash. By forcing extra light onto your subject, you will be able to fill in those ugly shadows and create an even exposure.

6. ISO

There are questions to ask yourself when deciding what ISO to use:

What time of day are you shooting? If you are shooting outside during the middle of the day you will need to use a lower ISO such as 100 or 200. If you are shooting at night time without a tripod you will have to increase the ISO to a higher number to be able to record the light on the camera's sensor.

Will the subject be well lit? If your subject or scene is too dark you will need to use a higher ISO such as 800 or 1600.

7. f/4

f/4 is my 'go to' aperture. If you use a wide aperture with a long lens (200mm-400mm) you're able to separate the subject from the background. This helps them stand out. Works every time. — Peter Wallis

*Peter Wallis is a sports photographer extraordinaire, working for The Courier Mail in Brisbane. You can see his work **here**.*

8. You've got to be joking

A well timed joke will always yield a more natural smile, than simply saying "smile" — Dean Bottrell

*Dean Bottrell is a Emerald based photographer who specializes in portraiture. You can see his work **here**.*

9. Buy books, not gear

Having expensive camera equipment doesn't always mean that you'll take good photos. I've seen some absolutely amazing images shot with nothing more than a smart phone. Instead of having ten different lenses, invest in some fantastic photography books. By looking at the work of the masters, not only do you get inspired, you come away with ideas to improve your own photos.

10. Read your camera's manual

The best way to know what to do with your camera is to actually read the manual. So many people miss this really important step on their photographic journey. Every camera is different, so by reading the manual you'll get to know all the funky things it's capable of.

11. Slow down

Take time to think about what is going on in the viewfinder before pressing the shutter. How are you going to compose the shot? How are you going to light it? Don't jump straight in without giving it some thought first. — Brad Marsellos

***Brad Marsellos** is the Wide Bay über Open producer. You can see his photos, videos and musings on life **here**.*

12. Stop chimping (checking the photo on the back screen)

It's a bad habit digital photographers can develop. Time and time again I see photographers take a photograph and then look at the back of the screen straight away. By doing that you could miss all the special moments. You can look at your photos later. You can miss 'the shot' and it affects the flow of your work, so just keep shooting! – Marina Dot Perkins

The lovely Marina Dot Perkins is a news, travel and wedding photographer who worked for The Canberra Times and is now based in Newcastle.

13. Framing

This is a technique to use when you want to draw attention to something in your photograph. By framing a scene or a subject, say with a window or an archway, you lead the viewer's eye to the primary focal point.

14. Shape with light

Never shoot with the sun directly behind you. It creates boring, flat light on the subject. If you shoot with the light source to the side or behind the subject, you are able to shape with the light, creating a more interesting photo. — Patria Jannides

15. Watermarks

This tip isn't in direct relation to TAKING photos, but it does affect the look of photos. When it comes to watermarks, the smaller the better. And if you can avoid using them, do.

Chances are, unless you are a paid professional, there's not much of a chance of your photos getting nicked. But in reality, they won't prevent your images from getting stolen. They only distract from the fabulous image that you've created, because once you've slapped a watermark all over it, that's all the viewer will be looking at. The only way you can prevent your images from being stolen is to not publish them on the internet.

Read Open producer Luke Wong's blog post on watermarks **here**.

16. Be present

This means make eye-contact, engage and listen to your subject. With the eyes – lower that camera and be human. Bring the camera up for a decisive shot. But remember to lower it, like you're coming up for air, to check in with your subject. Don't treat them like a science experiment under a microscope. Being there with your subject shows them respect, levels the playing field in terms of power dynamics, and calms them down. You'll get much more natural images this way. — Heather Faulkner

*Heather Faulkner is a photographer who convenes the ePhotojournalism major at QCA, Griffith University. She is also the executive director of **The Argus**, a student-run, visual journalism online magazine. See her personal work **here**.*

17. Shutter speed

Being aware of your shutter speed means the difference between taking a blurry photo and a sharp photo. It all depends on what you are after. If you are shooting a sporting event or children running around in the backyard, you probably want your subjects to be in focus. To capture fast action you will have to use a shutter speed over 1/500th of a second, if not 1/1000th to 1/2000th. On the opposite end of the scale, you might want to capture the long streaks of a car's tail lights running through your shot. Therefore you would change your camera's shutter speed to a long exposure. This could be one second, ten seconds, or even longer.

18. Charge your batteries

This seems like a simple one, but pretty much every photographer on the face of the planet has been caught out before. Including myself. The trick is to put the battery onto the charger as soon as you get home from your photo shoot. The only thing then is to make sure you remember to put it back into the camera after it has been recharged...

19. Focal length

Keep it simple. I shoot with two prime lenses and one camera; A 28mm and a 35mm. For everything. I use the 35mm lens 70% and the 28mm lens 30% of time. It takes some time to get used to it, but once you work it out, shooting primes is the only way to go. It means you have to work with what you have and you can't be lazy. Basically, this means more pictures and less fiddling around with zooming and maybe missing moments. It also helps for consistency. If you're working on a project or a series, keeping the same focal lengths is a great way to maintain a powerful sense of consistency. — Justin Wilkes

*Justin Wilkes quit his job in Sydney this year to cover the political and social change in post revolution Egypt. He has since had his photographs published in The New York Times, TIME magazine, and The Jakata Globe to name but a few. You can see his amazing documentary work **here**.*

20. Be part of a photographic community

Background



Cluttered backgrounds are bad



Distracting background



Model: Rob Wang

Move your feet! (1 meter away)



Model: Rob Wang

- http://www.petapixel.com/2011/09/28/be-mindful-of-the-background-when-shooting-a-portrait/
- 

Distracting background

50mm f/8



Model: Rob Wang

Shallower depth of field

50mm f/1.8



Model: Rob Wang

Shallower depth of field

85mm f/1.2



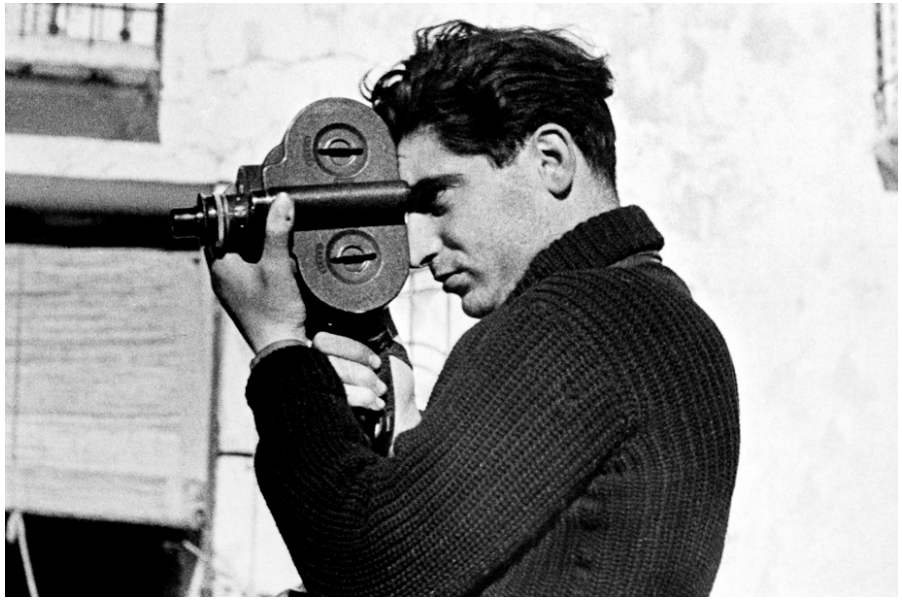
Model: Rob Wang

Crop





- **If your pictures aren't good enough, you're not close enough" — Robert Capa**









Physically clean up the background





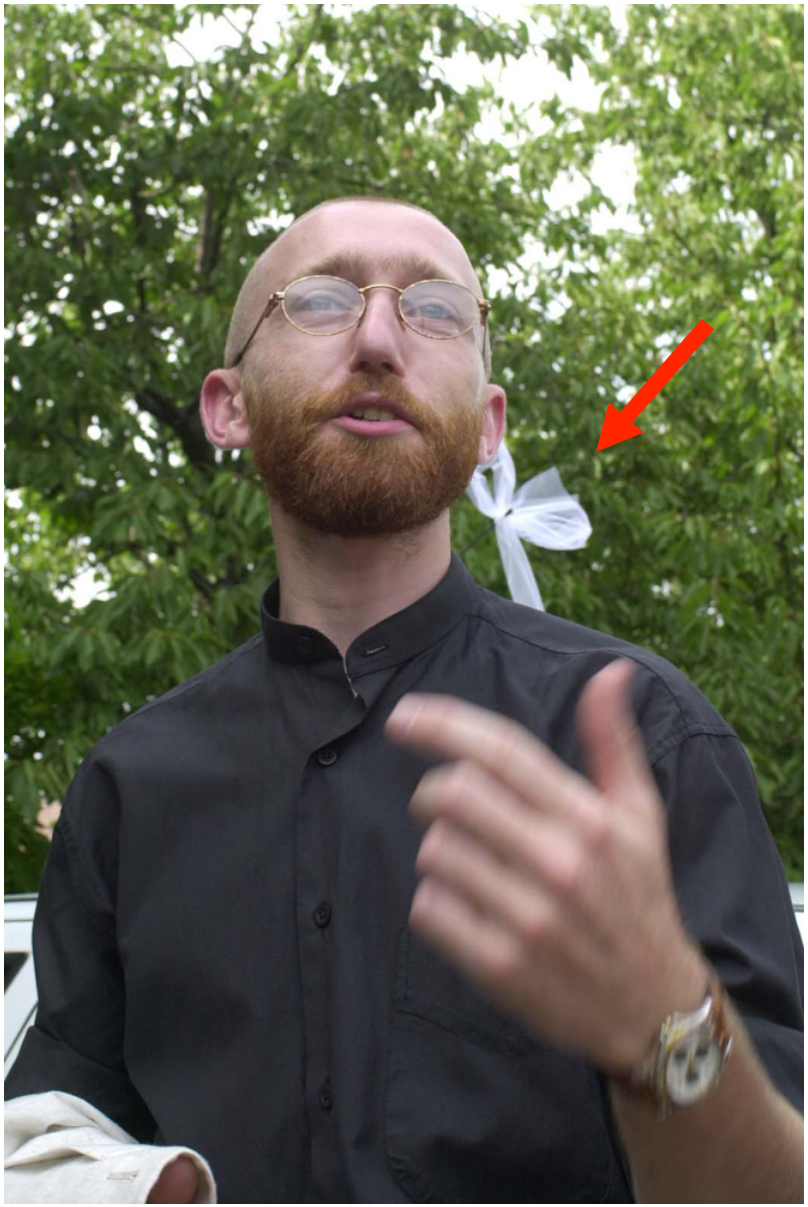
Isolate using blur (Photoshop, layering)

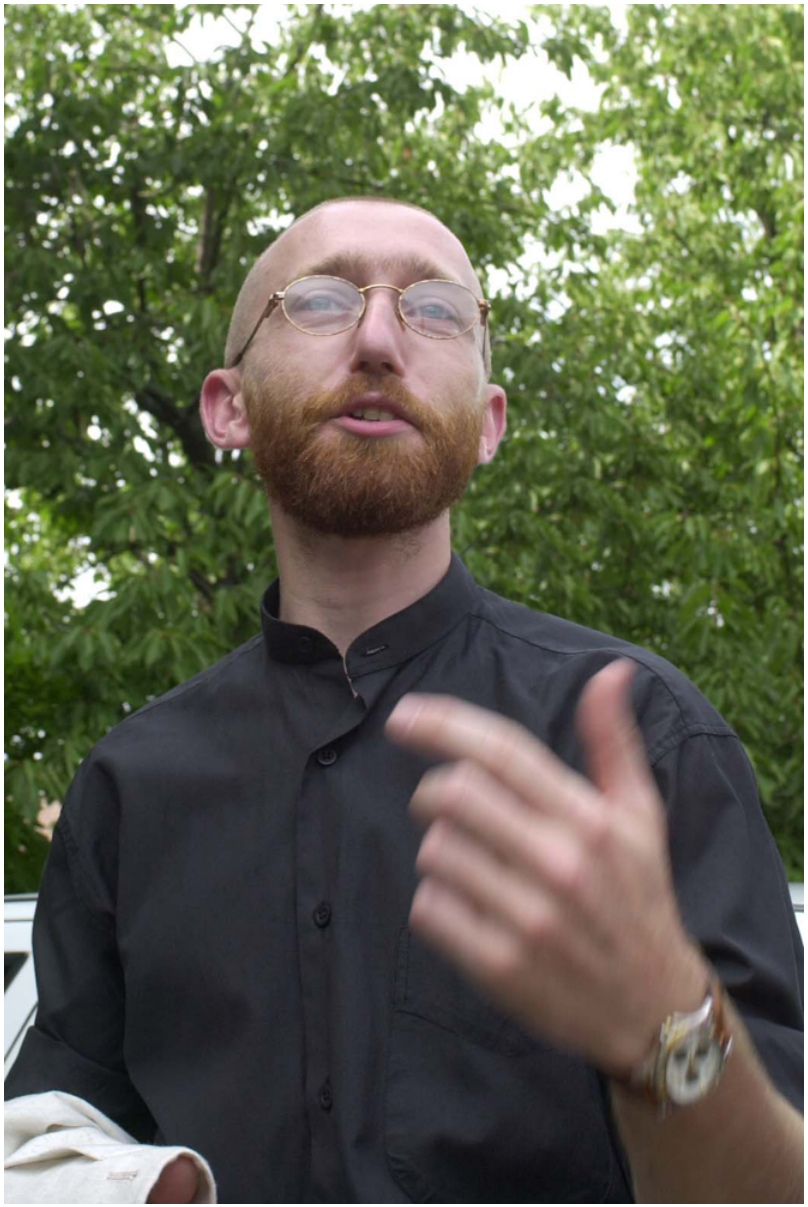
- **But maybe don't over-do it**





Clone brush/Poisson cleaning





Desaturate, darken



From Digital Photographer's Handbook

Compositing & matting



figure 7.17

© Laurie Thompson, Imagination Studios

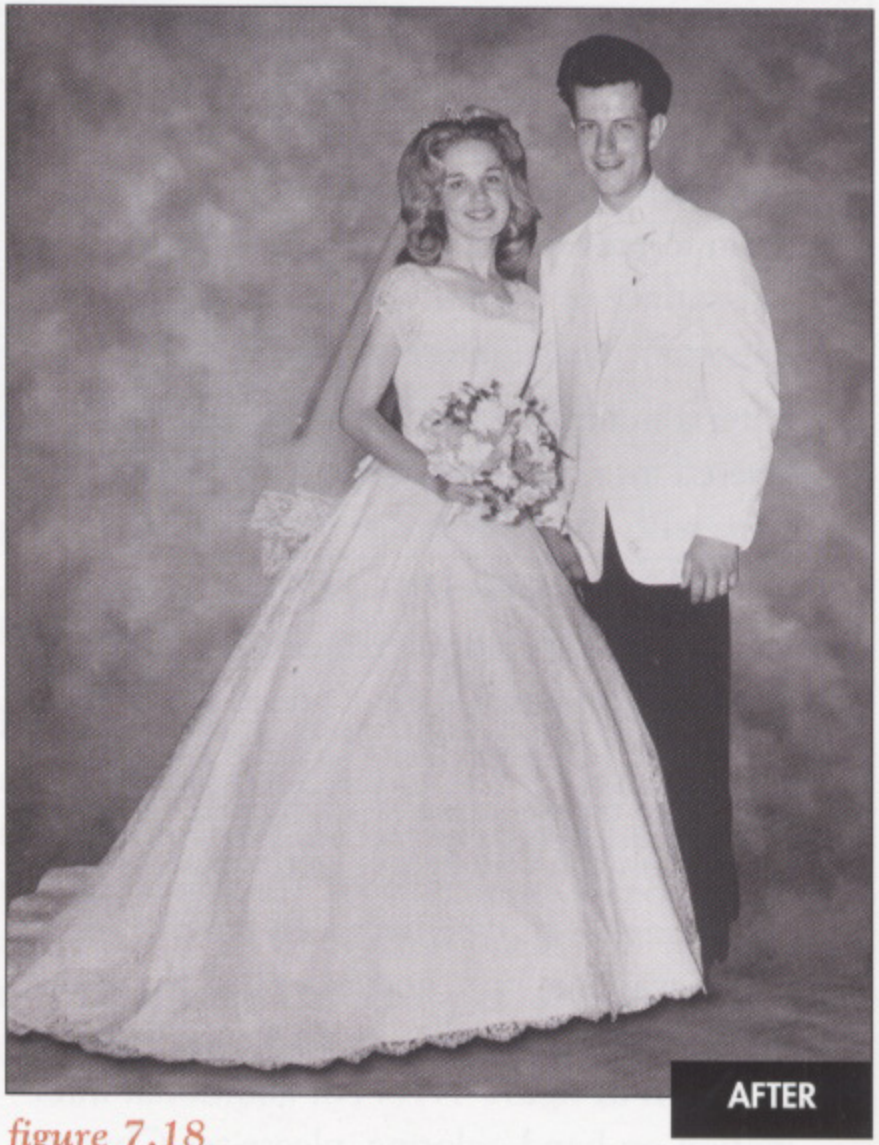


figure 7.18

Fixing a cluttered background

- **Change viewpoint**
- **Shallow depth of field**
- **Frame tighter**
- **Modify scene (move objects, add backdrop)**
- **Retouch (blur, desaturate, darken)**






In general, layering, separation



Question?

- **Recap: avoid distracting background**
- **Simplify, get close**

Composition

Should it be horizontal?



Should it be horizontal?



Get low

- **Try to be at eye level**





Bad



Better

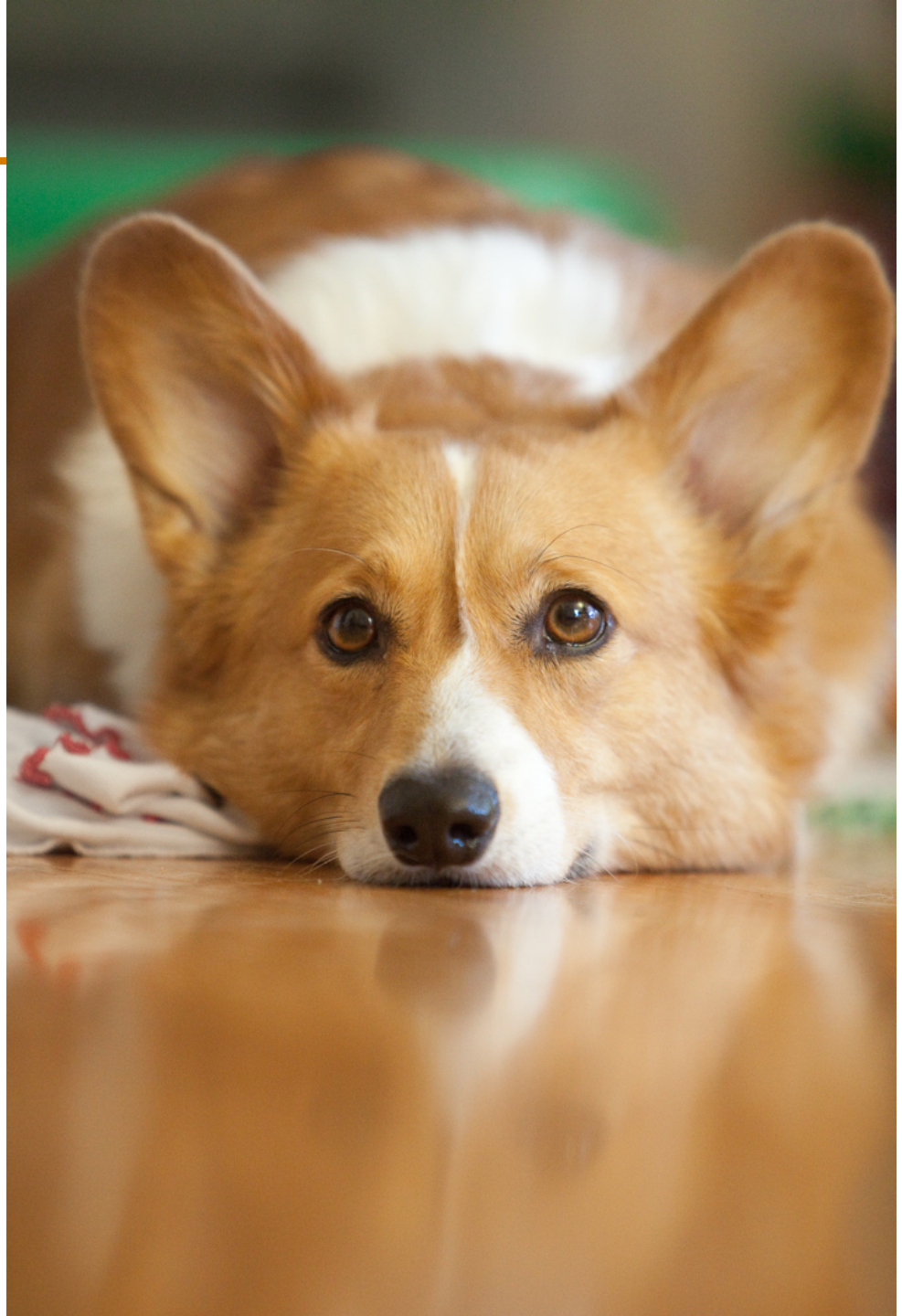


Bad angles

- https://www.youtube.com/watch?v=8EmRZO9fwvk&feature=youtu.be

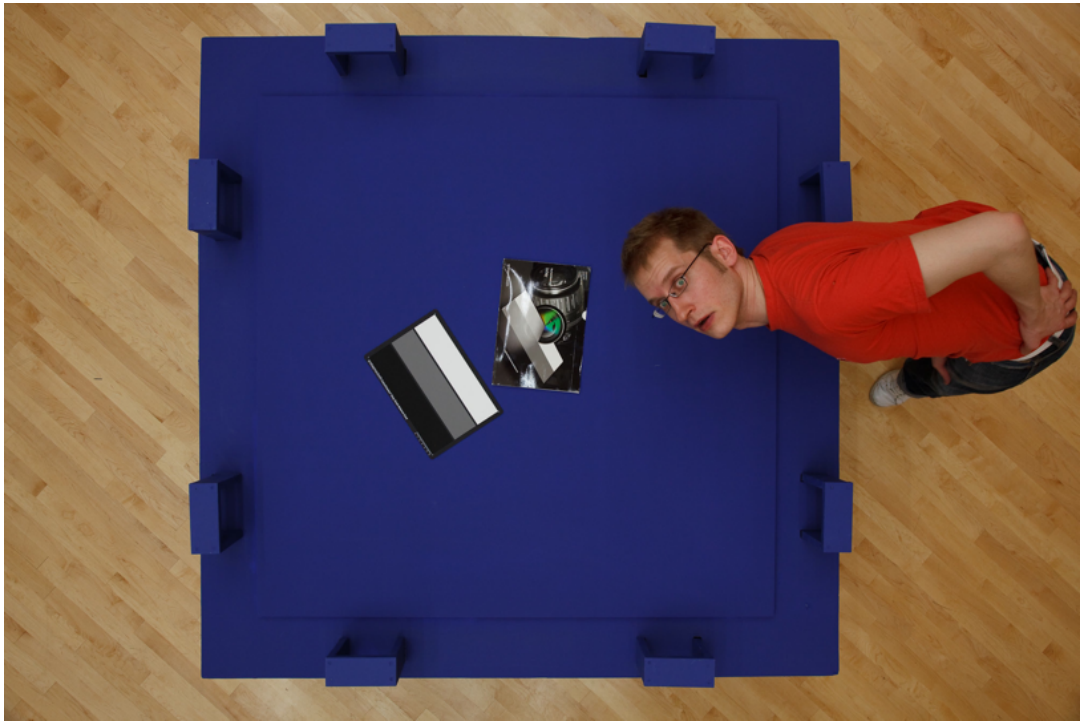


Eye level



Or really get high

- **As usual, follow a rule or really break it.**





God's Eye View in movies

- **http://www.youtube.com/watch?v=kCbTe9jBwB4**



Rule of the thirds



Susie Post

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.

National Geographic Photography field guide

Rule of the thirds



Rule of the Third



Rule of the Third



Variations of the rule of the thirds

- **Golden ratio**
  - Very questionable superstition
  - http://plus.maths.org/issue22/features/golden/
- **Rule of the fifth**
- **...**

- **Only one thing matters: don't center!**

Don’t center, especially for motion



Don’t center, especially for motion



... or do center







Question

- **Recap:**
  - avoid distracting background
  - be at eye level, get low
  - avoid centering subject. Hori vs vert?

Warning: near-parallelism

- **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.



Keep the horizon level

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

- **or use bubble level on flash hot shoe**



Correct perspective (homography!)

+ you control reflection and perspective independently





Architectural photography

- http://www.petapixel.com/2011/10/08/how-to-compose-shots-when-shooting-the-interiors-of-homes/



Build on diagonal lines, or get straight



Try unusual angles

- **Do or don't:**
  Either perfectly vertical or at least 30 degrees

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.



Take a picture from an unusual angle

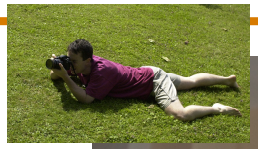
http://www.fotofinish.com/resources/centers/photo/takingpictures.htm





Composition/viewpoint

- **Get low**
  - at eye level of subject
- **Avoid centering subject**
  - rule of the third
- **Keep horizon horizontal**











Question

- **Recap:**
  - avoid distracting background
  - avoid centering subject
  - get low
  - careful with alignment/horizon

- **Do or don't nothing in between**

Light

Bottom line

- **Don't get married on a sunny day!**



Go in the shade

- **Light is more diffuse**

Bad



Better



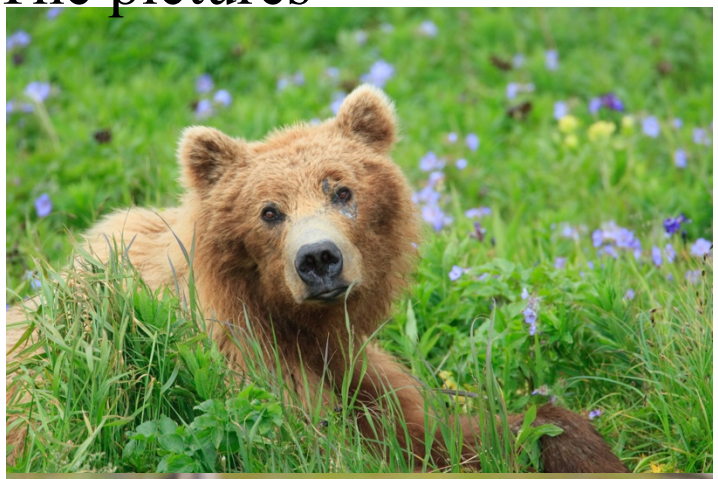
Overcast days are the best

- **Just don't put the sky in the frame**

The weather conditions



The pictures





Other overcast-day pictures





Cloudy day



But colors not always easy

Best time of day: sunset & sunrise

- **+/- 1 hour**
- **“Golden hours”**
- **Night photography: always near sunset/sunrise**
  - because of nice diffuse light

Mid day:
often not great

less than 1 hour
after sunrise/
before sunset

During sunset or
sunrise

After sunset



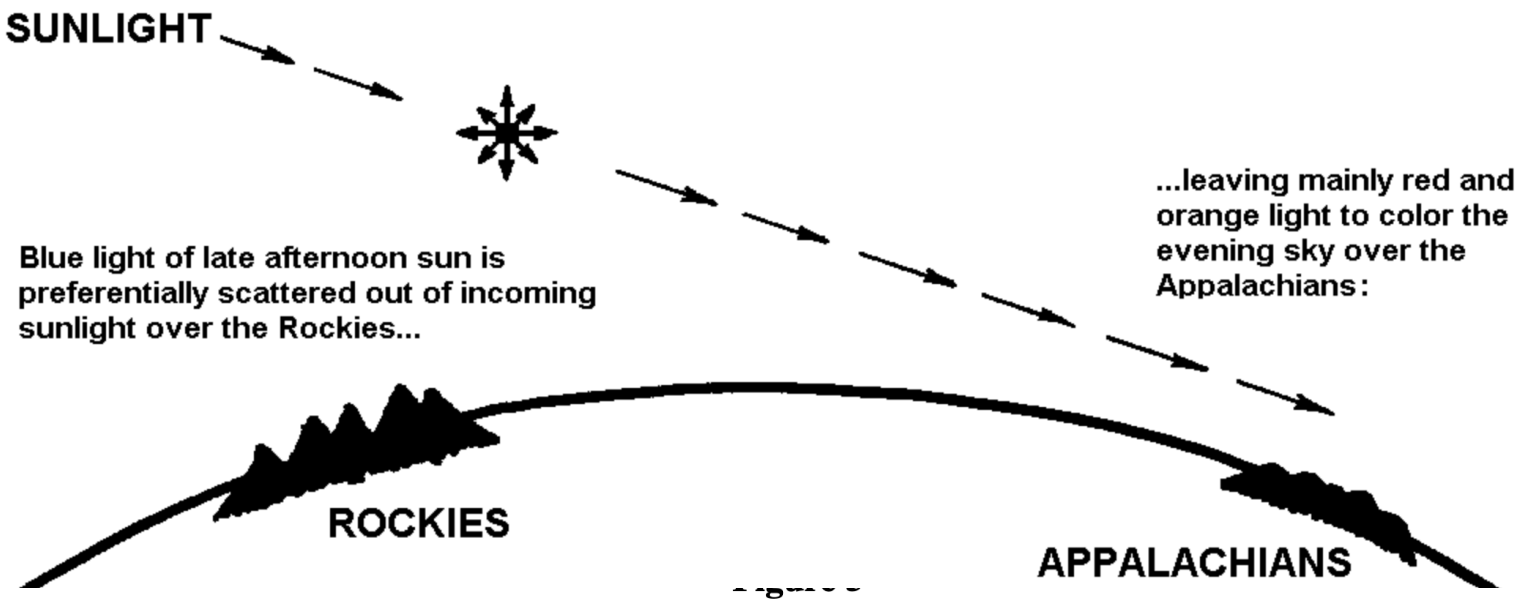







The Colors of Sunset and Twilight

- **By Stephen F. Corfidi**
- **https://www.spc.noaa.gov/publications/corfidi/sunset/**





less than 1 hour after sunrise

During sunset/sunrise

After sunset











- **10 minutes after sunset**



After sunset: blue hour











Cheating: Alaska



10pm



Add fill flash

- **For harsh lighting conditions**
- **Illuminate shadows with flash to reduce dynamic range**
- **But set the flash to -1.5 or -2 EV (3 to 4 times darker than existing lighting)**

3 Use flash outdoors

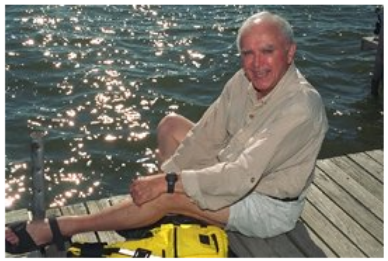
Bright sun can create unattractive deep facial shadows. Eliminate the shadows by using your flash to lighten the face. When taking people pictures on sunny days, turn your flash on. You may have a choice of fill-flash mode or full-flash mode. If the person is within five feet, use the fill-flash mode; 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



Subject is dark



After

http://www.kodak.com/eknec/PageQuerier.jhtml?pq-path=317&pq-locale=en_US

Without flash



With fill flash



Add fill in light on faces: Photoshop



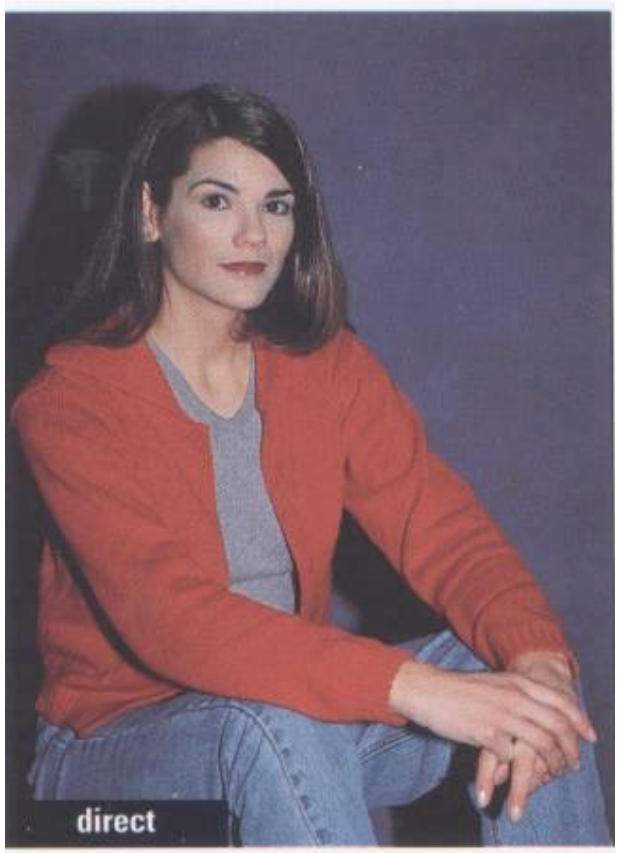
Add fill in light on faces



Flash as the main light source

Problems:

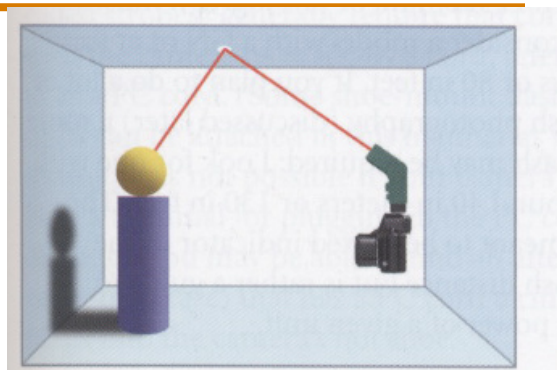
- poor location, no shape modeling
- small light source
- annoying shadows
- often, too white compared to available light

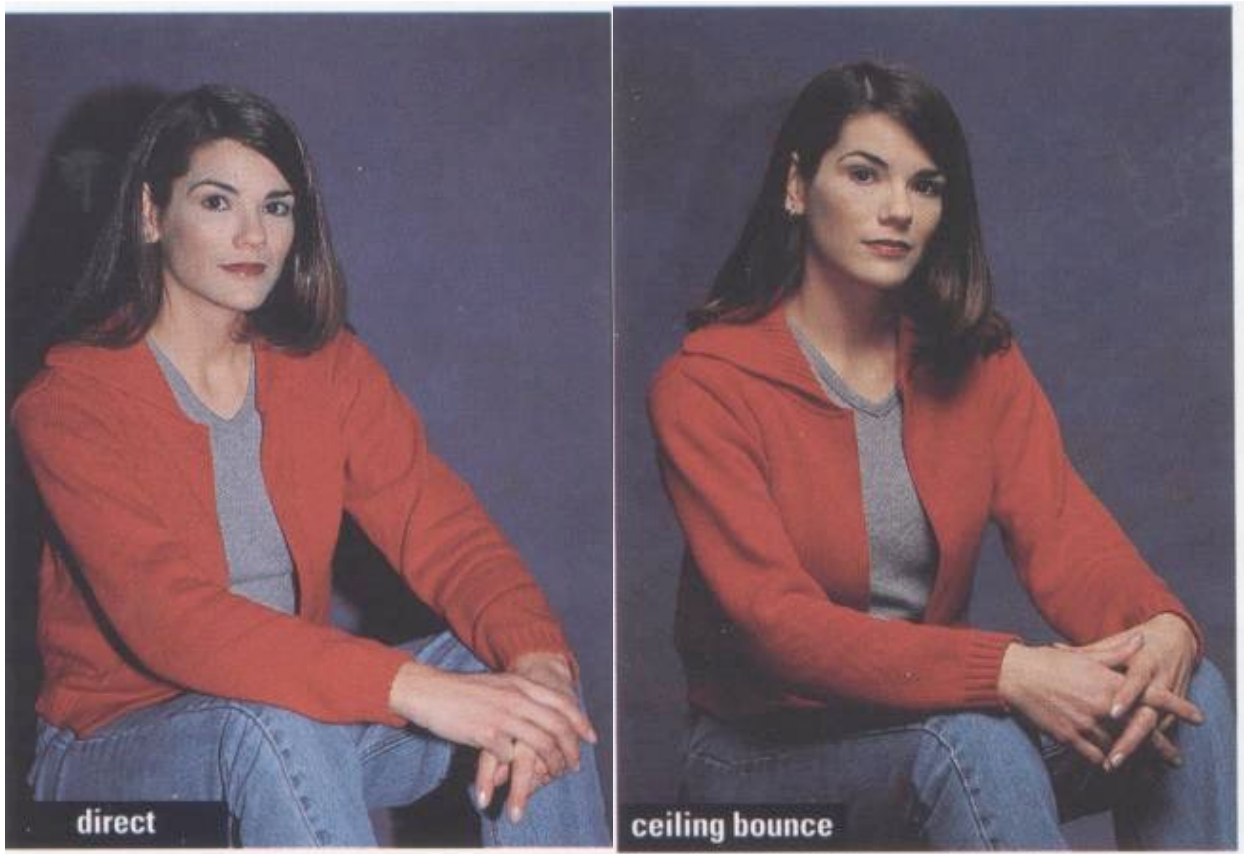


National Geographic Photography field guide

Solution: bounce flash

- **Ceiling bounce:**
  much better, more diffuse
- **Disadvantage: shadows under the eyes**

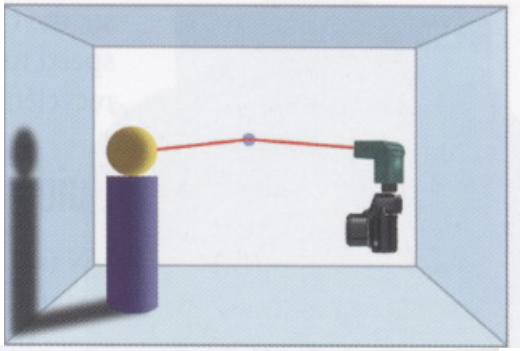


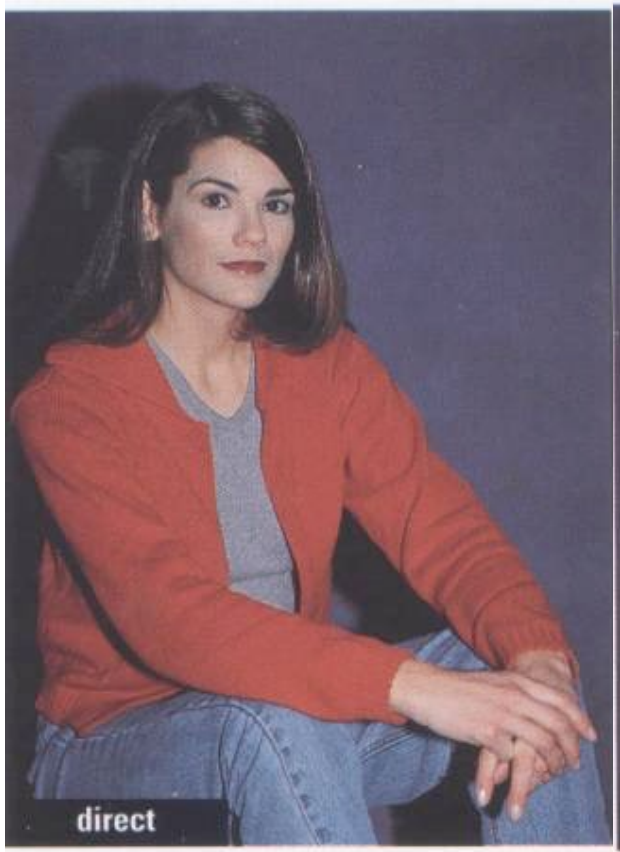


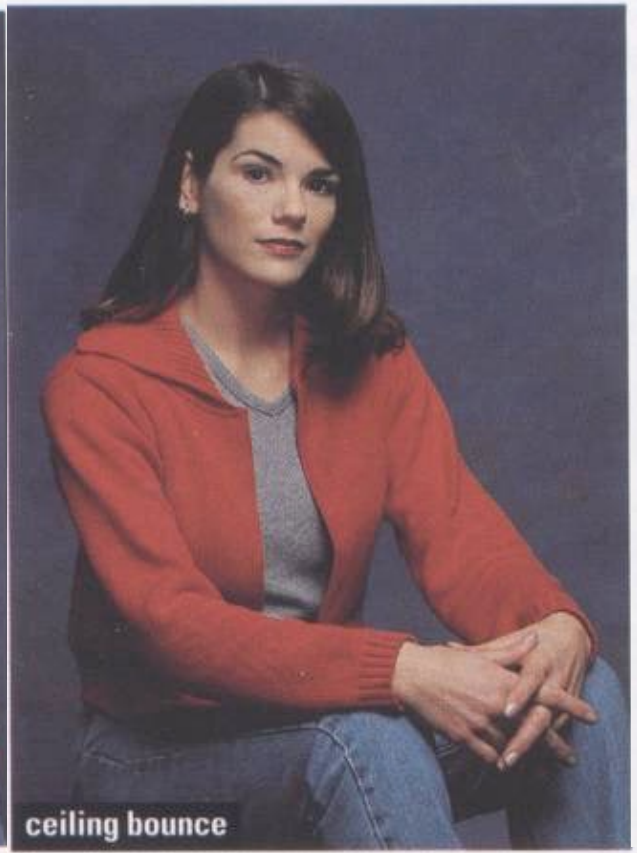
National Geographic Photography field guide

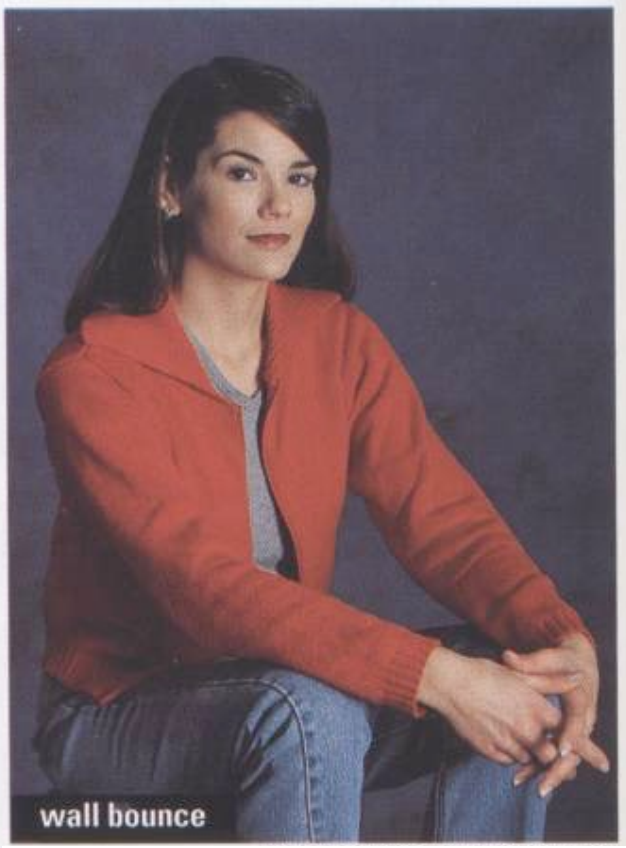
Solution: wall bounce flash

- **Better shape modeling (light from the side), good lighting of the eyes**
- **Disadvantage: walls not always white**









National Geographic Photography field guide

Flash Diffuser

- **Two tricks:**
  - diffuser illuminates the whole room, light is very diffuse but also illuminates directly
  - diffuser is orange and matches ambient light





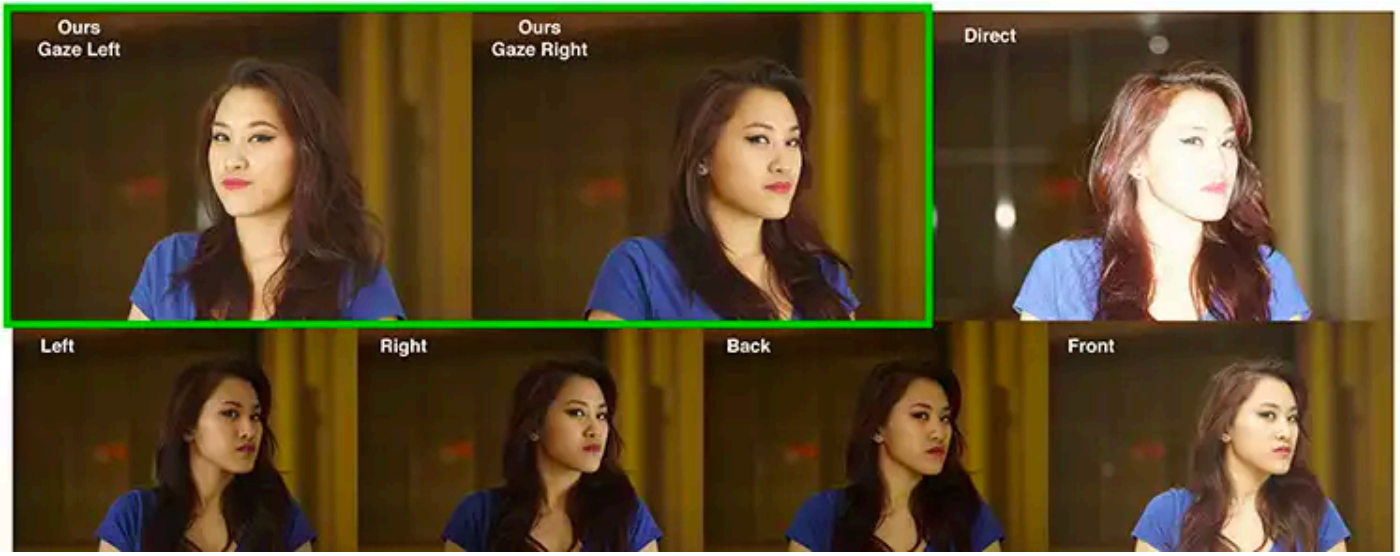
Bounce flash (back, up, 45 degrees)





Computational Bounce Flash

- Murmann et al.
- http://www.abedavis.com/papers/BounceFlash_SIGA16.pdf
- https://www.youtube.com/watch?v=Au44yDS6yZE





Reflect light



See the difference a reflector can make.





Without a Reflector

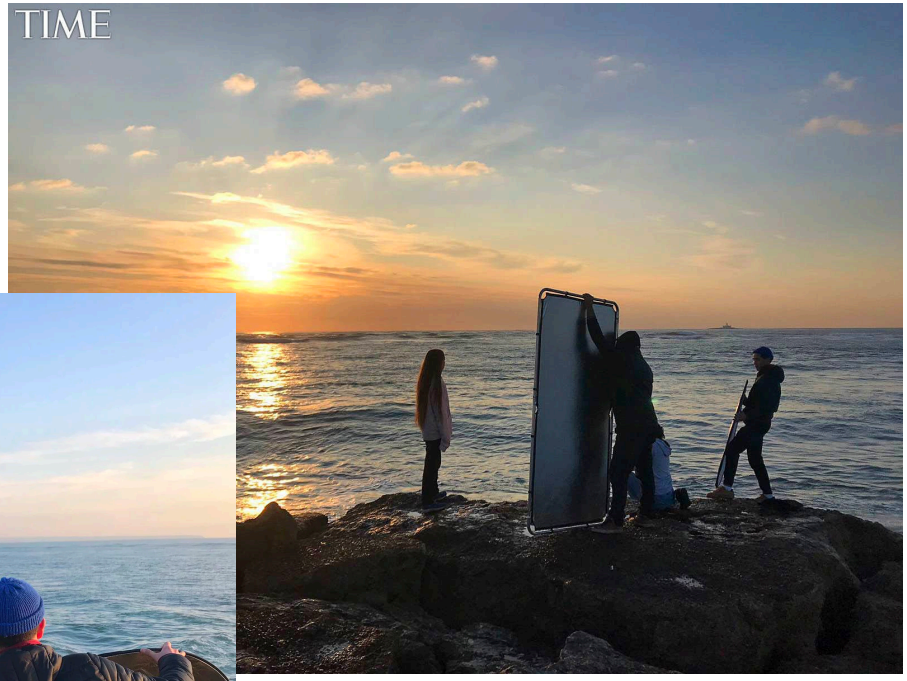


Adding a Reflector

http://studiostyles.net/location-lighting-techniques-finding-the-light/

Reflectors

- **https://petapixel.com/2019/12/11/behind-times-cover-photo-of-greta-thunberg-2019-person-of-the-year/**

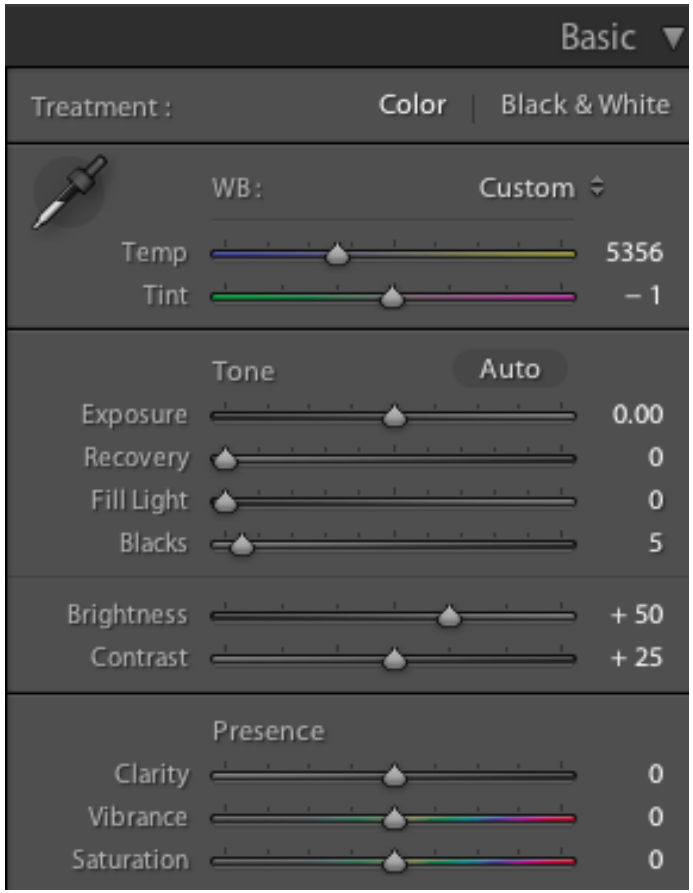


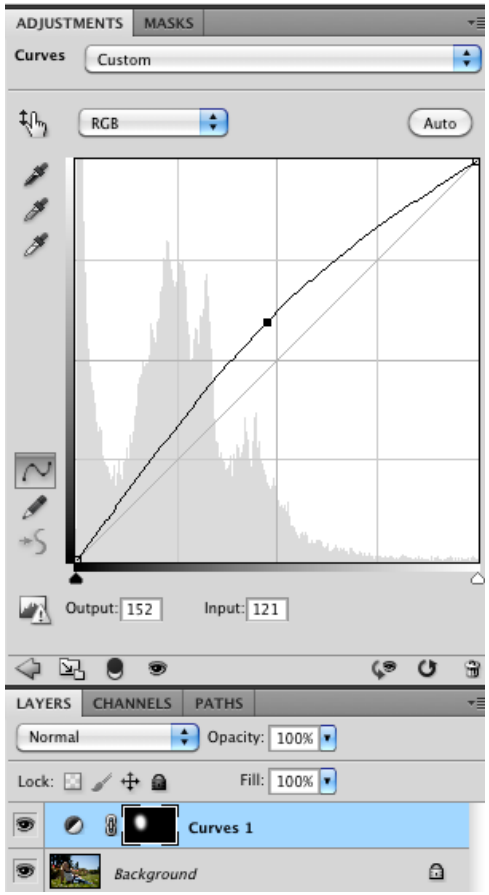




Options for digital fill light

- **Use the fill-in slider in Lightroom or camera raw**
- **Use an adjustment layer with a mask**
  - paint the mask white only in the area to brighten.





Landscape: HDR & Tone mapping





Light

- **Avoid harsh light…**
  unless you want
  to play with shadows
  - Do or don't
    -





Light & color

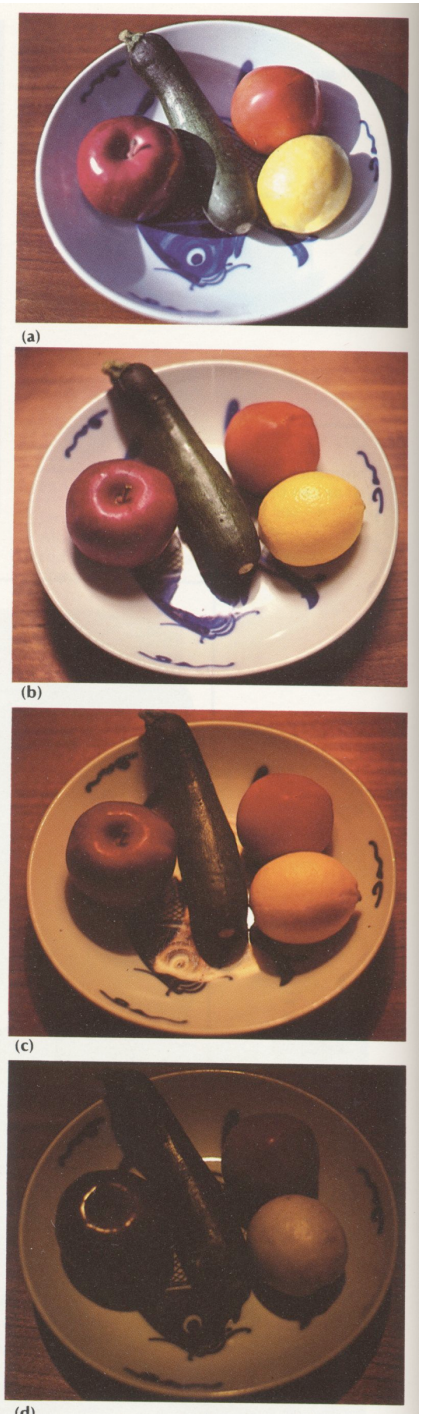
- **Avoid harsh light…**
  unless you want to play with shadows
- **Sunrise & sunset are best**
- **Cloudy days are great as long as the sky is not in the picture**
- **For sunny days, shade areas are best**
- **Avoid direct flash**
- **HDR, tone map**



White balance

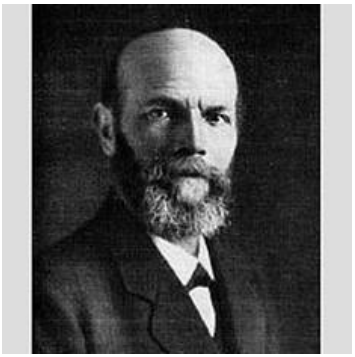
White balance problem

- When watching a picture on screen or print, we adapt to the illuminant of the room, not that of the scene in the picture
- The eye cares more about objects' intrinsic color, not the color of the light leaving the objects
- We need to discount the color of the light source



Same object, different illuminants

Von Kries adaptation



- Multiply each channel by a gain factor
- Note that the light source could have a more complex effect
  - Arbitrary 3x3 matrix
  - More complex spectrum transformation





http://www.cambridgeincolour.com/tutorials/white-balance.htm

Best way to do white balance

- Grey card:
- Take a picture of a neutral object (white or gray)
- Deduce the weight of each channel
- If the object is recoded as r_w, g_w, b_w use weights k/r_w, k/g_w, k/b_w where k controls the exposure







Party name tags

- Provide excellent white references!





Challenge: mixed lighting

- **In particular, flash+ambient**
- **Solution: put yellowish gel on the flash**
- **Solution 2: http://people.csail.mit.edu/ehsu/work/sig08lme/**







Ultimate white balance solution

- **But note that white balance affects the tones you get**



Recap

- **Follow rules or really break them**
- **Simplify, avoid cluttered background**
  - move your viewpoint, frame tighter, shallow depth of field, desaturate
- **Don't center things**
  - rule of the third, leave space for gaze or motion
- **Avoid harsh light**
  - golden hours, overcast days, avoid direct sunlight, go in the shade, fill flash, bounce flash, post-processing
- **White balance**

Software

Software

- **Software adjustment can make a big difference!**

Before



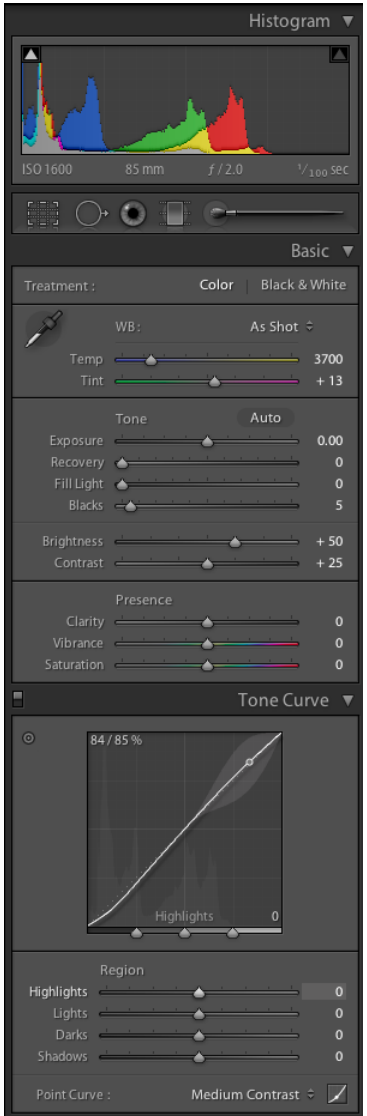
After



Here:
exposure
curve
clarity
vibrance

Software

- **Shoot in RAW for more flexibility**
- **Photo management & lightweight editing**
  - Lightroom, Aperture, Lightzone, Darktable
  - Fix white balance (make white white!)
  - Adjust exposure (e.g. brighter for snow scene)
  - Crop to improve composition
  - Manage contrast using the curve
  - Boost saturation (or vibrance) a little.
  - Add light to dark areas (fill light)
  - Sharpen a bit
  - Convert to black and white
- **Use Photoshop only if you really need to**



Free version

- http://www.darktable.org/
- Pretty decent, lots of advanced algorithms
- Higher learning curve than lightroom because too many parameters
- But overall good



Other free options

- **https://www.techradar.com/news/the-best-free-alternative-to-adobe-lightroom**

- **https://www.darktable.org/**
- **http://rawtherapee.com/**
- **http://lightzoneproject.org/ (used to be commercial, not super well maintained)**
- **https://www.irfanview.com/**
- **https://www.digikam.org/**
-

Commercial alternatives

- **https://skylum.com/luminar**
- **https://www.on1.com/**
- **https://www.acdsee.com/en/products/photo-studio-ultimate**
- **https://www.captureone.com/en/**
- **https://affinity.serif.com/en-us/photo/**
-

Why shoot RAW

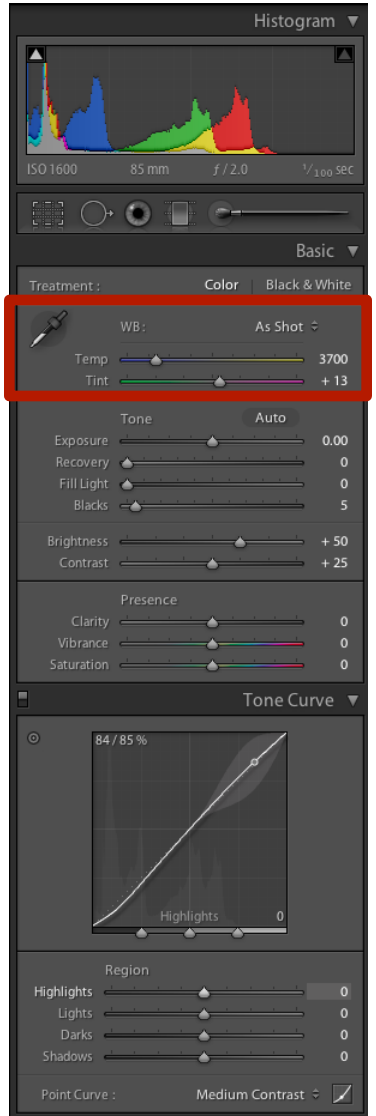
- White balance
- More quantization levels
- disk space/memory cards are cheap

White balance

- Party name tags provide excellent white references!



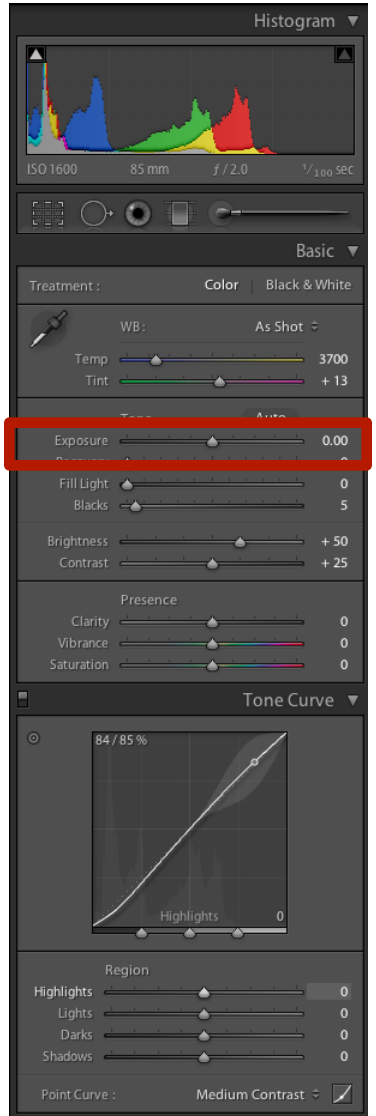




Exposure correction

- I told the camera to make the image 1.8 times brighter
- Still too dark

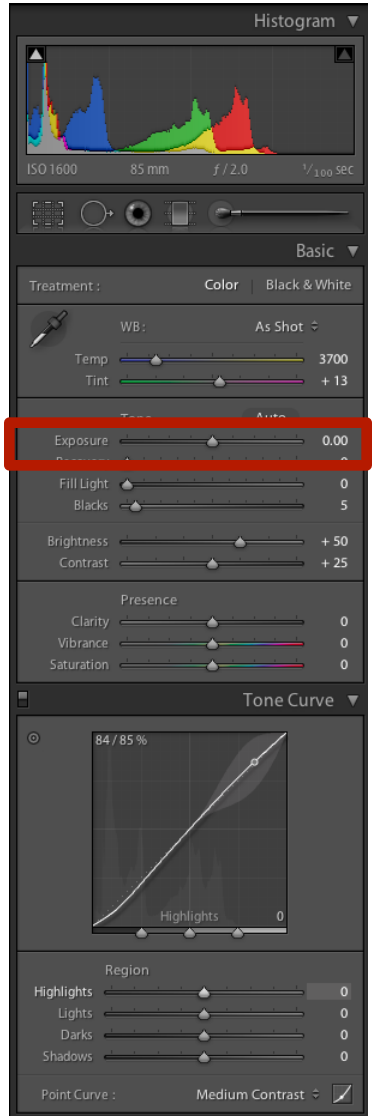




Exposure correction

- I told the camera to make the image 1.8 times brighter
- I still had to brighten it in software





Crop





Manage contrast with the curve

- **Before curve adjustment**



Manage contrast with the curve

- **After curve adjustment (a tad overdone)**



Boost saturation or vibrance

- **Before**



Boost saturation or vibrance

- After



Fill light

- **Before fill light**



Fill light

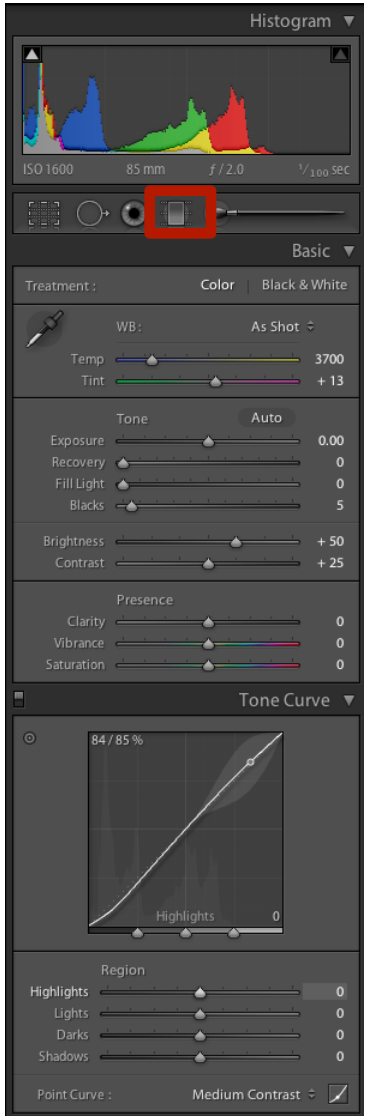
- **After fill light**



Graduated filter



Before



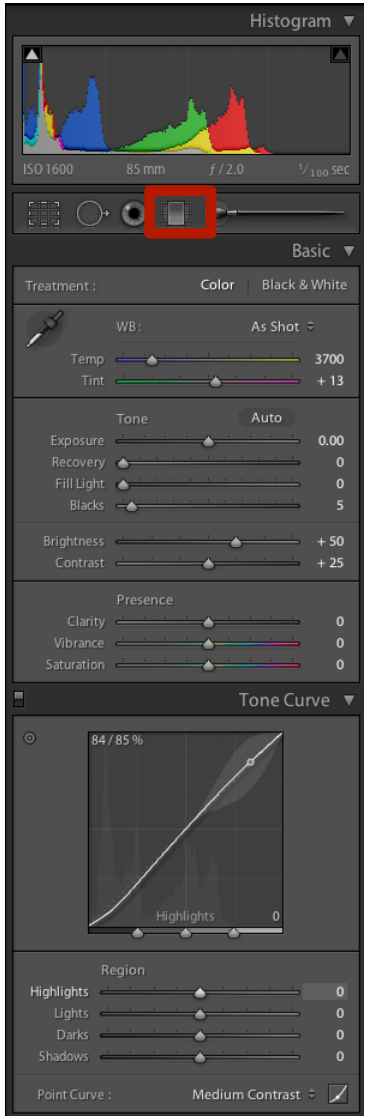
Graduated filter



Darken sky

After

Brighten ground



Black and white

- **Helps when colors are distracting**



Black and white

- **Often needs to boost contrast**

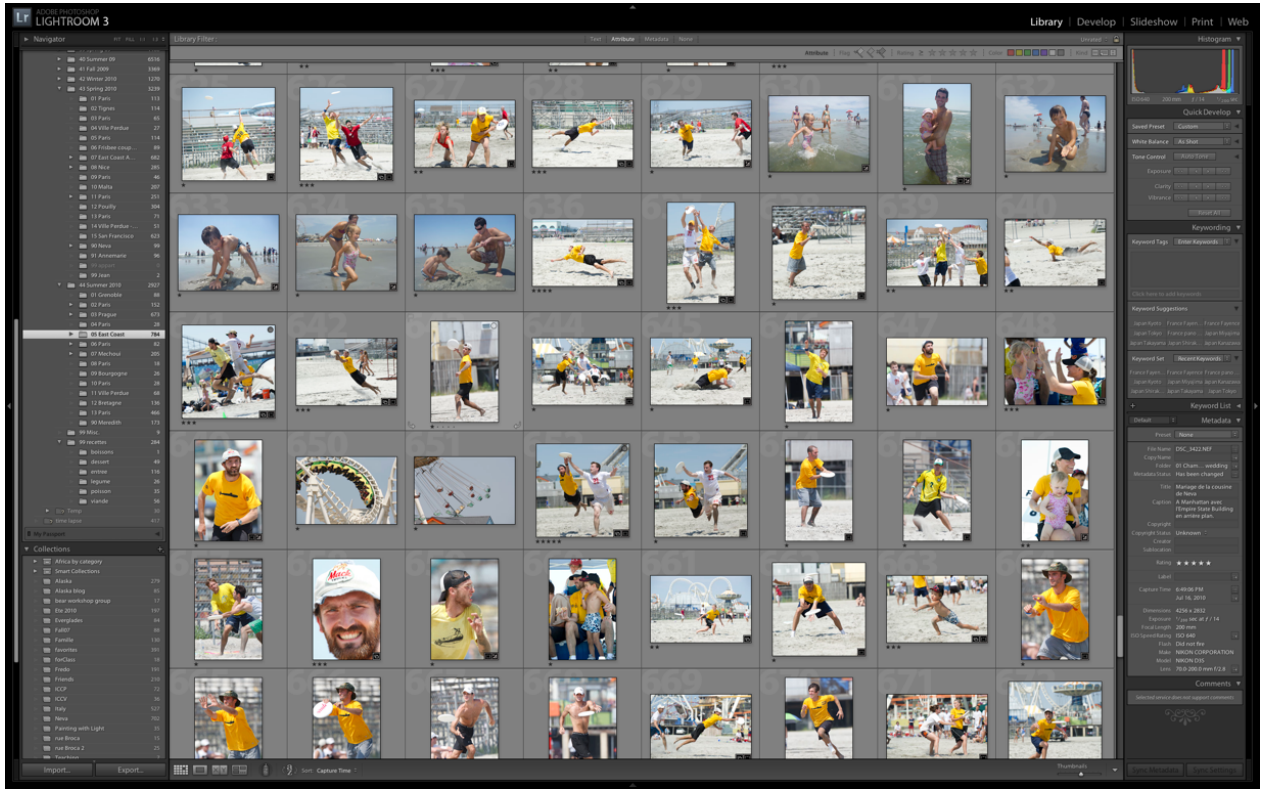


Other useful tools/sliders

- **Black point**
- **Recovery (to save clipped highlights)**
- **Denoising**
- **Clarity**
- **Local adjustments and gradient**
- **Vignetting**
- **Optical aberration correction**
- **Perspective correction**

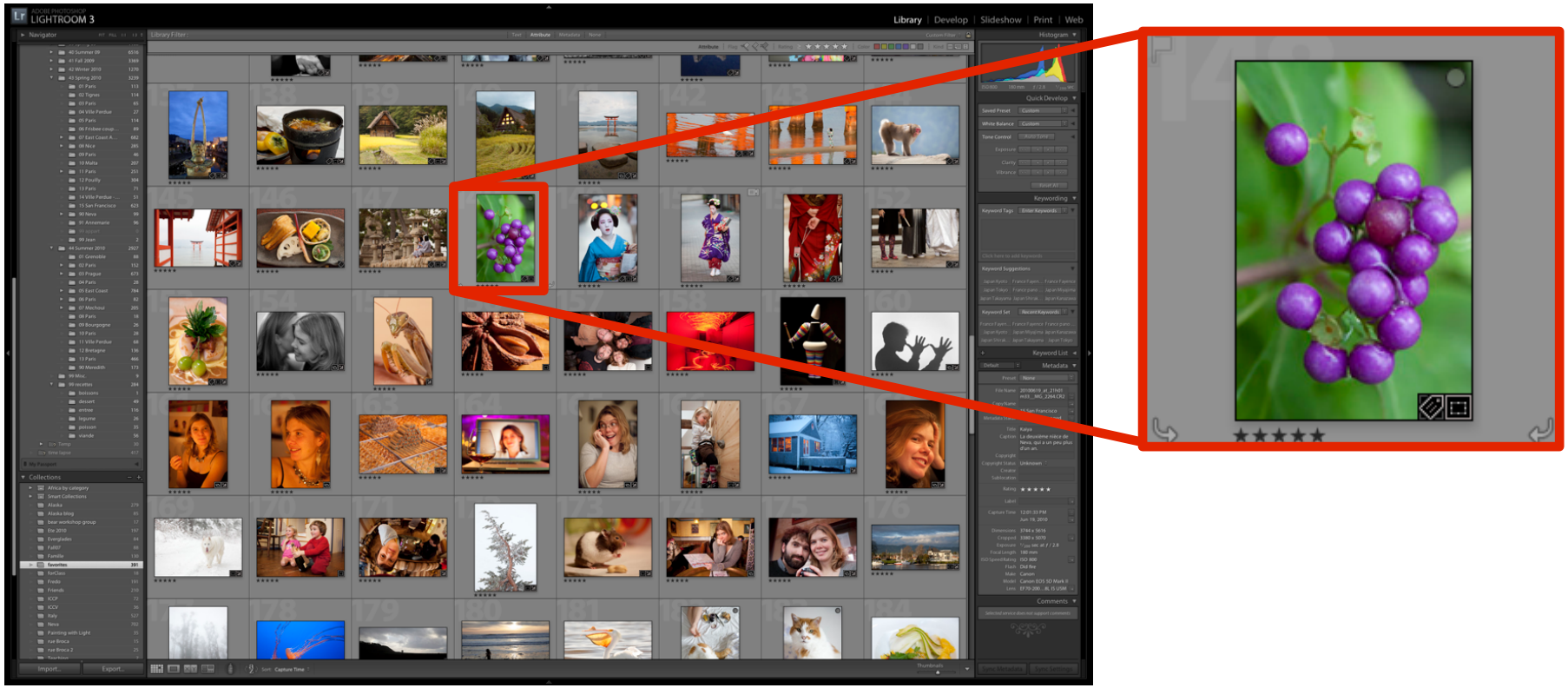
Organize, rate, delete

- **On a photo trip, I keep 1% of pictures**
  - That's also the rate of most pros
  - Yes, I shoot more photos than most people
  - But I also keep a lot fewer



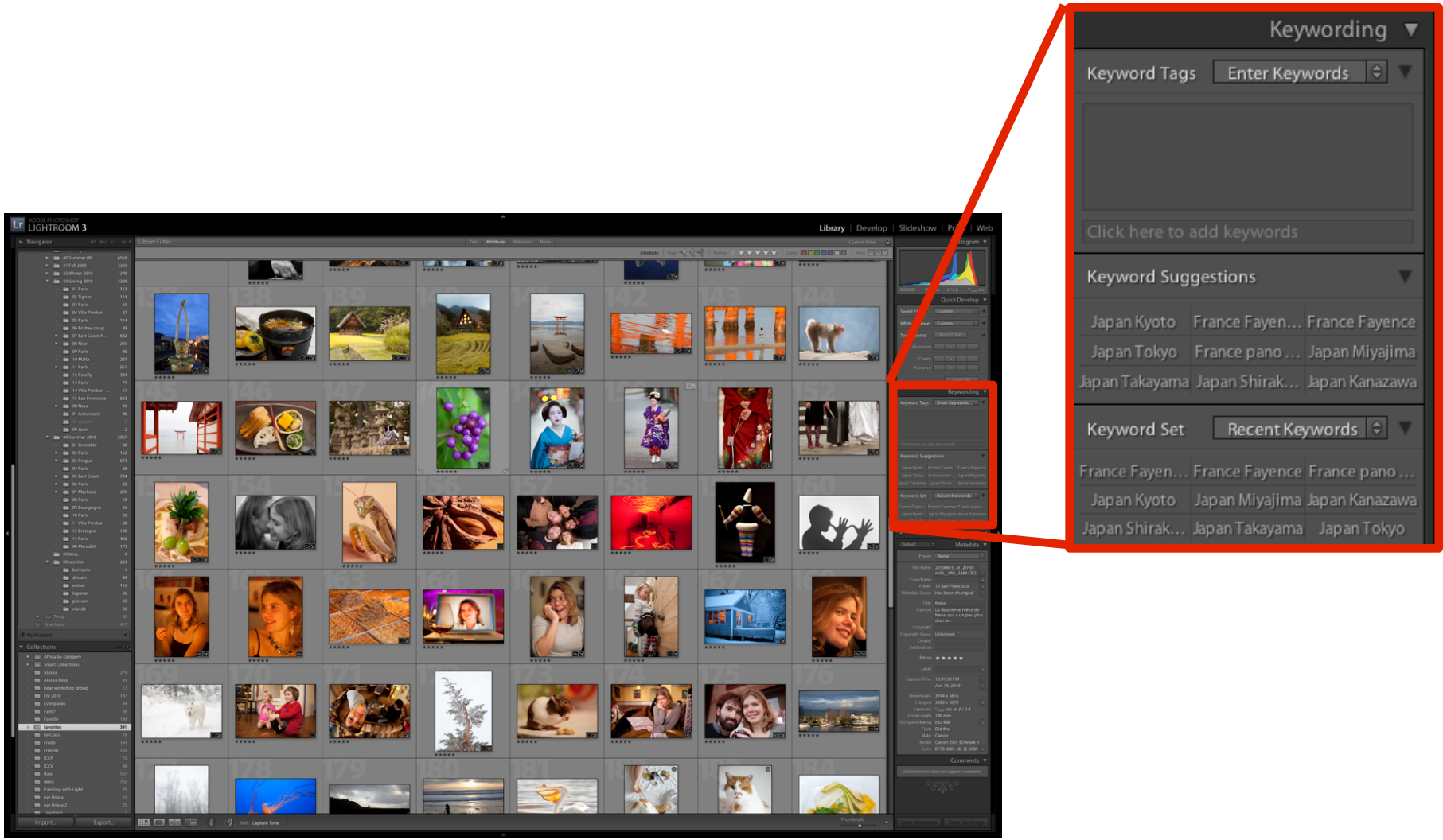
Organize, rate, delete

- **My strategy: multipass algorithm**
  - Go through all pictures, and rate the OK ones 1 star
  - Go through the 1 star and rate the better ones 2 stars
  - Etc.



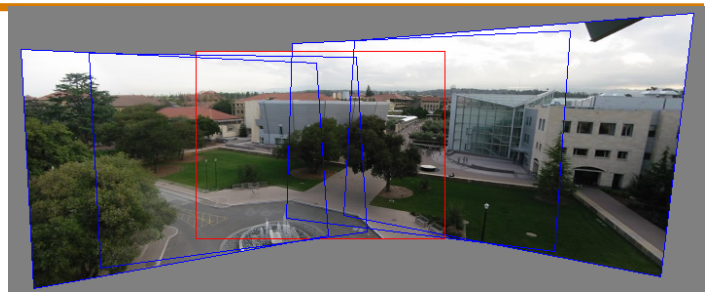
If you're really good

- **Keyword your pictures**



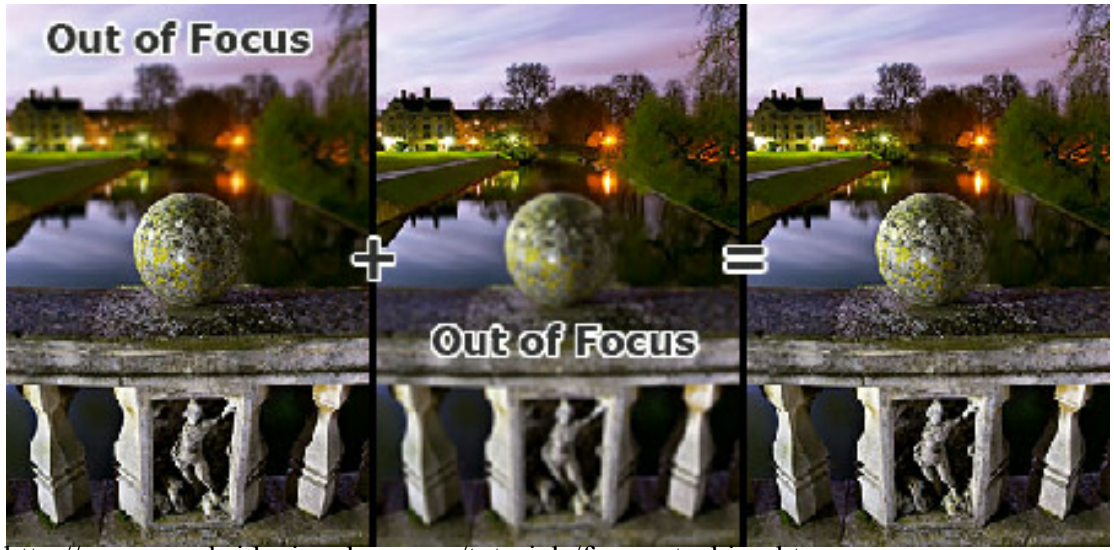
Software ++

- Stitch panoramas
- High-Dynamic-Range
- Multiple exposures
- Macro focal stack





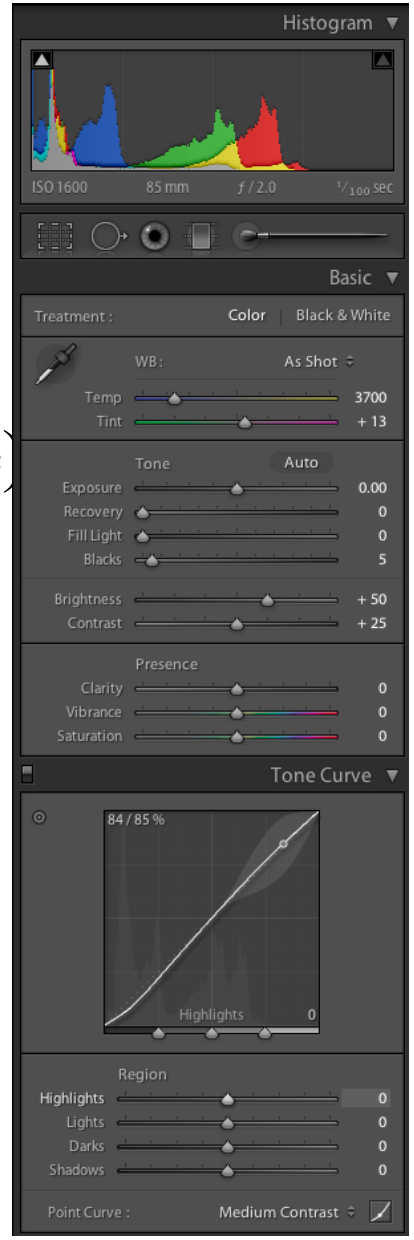




http://www.cambridgeincolour.com/tutorials/focus-stacking.htm

Recap: Software

- **Shoot in RAW for more flexibility**
- **Photo management & lightweight editing**
  - Lightroom, Aperture, Lightzone, Darktable
  - Fix white balance (make white white!)
  - Adjust exposure (e.g. brighter for snow scene)
  - Crop to improve composition
  - Manage contrast using the curve
  - Boost saturation (or vibrance) a little.
  - Add light to dark areas (fill light)
  - Sharpen a bit
  - Convert to black and white
- **Use Photoshop only if you really need to**



Portraits

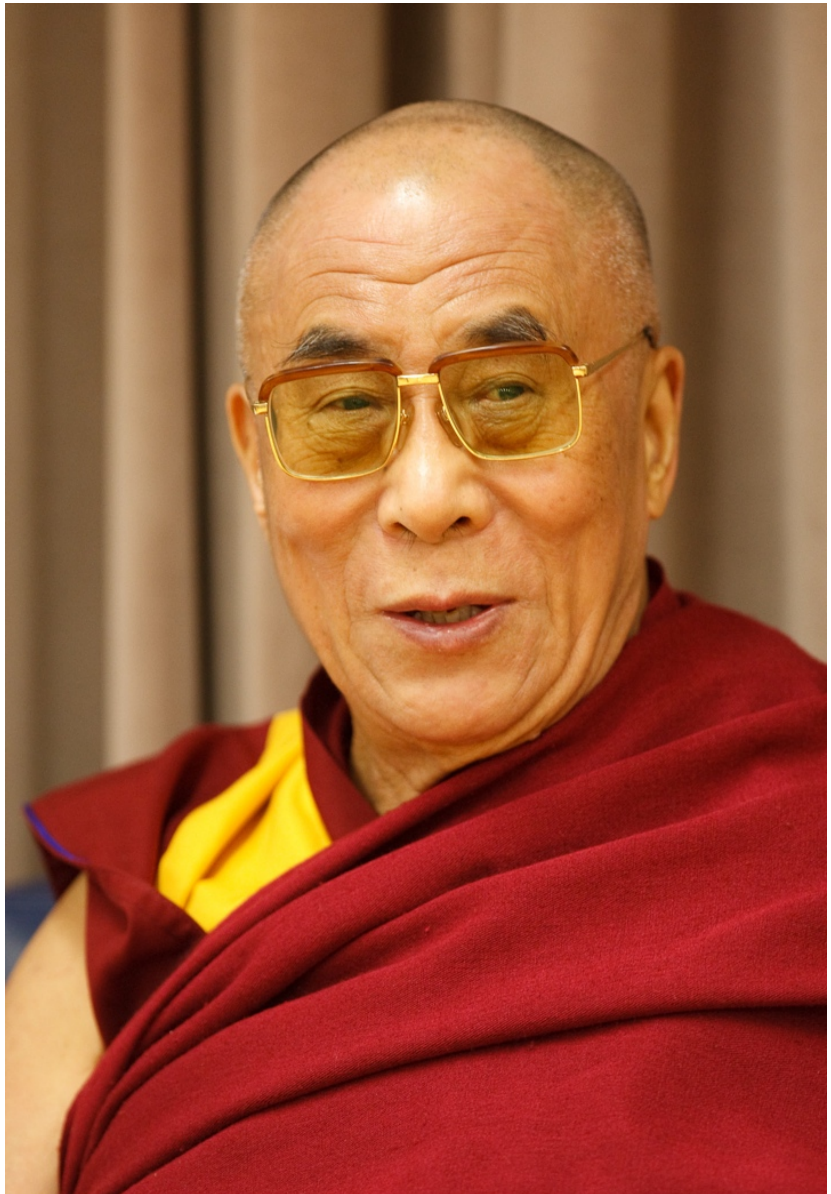
Portraits: It's all about the eyes

- Eyes should be sharp & shiny
- Be at eye level
- Make sure lighting is not harsh
- Shallow depth of field can help
- Add vignetting to focus attention
- Get the white balance right (maybe a little warm)
- Try Black and white
- Telephoto: isolate the subject
- Wide angle: approachable and include surrounding
- Don't hesitate to over-shoot: bits are cheap

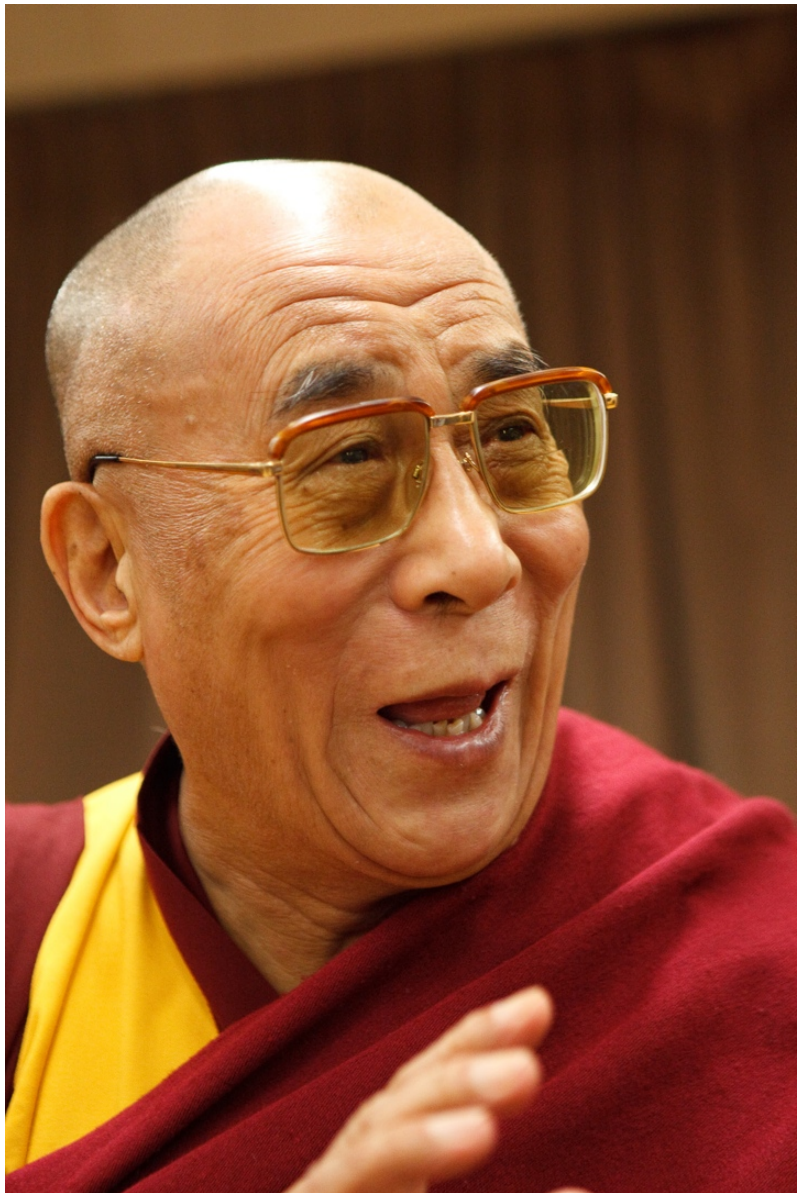


Telephoto vs. wide angle

300mm f/2.8



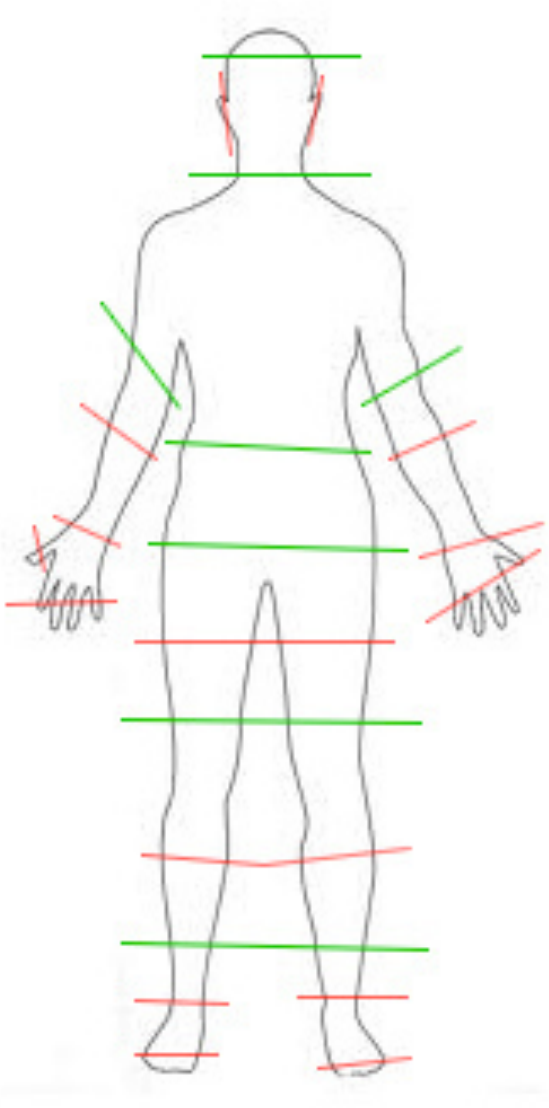
24-70



- **http://www.diyphotography.net/focal-length-matter-when-shooting-faces**



Composition: Where to crop or not



By J. Southard Photography

http://www.flickr.com/photos/lovingthemoments/5740539069/

Tougher than portraits: 2 people

- **Focus is harder: both sets of eyes should be sharp**
  - tradeoff between complex background
- **Hard to get both expressions right**
- **=> shoot like crazy**
- **=> use photomontage**

Not great (mother's eyes are out of focus)



Better



Interactive Digital Photomontage

- **Aseem Agarwala et al.**
  http://grail.cs.washington.edu/projects/photomontage/
- **Merge multiple images**
- **User puts strokes to select which image where**
- **Graph cut + Poisson reconstruction**

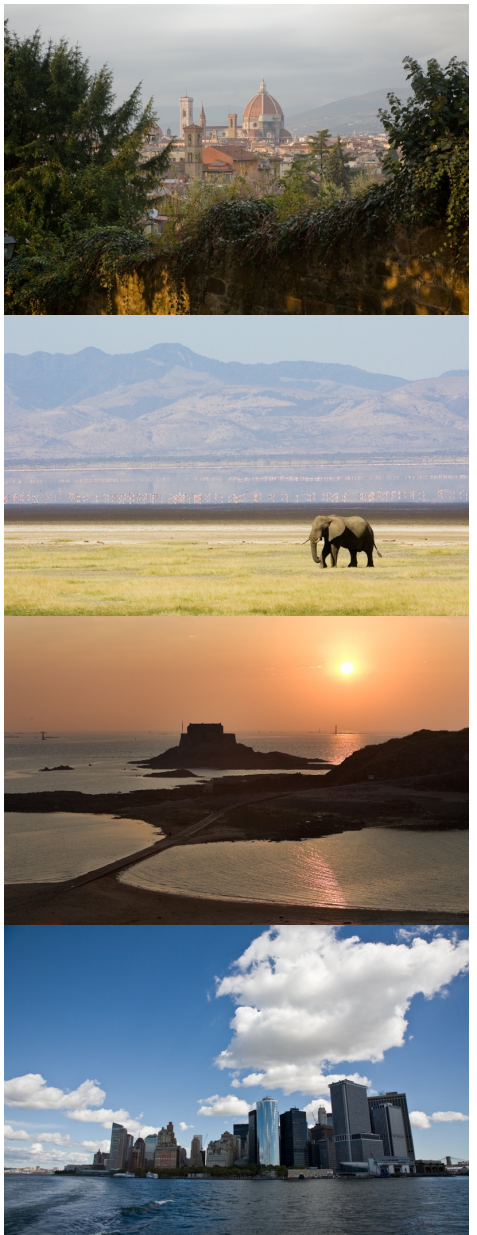


Figure 1 From a set of five source images (of which four are shown on the left), we quickly create a composite family portrait in which everyone is smiling and looking at the camera (right). We simply flip through the stack and coarsely draw strokes using the *designated source* image objective over the people we wish to add to the composite. The user-applied strokes and computed regions are color-coded by the borders of the source images on the left (middle).

Landscape/ architecture

Landscape / architecture

- **Get a foreground element**
  - rock, tree, flower
- **Rule of the thirds, diagonals**
  - in particular for the horizon
- **Don’t hesitate to zoom in**
- **Manage dynamic range**
  - sky is always too bright
  - graduated neutral density, HDR
  - golden hours or right after sunset
- **Use a polarizer**
  - darkens the sky, make colors stand out
- **Alignments**
  - Keep horizon straight
  - For architecture, correct verticals
- **Don’t be deterred by stormy weather**
- **Slow shutter speed for water**



Foreground helps









Boring



More interesting (foreground)



Parallels: do or don't



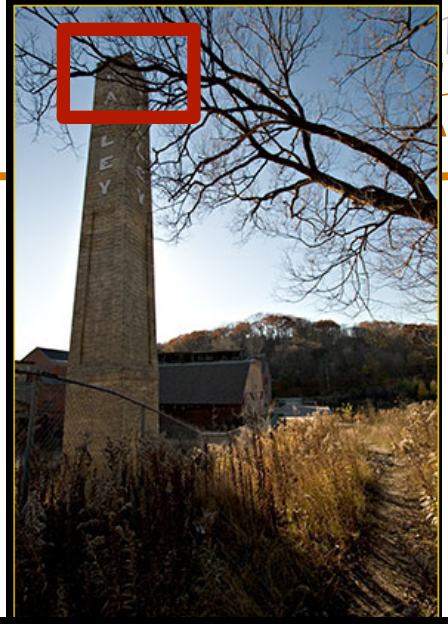


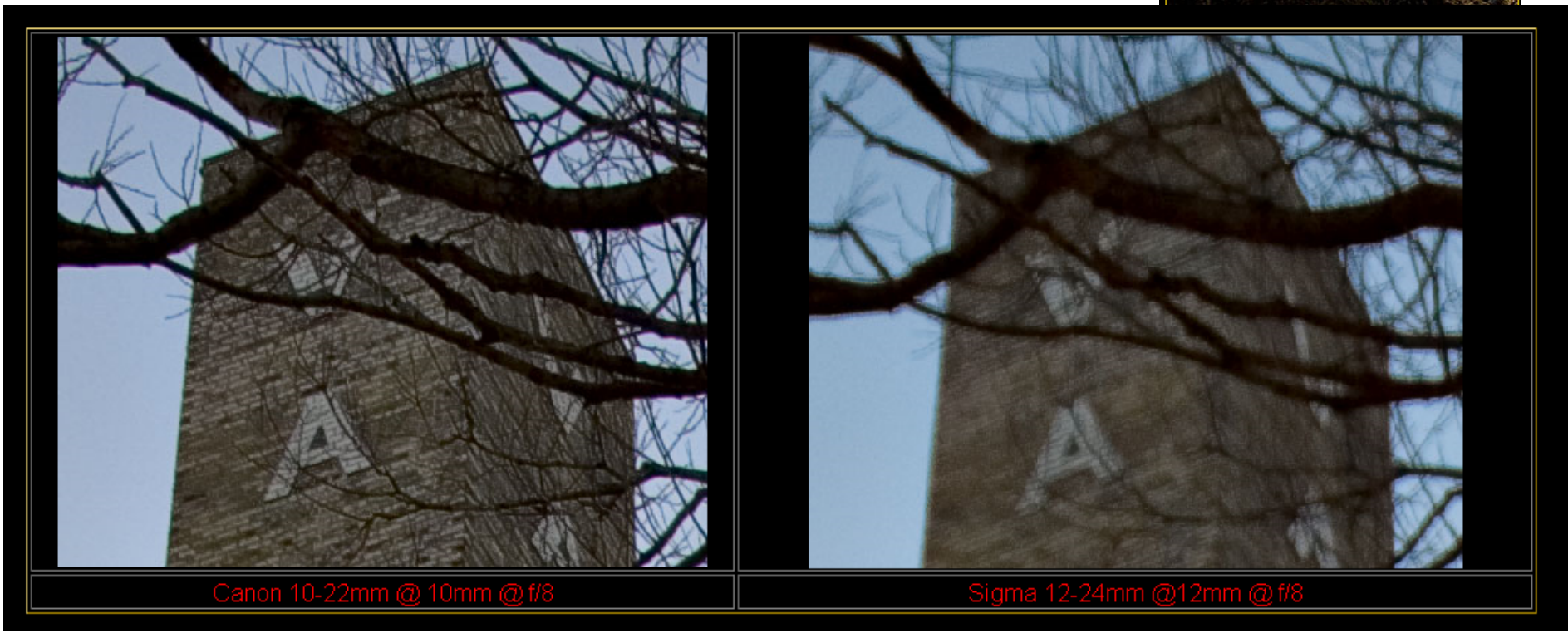
Equipment

Equipment

- **Do get a mirrorless, compacts are too limited**
- **Don't worry about brand**
- **Don't worry about the body, get the cheapest one**
- **Ask yourself what weight you're willing to carry**
- **Worry about lenses**
  - Zooms are convenient but quality can be a problem
    - Avoid large range (e.g. 18-200) they're not bad when stopped down, but quality isn't great at full aperture
    - Maximum aperture matters (the smaller the number, the better)
  - Get a prime in the 35-85mm range
    (cheap, high quality, wide aperture) 50mm f/1.8
- **Count $500 to 1.5k for basic configuration**

Lens quality varies!





source: the luminous landscape

Zoom vs. prime

- **The left image is with an expensive zoom**
- **Still softer than the prime on the right**



source: the luminous landscape

Online reviews

- http://www.slrgear.com/reviews/index.php
- http://www.dpreview.com/lensreviews/
- http://www.the-digital-picture.com/Reviews/ISO-12233-Sample-Crops.aspx?Lens=486&Camera=453&Sample=0&FLI=0&API=3&LensComp=254&CameraComp=453&SampleComp=0&FLIComp=0&APIComp=4

Lens. vs. body

- **http://www.youtube.com/watch?v=hk5IMmEDWH4&feature=player_embedded**
- **Pro SLR with cheap lens**
  vs cheap SLR with pro lens

Equipment: accessories

- **Good flash photography is difficult!**
  - Because you typically deal with 2 sources of light: flash and ambient
  - You need to get the exposure right for both!
  - You need to get the white balance right for both!
- **Get an external flash if you want to take "event" pictures**
  - The built-in flash is only good for fill flash (in bright sunlight)
  - Use external flash, orient towards (white) wall/ceiling
  - Get a diffuser (omnibounce)
  - Get yellow gel (or diffuser) to match indoor lighting
- **Get a tripod**
  - important for landscape, cityscape
  - get a good one: stability is important

Lighting

- **Cheapest way to improve your photo**
- **http://strobist.blogspot.com/2006/03/lighting-101.html**

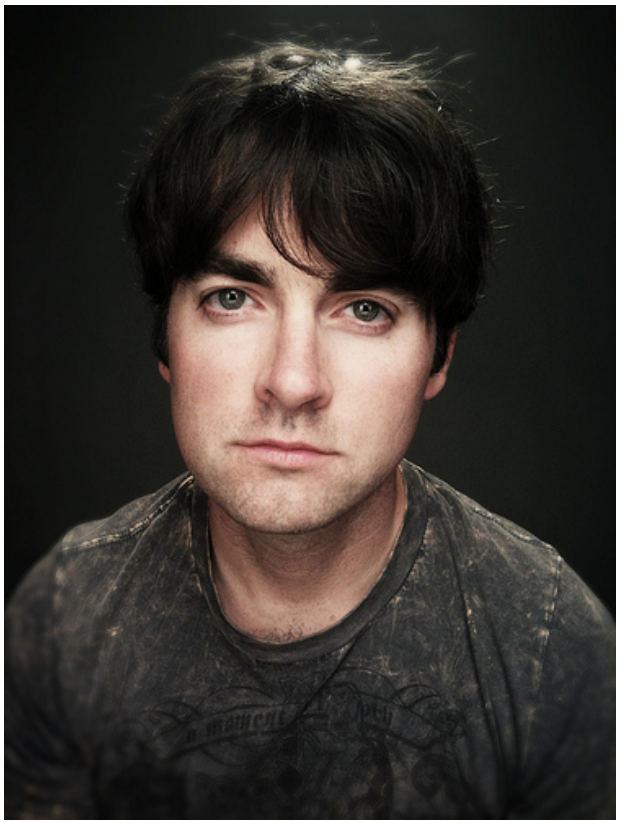


Basic lighting for portraits

- **1 flash 1 umbrella 1 stand one reflector**
- **better: two flashes 2 umbrellas**

It's the light that counts

- **http://fstoppers.com/iphone**
- **Photos taken with an iphone 3GS**
  - and a lot of lighting equipment

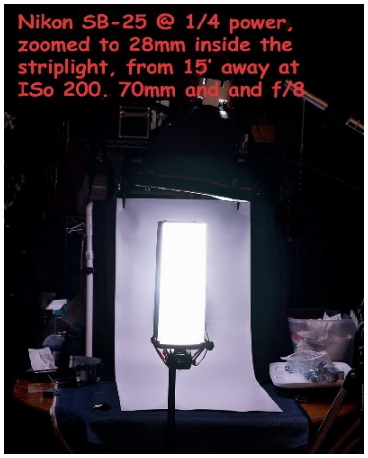

See also http://www.youtube.com/watch?v=o063wC_SNxo&feature=player_embedded

Cheap lighting-based setup

- **Cheap compact with a flash hotshoe**
  - and a manual mode
- **Cheap lighting equipment (manual flashes)**
- **DYI diffusers and reflectors**



- **Good for**
  - Portraits
  - Macro
- **See**
  - http://www.diyphotography.net/
  - http://strobist.blogspot.com/





Equipment for various genres

Portrait

- **Cheap body**
- **Wide aperture often matters (f/2.8 and below)**
- **50mm f/1.8 is a must**
- **Invest in an external flash and lighting**
  - reflector
- **Depends on perspective you like:**
  - 17-55 f/2.8
  - 50mm f/1.8
  - 85 f/1.8
  - 70-200mm (f/2.8 if you can afford it)





Kids / action

- **Good Autofocus matters. Get a slightly more expensive body (7D, D7000)**
- **Fast lens (wide aperture)**
  - 17-55 f/2.8 (24-70 on full frame)
  - 50mm f/1.8 (for kids)
  - 70-200 f/2.8
- **External flash for kids.**





Landscape

- **Get a cheap body**
- **Good tripod + remote trigger**
- **Polarizing filter**
- **lenses:**
  - Large aperture does not matter.
    You want large depth of field
  - main one: 17-85 or 17-70
  - depending on style:
    - wider angle, e.g. 10-22 but include a foreground element
    - telephoto, surprisingly useful, e.g. 75-300





Wildlife

- **Expensive!**
- **Need good autofocus and long lenses**
- **At least 300mm on small sensor**
- **A flash and a better beamer**







Macro

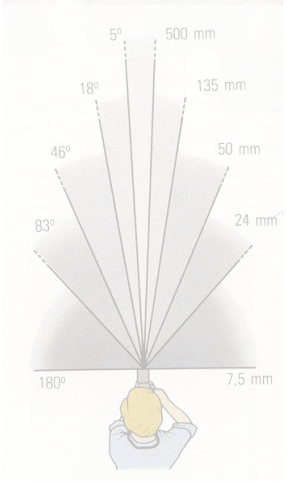
- **Easier with a smaller sensor**
  - more depth of field
  - closer minimum focus
- **100mm macro or 60mm macro lens (1:1 magnification)**
- **Sturdy tripod + remote trigger**
- **Lighting equipment**
  - reflector / diffuser (DIY)
  - flash or some external light
  - lots of DIY options

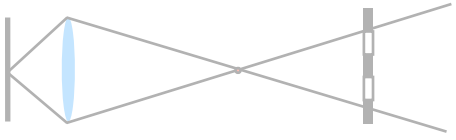




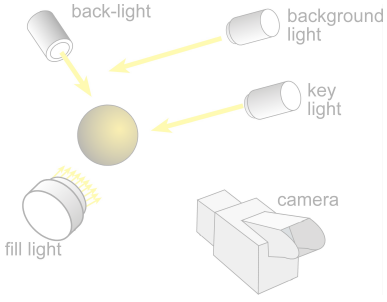
Plan

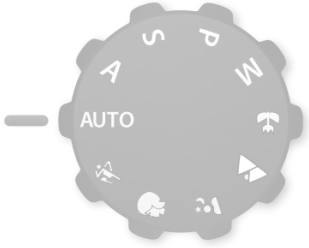
- Imaging parameters
  - Camera
  - Lighting
  - Software
- Equipment
- Improving your pictures











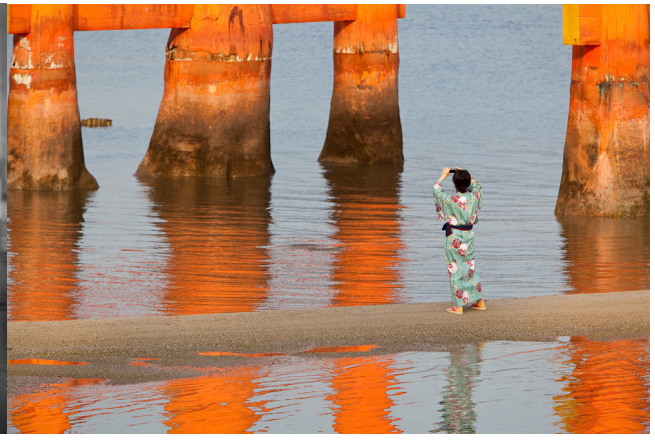








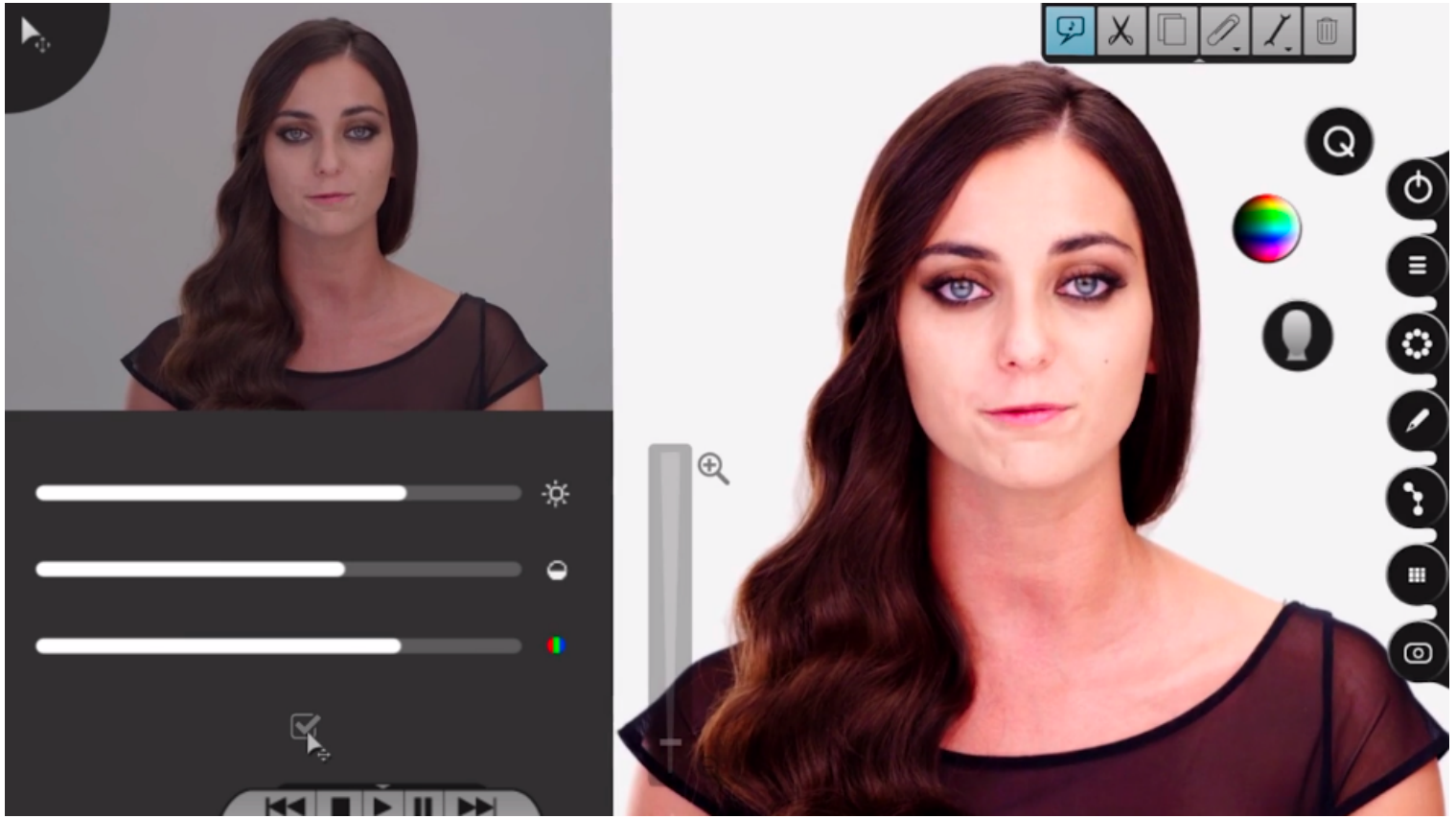




Portraits: dirty tricks

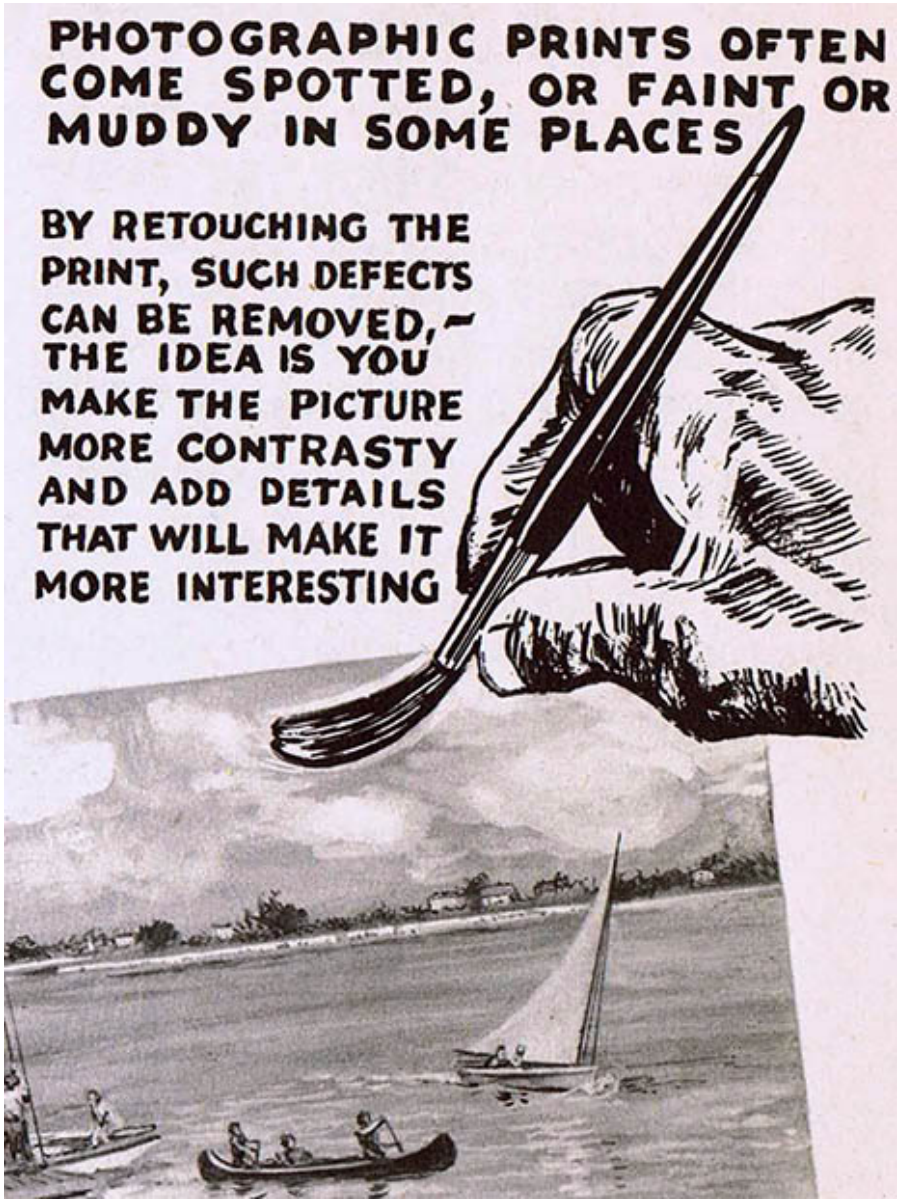
Boggie Music Video

- **http://vimeo.com/83502019**

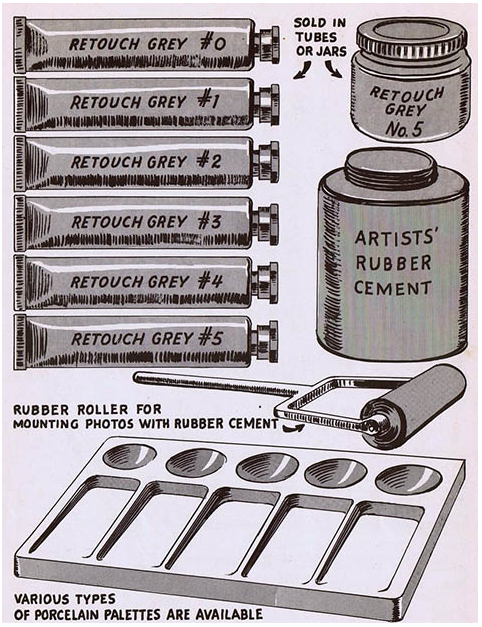


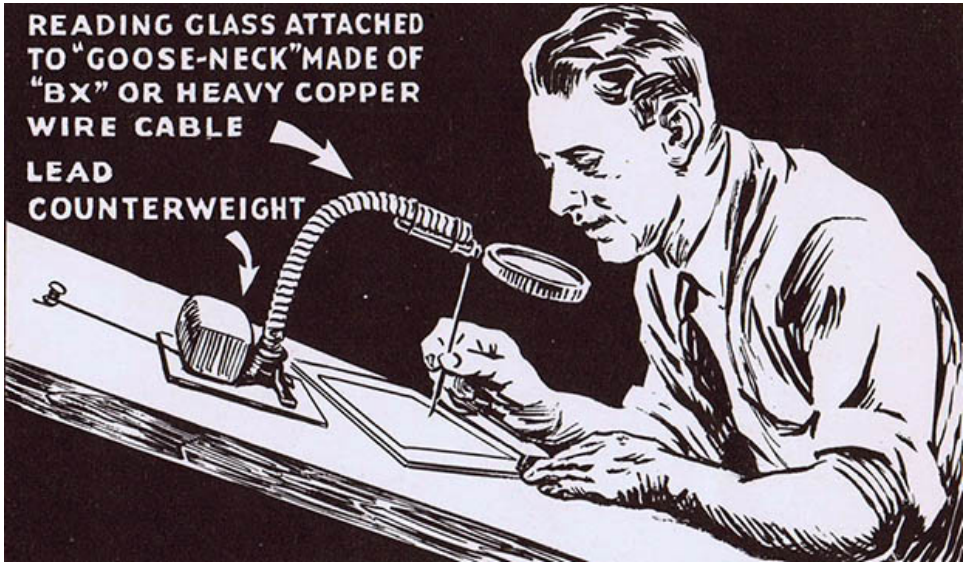
- **Pascal Dangin http://www.newyorker.com/reporting/2008/05/12/080512fa_fact_collins**
- **My favorite quote: "There is no photographic establishment of any note that does not employ artists at high salaries—we understand not less than £1 a day—in touching, and colouring, and finishing from nature those portraits for which the camera may be said to have laid the foundation," Lady Elizabeth Eastlake, the art historian and critic, noted in an essay in 1857.**
- **http://www.theage.com.au/articles/2003/03/03/1046540121180.html**
- **http://www.time.com/time/fashion/20030908/insider/**

http://petapixel.com/2013/05/08/how-photographers-photoshopped-their-pictures-back-in-1946/

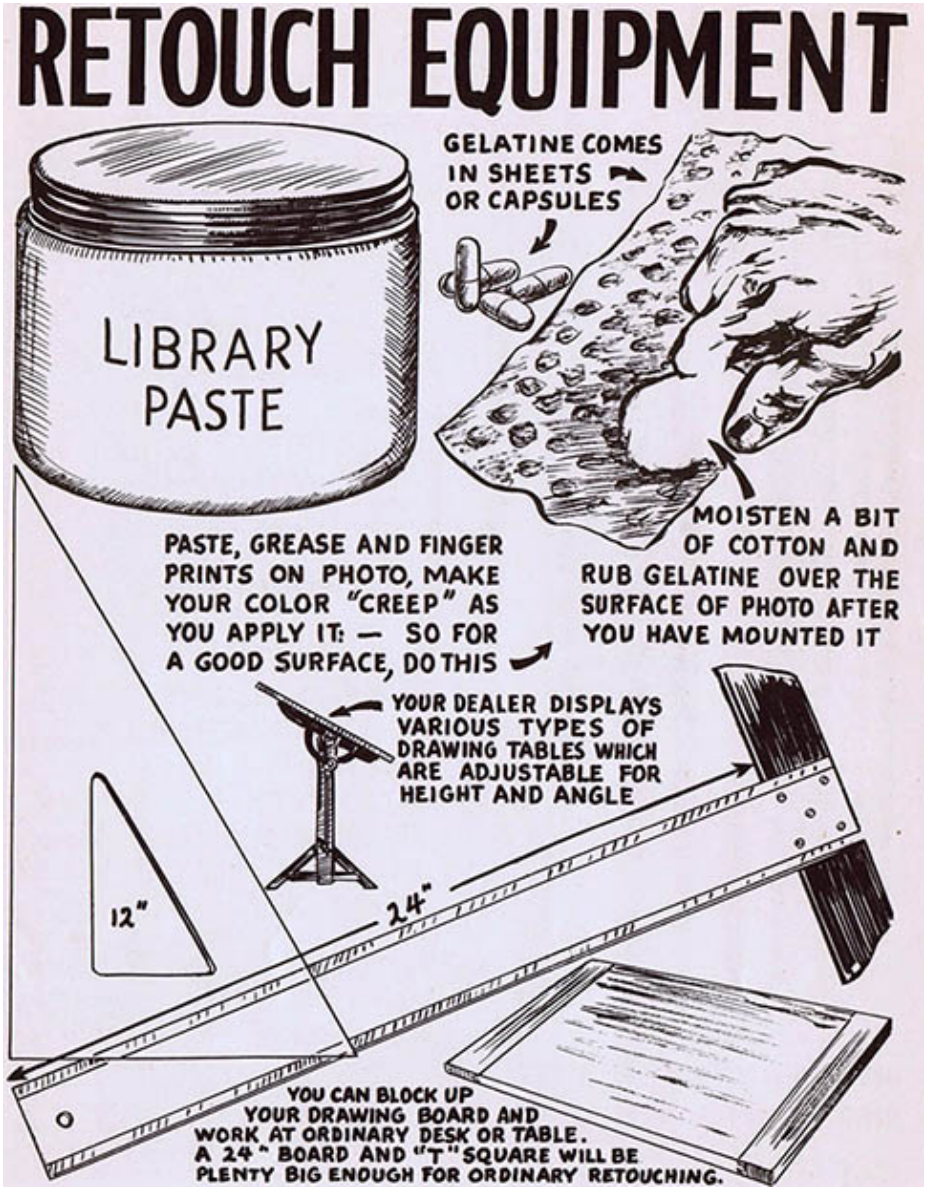


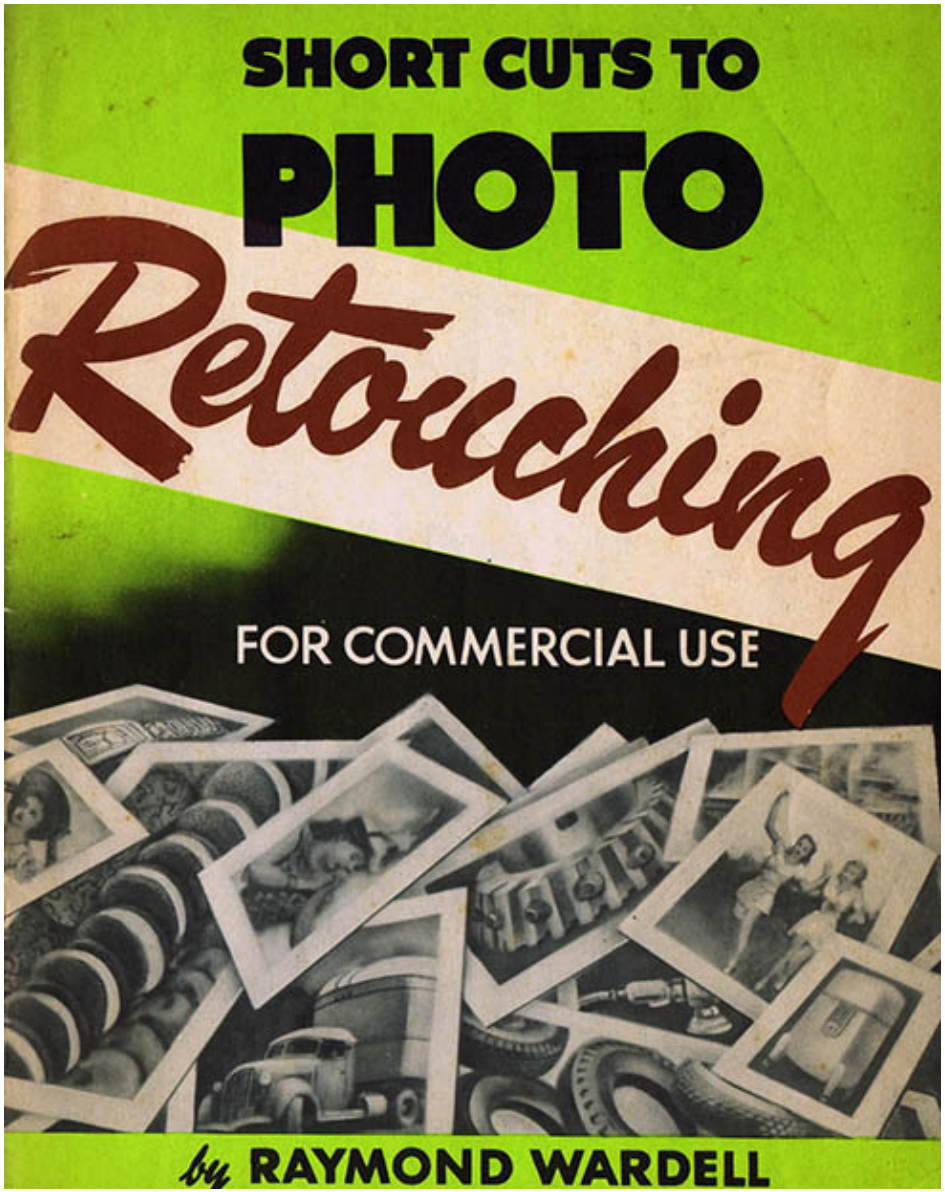






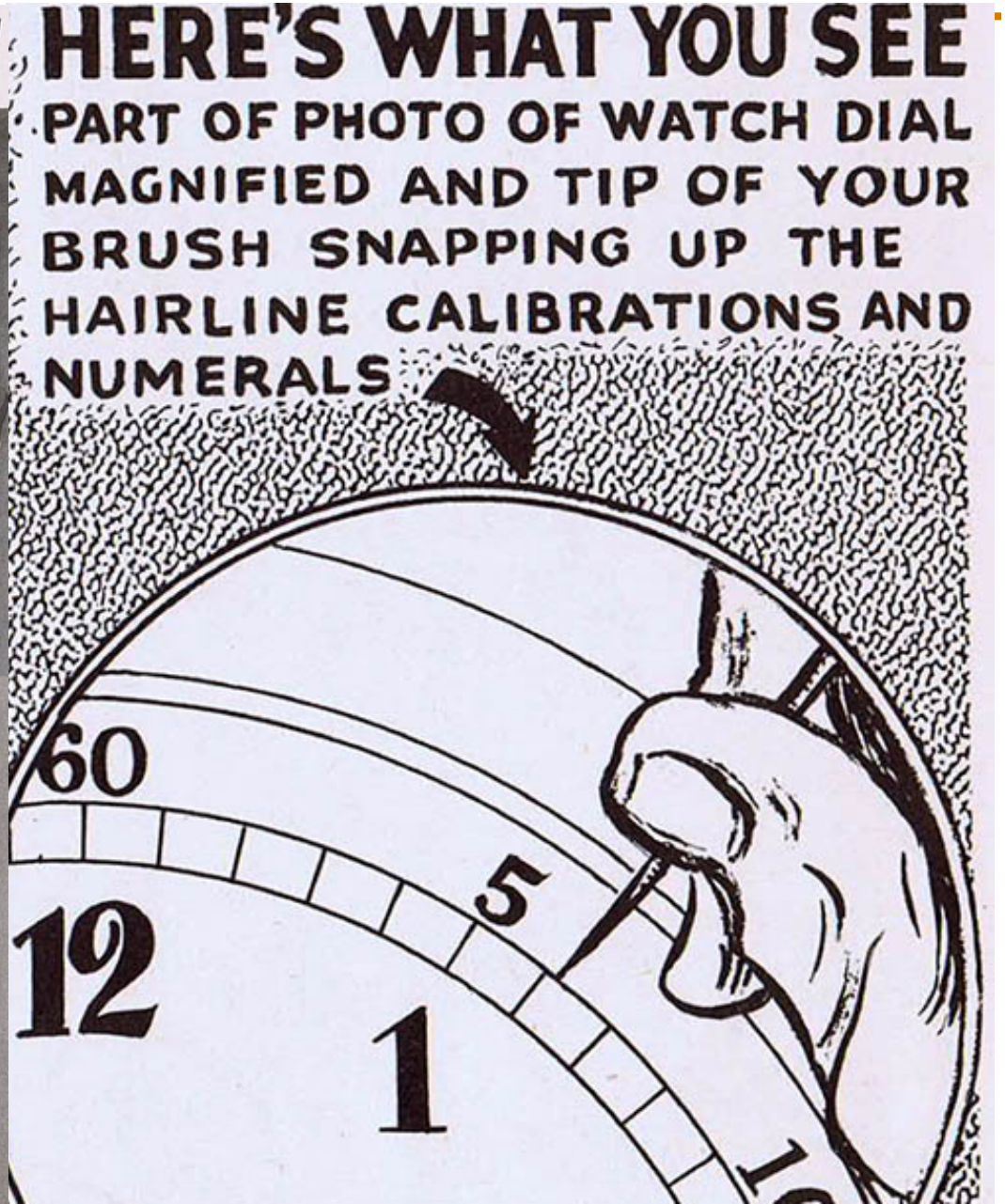
http://petapixel.com/2013/05/08/how-photographers-photoshopped-their-pictures-back-in-1946/





http://petapixel.com/2013/05/08/how-photographers-photoshopped-their-pictures-back-in-1946/





http://petapixel.com/2013/05/08/how-photographers-photoshopped-their-pictures-back-in-1946/

- **http://www.petapixel.com/2011/07/27/julia-roberts-makeup-ads-banned-in-uk-for-too-much-photoshop/**

- **http://gizmodo.com/5857150/how-to-use-photoshop-to-pop-pimples-change-facial-expressions-and-alter-reality-as-we-know-it**

Trick #1: diffuser

- **Other option: soft focus lens (with increased spherical aberrations)**
- **Digital version: blur or surface blur**



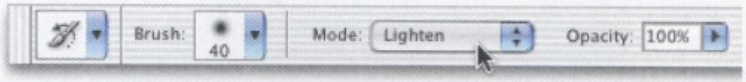
Diffusion

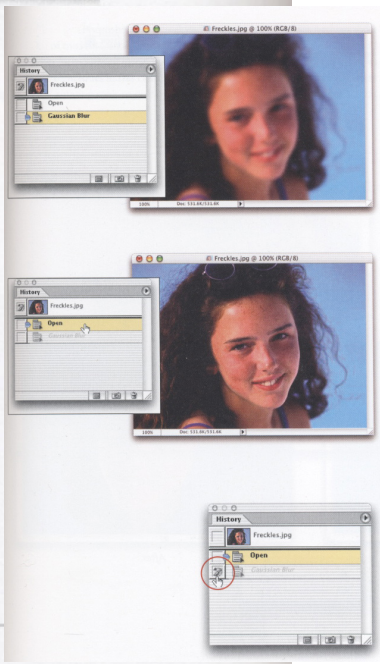
I hate to say "always," but 98% of the time we diffuse each portrait that is taken. Since we are working with subjects who are at an age when skin clarity can be a problem, we recognize that their complexion can't handle the clarity of today's lenses. We use the Glamour Softs by Sailwind (#1). It softens 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

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.

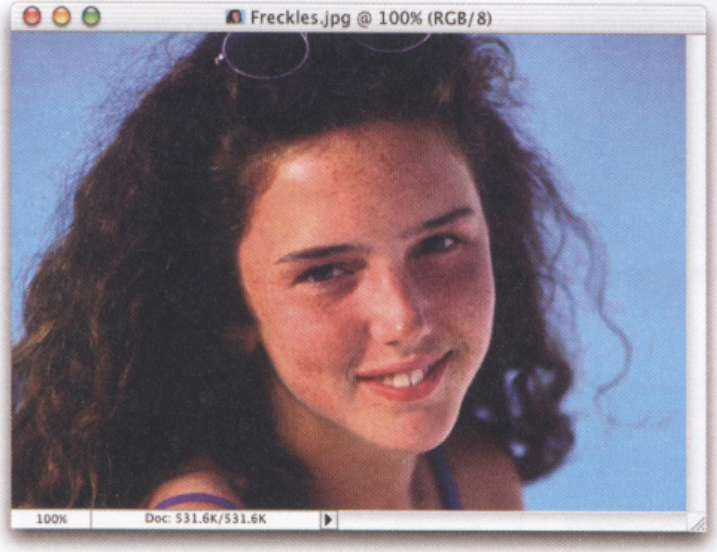




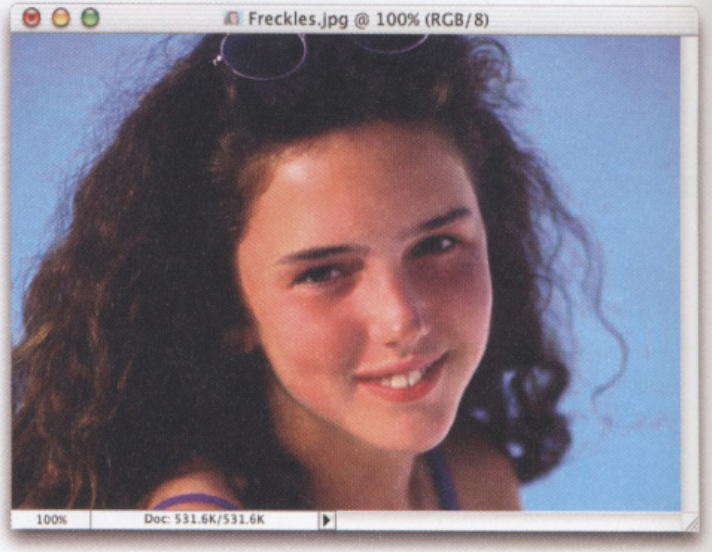
Step Three:
Go under the Window menu and choose History to bring up the History palette. This palette keeps track of the last 20 things you've done in Photoshop. If you look in the list of steps (called "History States"), you should see two States: The first will read "Open" (this is when you opened the document), and the second will read "Gaussian Blur" (this is where you added the blur).

Step Four:
Click on the Open State to return your photo to what it looked like when you originally opened it (as shown here). The History palette also works in conjunction with a tool in the Toolbox called the History Brush. When you paint with it, by default, it paints back to what the photo looked like when you opened it. It's like "Undo on a brush." That can be very handy, but the real power of the History Brush is that you can have it paint from a different state. You'll see what I mean in the next step.

Step Five:
In the History palette, click in the first column next to the State named "Gaussian Blur." If you painted with the History Brush now, it would paint in what the photo looked like after you blurred it (which would do us no good), but we're about to fix that.



Before.



After.

Shading and highlighting



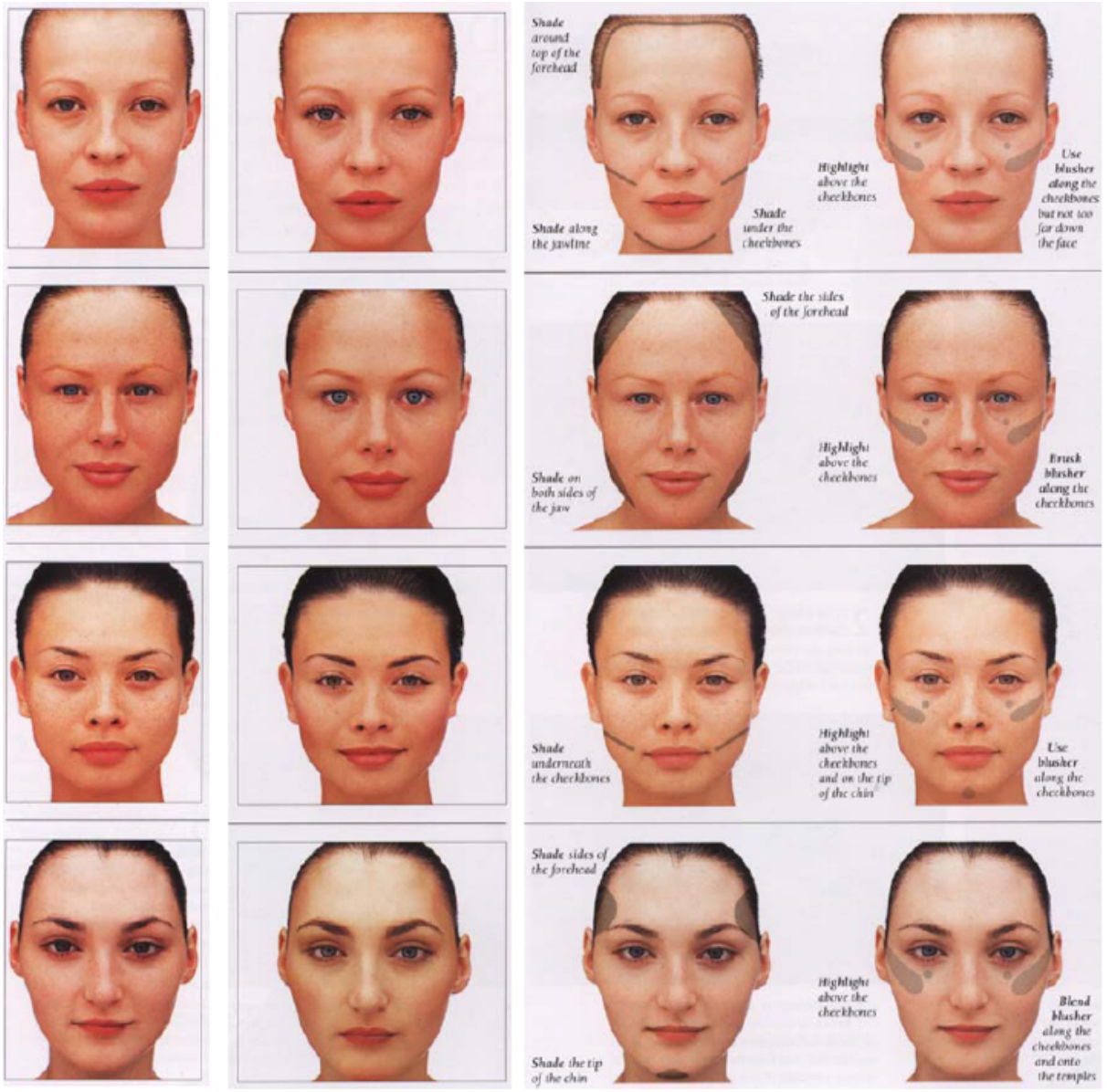




Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-**Make up**-Retouching

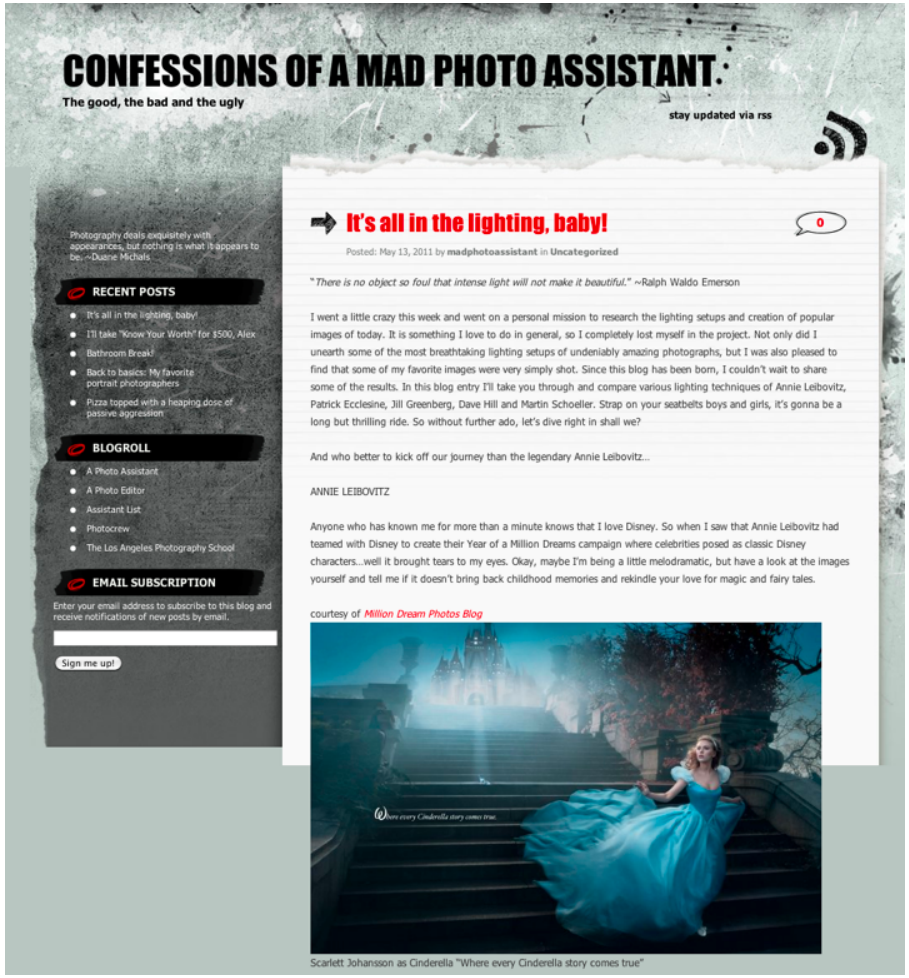
Corrective Make Up

- **Depending on the shape of the face**

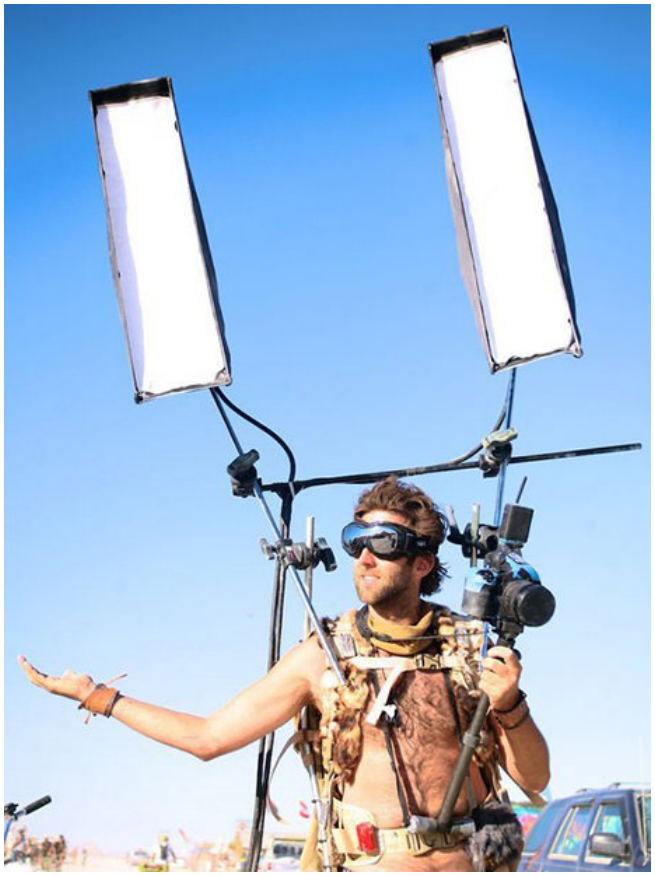


Snapshot-Perspective-Speed, aperture-Filter-Lighting-Processing & Print-**Make up**-Retouching

- http://madphotoassistant.wordpress.com/2011/05/13/lighting-title/
-



- http://www.petapixel.com/2011/09/05/human-light-suit-a-one-man-band-style-mobile-photo-studio/
-

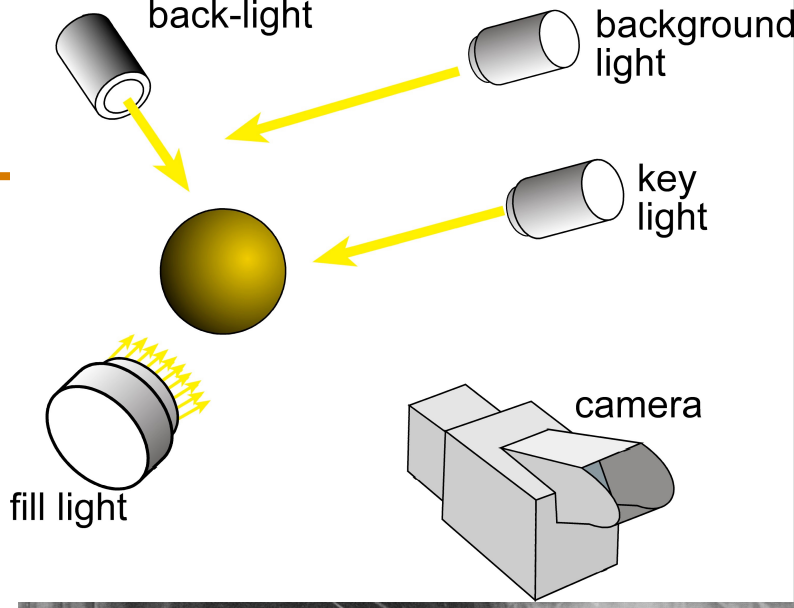


- **http://strobist.blogspot.com/2010/05/brad-trent-on-fake-reality-of-portraits.html**



Lighting

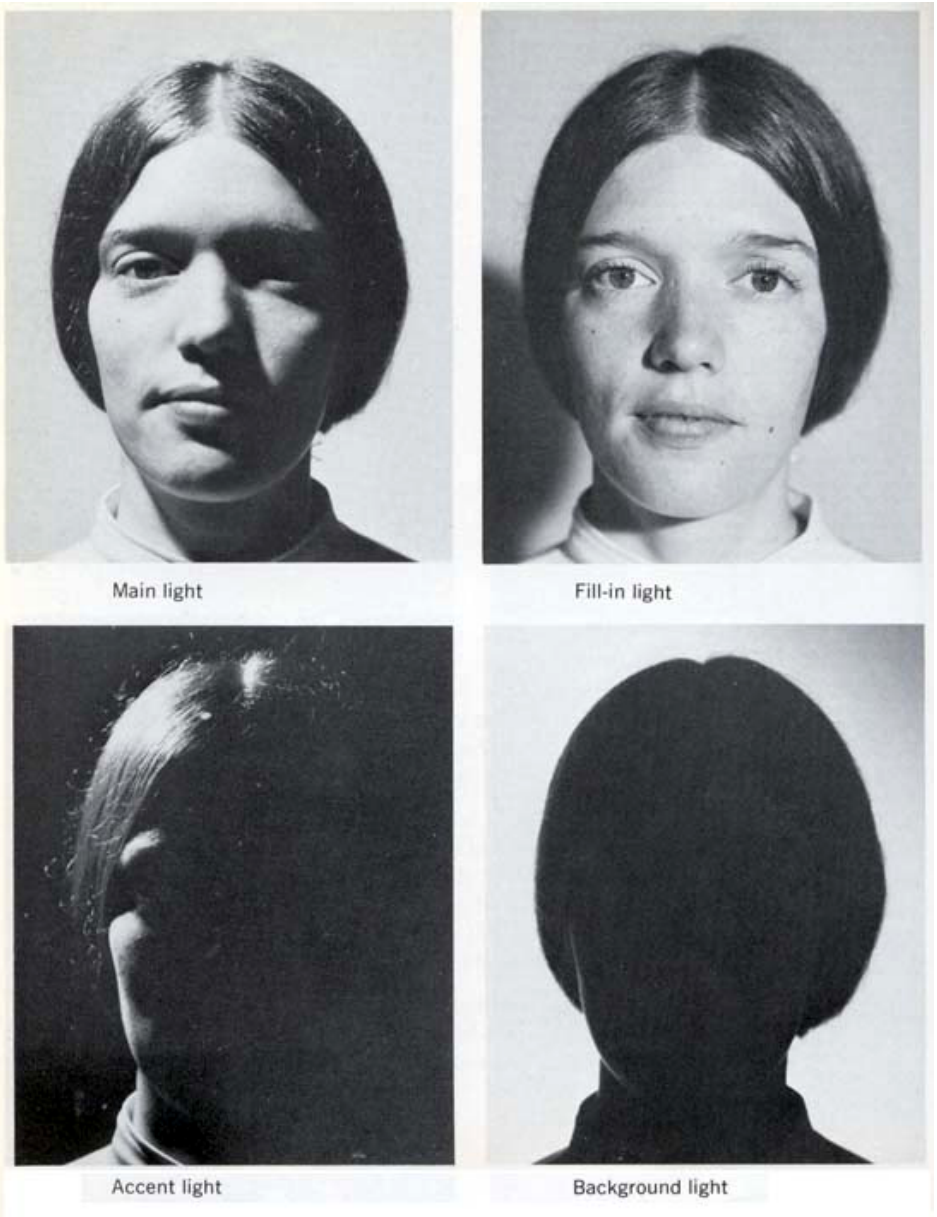
- **E.g. 3-point lighting**
  - Reduce dynamic range
  - Emphasize silhouettes =>3D cues



- **Goals of lighting:**
  - Manage dynamic range
  - Reveal shape, layout, material
  - Tell story



Portrait lighting





3-light lighting

- **http://www.youtube.com/watch?v=gL8mhBtIAco**



Lightin toys

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, shiny plastic sheeting, usually methyl methacrylate, used as a diffuser ("opal") or in a range of colours as a background.

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



Barn doors

Boom
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.



Electronic flash: standard head with diffuser (Strobex)

Donkey
see Gobo

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 "fills" the shadows and lowers the lighting ratio.

Fish fryer
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.

***Gobo**
As used in this book, synonymous with "cookie": a flag with cut-outs in it, to cast interestingly-shaped shadows. Also used in projection spots.



"Cookies" or "gobos" for projection spotlight (Photon Beard)

***Head**
A light source, whether continuous or flash. A "standard head" comes fitted with a plain reflector.



***HMI**
Rapidly-pulsed and effectively continuous light source approximating to daylight and running at far cooler temperatures than tungsten lights. They are most commonly used in studios that use digital scanning backs.

Honeycomb (Hensel)

***Honeycomb**
Grid of open-ended hexagonal cells, so called because it closely resembles a honeycomb. This increases the directionality of light from any head.

Incandescent lighting
see Tungsten

Inky dinky
Small tungsten spot.

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

Kill Spill
A large flat that is used to block spill.

***Light**

Electronic Flash: light brush "pencil"

Electronic Flash: light brush "hose" (Hensel)

brush
Light source "piped" through fibre-optic lead. Can be used to add highlights, delete shadows and modify lighting, literally by "painting with light".

Lighting ratio
The ratio of the key to the fill, as measured with an incident light meter. A high lighting ratio (8:1 or above) is very contrasty, especially in colour, a low lighting ratio (4:1 or less) is flatter or softer. A 1:1 lighting ratio is completely even, all over the subject.

***Mirror**
Reflectors are rarely mirrors, because mirrors create "hot spots" while reflectors diffuse light. Mirrors (especially small shaving mirrors) are widely used, almost in the same way as effects lights.

Northlight
see Soft Box

Perspex
A brand name for acrylic sheeting.

Plexiglas
A brand name for acrylic sheeting.

***Projection spot**
Flash or tungsten head with projection optics for casting a clear image of a gobo or cookie. Used to create textured lighting.

Electronic Flash: projection spotlight (Strobex)

Tungsten Projection spotlight (Photon Beard)

***Snoot**
Conical restrictor, fitting over a lighting head. The light can

Tungsten spot with conical snoot (Photon Beard)

Electronic Flash: standard head with parallel snoot (Strobex)



Electronic flash: standard head with large reflector and diffuser (Strobex)

***Soft box**
Large, diffuse light source made by shining a light through one or two layers of diffuser. Soft boxes come in all kinds of shapes and sizes, from about 30x30cm to 120x180cm and larger. Some are rigid; others are made of fabric stiffened with poles resembling fibreglass fishing rods. Also known as a northlight or a windowlight, though these can also be created by shining standard heads through large diffusers.

***Spill**
Light that ends up other than on the subject at which it is pointed. Spill may be used to provide fill or light backgrounds. It may be controlled with flags, barn doors or gobos.

***Spot**
Directional light source. Normally refers to a light using a focusing system with reflectors or lenses or both, a "focusing spot". Also used as a reflector head rendered more directional with a honeycomb.

Electronic flash: strip light with removable barn doors (Strobex)

***Strip or strip light**
Lighting head, usually flash, that is longer than it is wide.

Strobe
Electronic flash. Strictly, a "strobe" is a stroboscope or rapidly repeating light source, though it is also the name of a leading manufacturer: Strobex.

Swimming pool
A very large Soft Box.

***Tungsten**
Incandescent lighting. Photographic tungsten lighting runs at 3200°K or 3400°K, as compared with domestic lamps which run at 2400°K to 2800°K.

Tungsten spot with safety mesh (behind) and wire half diffuser scrim (Photon Beard)

Electronic flash: standard head with standard reflector (Strobex)

***Umbrella**
Exactly what its name suggests; used for modifying light.

Umbrellas may be used as reflectors (light shining into the umbrella) or as diffusers (light shining through the umbrella). An umbrella is the cheapest way of creating a large, soft light source.

Windowlight
Apart from the obvious meaning of light through a window, or of light shone through a diffuser to look as if it is coming through a window, this is an alternative name for a soft box.

Tungsten spot with shoot-through umbrella (Photon Bea

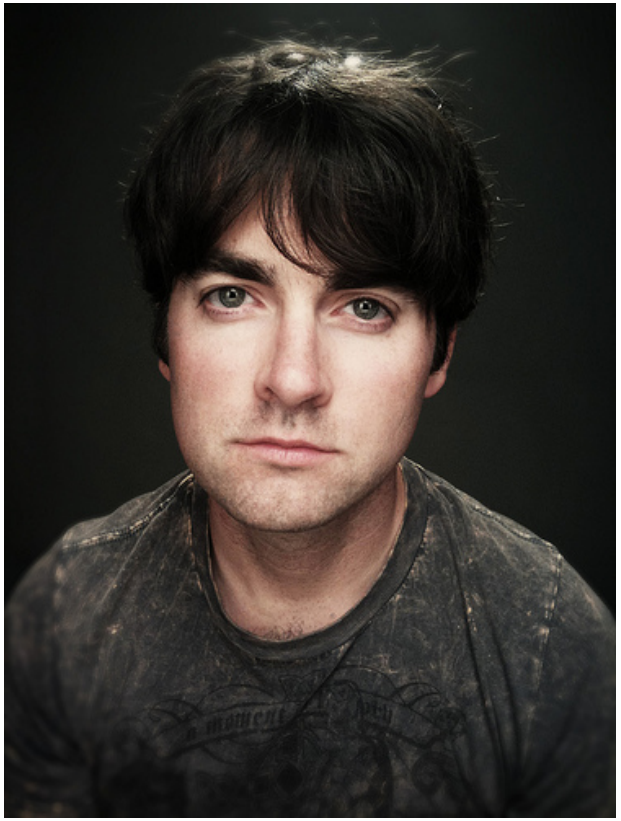
Light modifiers

- http://petapixel.com/2014/01/26/side-side-comparison-beauty-dish-parabolic-light-octobox-softbox/



It's the light that counts

- **http://fstoppers.com/iphone**
- **Photos taken with an iphone 3GS**
  - and a lot of lighting equipment


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

Lighting & nose

Butterfly lighting can reduce the apparent size of the subject's nose.





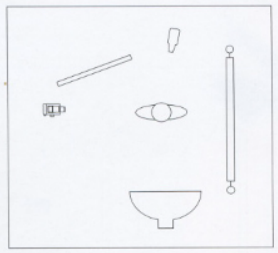
From Corrective Lighting and Posing

child

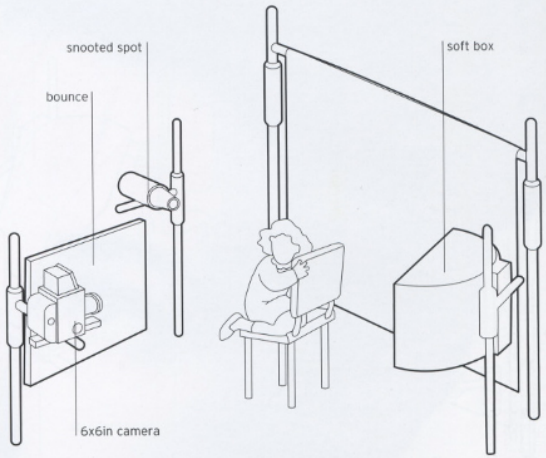
photographer **Dolors Porredon**

client	Studio
use	Poster
camera	6x6cm
lens	150mm
film	Kodak Vericolor 2
exposure	f/5.6
lighting	Flash: 2 heads
props and set	Painted backdrop

The face, the pose, the colours: all are reminiscent of a Victorian chromolithograph. The effect is achieved in large measure by careful control of the lighting ratio, while retaining as much chiaroscuro as possible.



Plan View



key points

- Catchlights in the eyes are not essential, but sometimes a picture that is lacking them will look curiously dead
- Traditional portraitists touched out all but a single catchlight. Today, multiple catchlights are acceptable if they are not too obtrusive

The key is a snooted spot to camera left, fairly close to the child's face and very slightly backlighting her. Opposite this, to camera right, is a 60x80cm (2x3ft) 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 clear, of course, because of the very careful angling of these two lights.

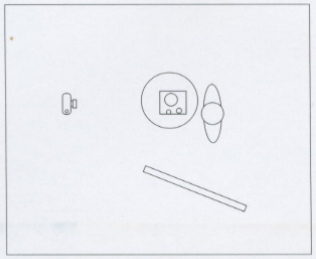
A white reflector to camera left, just out of shot, provides a little more fill to the front of the face but also creates the catchlights in the eyes. They would not be there otherwise: the key is a back light, and the fill is shaded from both eyes.



susan

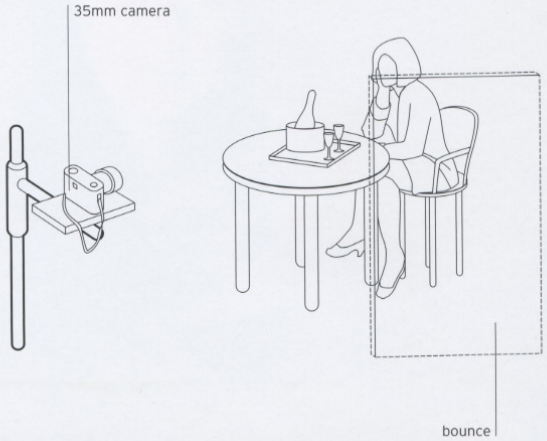
photographer **Massimo Robecchi**

client	Studio Magazine
use	Editorial
model	Susan
assistant and stylist	Teresa La Grotteria
art director	Olga Stavel
make-up and hair	Gianluca Rolandi
camera	35mm
lens	300mm
film	Ilford XP2 ISO 400
exposure	1/500 second at f/2.8
lighting	Available light + bounce
props and set	Location



Plan View

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.



key points

- Exposure is a subjective art: arguably, everything in this picture is just a tiny bit darker than it "really" is, but this holds the tones in the white clothing
- A 300mm lens, used wide open at f/2.8, allows the background to be subtly suggested rather than too clearly delineated

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 table-cloth 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.

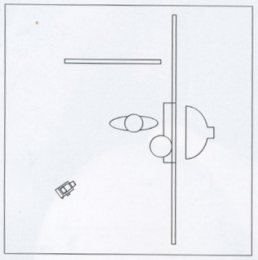


niña detras de la ventana

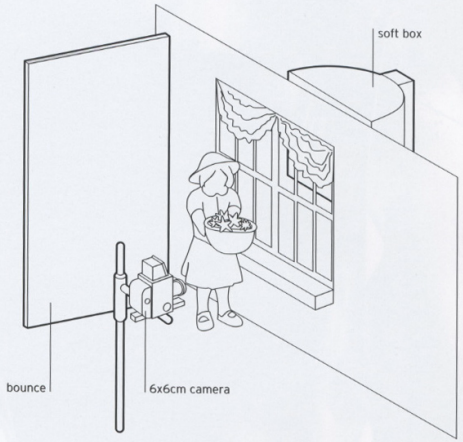
photographer **Dolors Porredon**

client	Studio
use	Poster
camera	6x6cm
lens	150mm
film	Kodak Vericolor III
exposure	f/8
lighting	Electronic flash: single soft box
props and set	Built set

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.



Plan View



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 organization) 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.

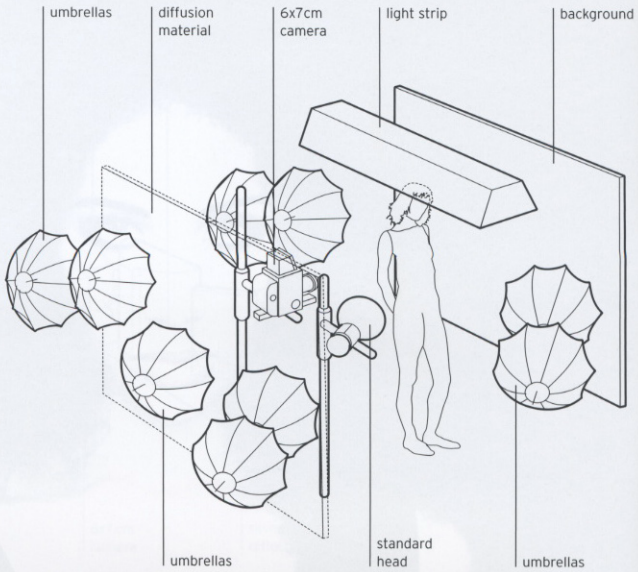


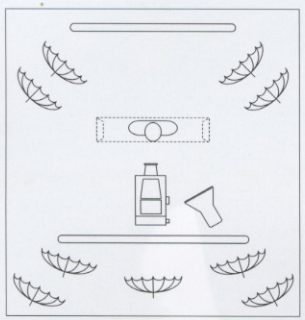
smile

photographer **Jeff Manzetti**

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

client	Grazia
use	Cover
model	Petra
hair	Lucia Iraci
make-up	Michelle Delarne
editor	Stefania Bellinazzo
camera	6x7cm
lens	135mm
film	Fuji EPL 160
exposure	f/4
lighting	Electronic flash





plan view

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.

key points

- The purpose of a shot will dictate aspects of the look and technique
- Using just a restricted range of saturated colours against a predominantly light or pale background can create a very strong impact

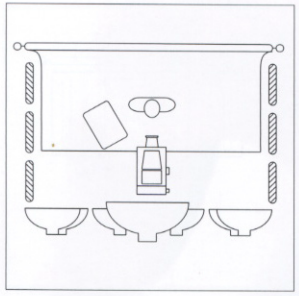


chinese hair

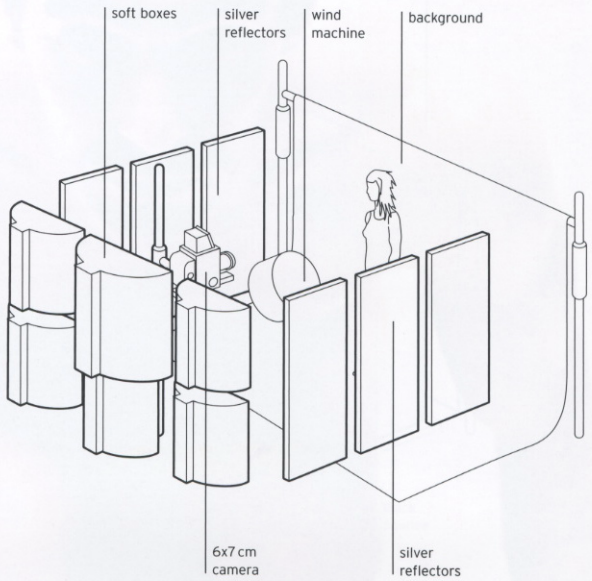
photographer **Frank Wartenberg**

use	Self-promotion
camera	6x7cm
lens	127mm
film	Fuji Velvia
exposure	Not recorded
lighting	Tungsten

There is no shortage of lighting equipment here. Frank Wartenberg has assembled an impressive array of soft boxes and silver styro reflectors, above, below and around the camera.



plan view



key points

- Modelling lights are normally tungsten, so bear this in mind when balancing sources
- Silver reflectors will produce more focussed light than white reflectors

The main light is a large soft box (used with the modelling light only) positioned behind the camera. Six smaller soft boxes are arranged on either side and below this, again using only the tungsten modelling light. These combine to give an even sheet of light across the subject.

On both sides is a selection of silver reflectors, effectively forming a wall to either side.

The resulting bright and even background provides a foil against which the strands of the model's hair, tousled by a wind machine, stand out in stark silhouette.



From Photographing People, Portrait, Fashion, Glamour

Hardcore Photoshop for portrait

- **View before/after**

Anna Hill pokes fun at Photoshop

- **http://nebulaedecay.com/digi/**





Anna Hill pokes fun at Photoshop

- **http://nebulaedecay.com/digi/**



Anna Hill pokes fun at Photoshop

- **http://nebulaedecay.com/digi/**



Video of make-up + retouching

- **http://www.youtube.com/watch?v=iYhCn0jf46U**

- **http://petapixel.com/2013/12/19/south-park-takes-photoshop-season-finale-episode/**

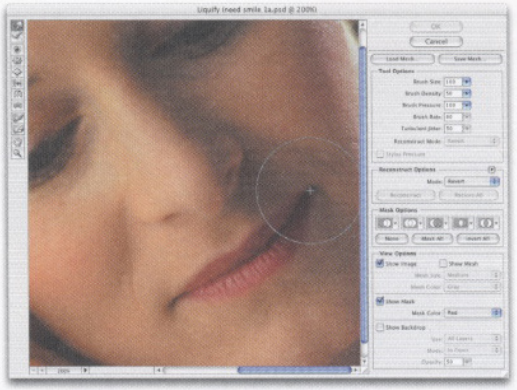




figure 9.47

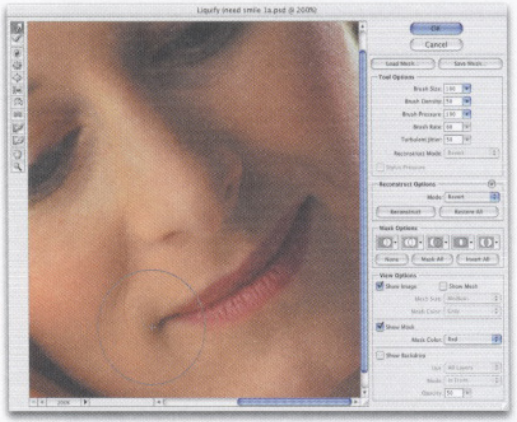


figure 9.48



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:

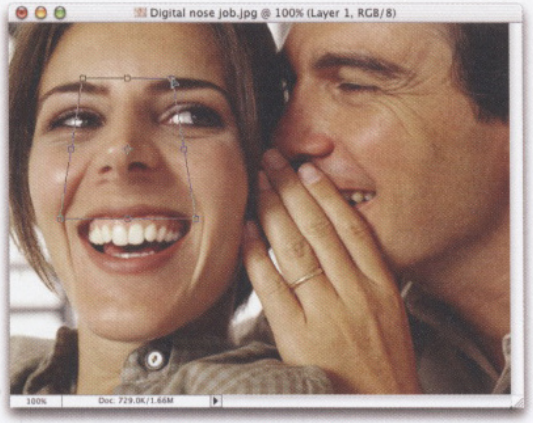
Repeat the "tug" on the opposite side of the mouth, using the already tugged side as a visual guide as to how far to tug. Be careful not to tug too far, or you'll turn your subject into the Joker from *Batman Returns*. Click OK in Liquify to apply the change, and the retouch is applied to your photo (as shown).



Before.



After.



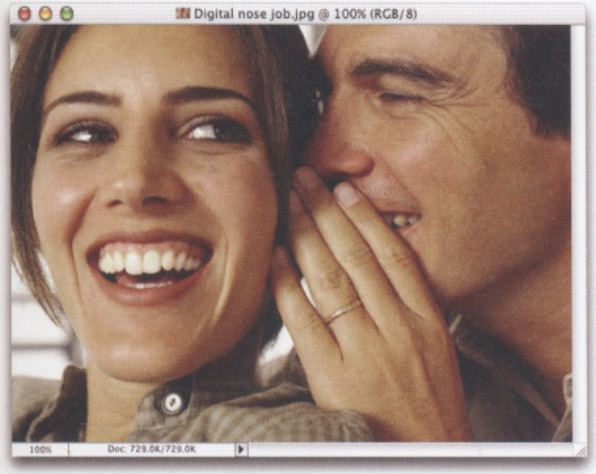


Step Four:

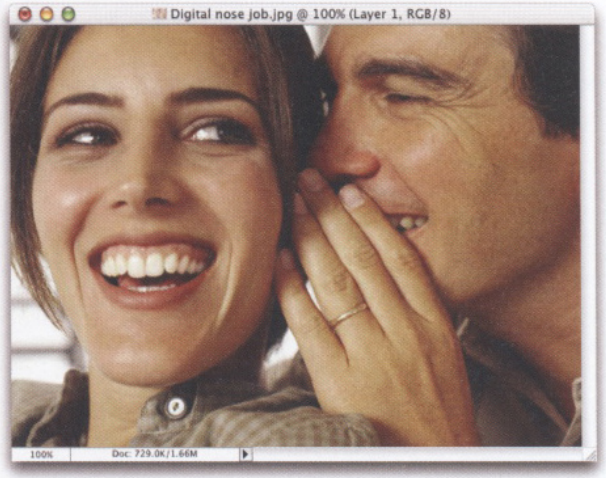
Press Command-T (PC: Control-T) to bring up the Free Transform bounding box. Hold Shift-Option-Command (PC: Shift-Alt-Control); then, grab the upper-right corner point of the bounding box and drag inward to add a perspective effect to the nose. Doing this gives the person a pug nose, but you fix that 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.



Before.



After.

Hardcore Photoshop for portrait



figure 9.35



figure 9.36

© Eric Kuaimoku



figure 9.37

Selecting the entire left side of the image avoids potential artifacts.



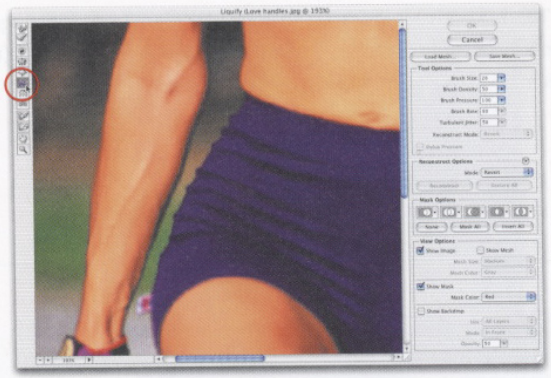
figure 9.38

Dragging a Free Transform handle to narrow the selected area.

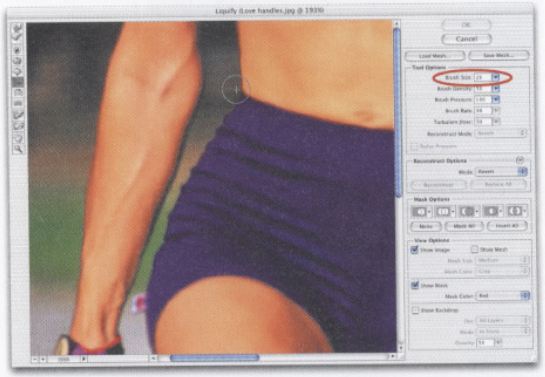


figure 9.39

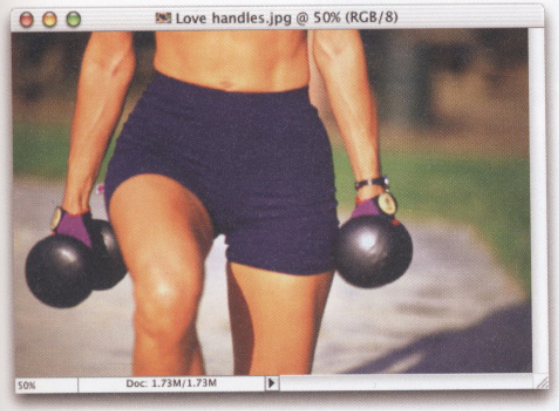
The Liquify filter's Warp tool pushes pixels forward as you drag.



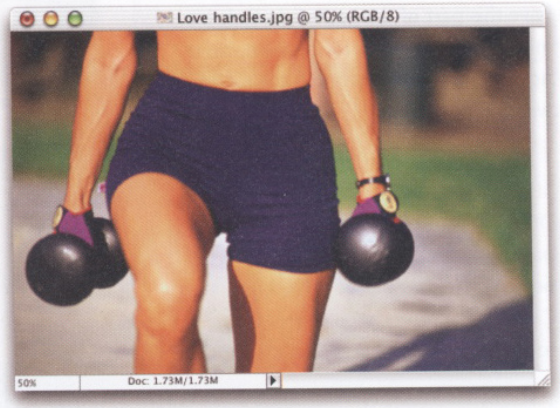
Step Three:
Get the Push Left tool from the Toolbar (as shown here). It was called the Shift Pixels tool in Photoshop 6 and 7, but Adobe realized that you were getting used to the name, so they changed it, just to keep you off balance.



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.



Before.



After.

See also http://www.youtube.com/watch?v=hsiQptl_Y9E

Touch-up: stretc



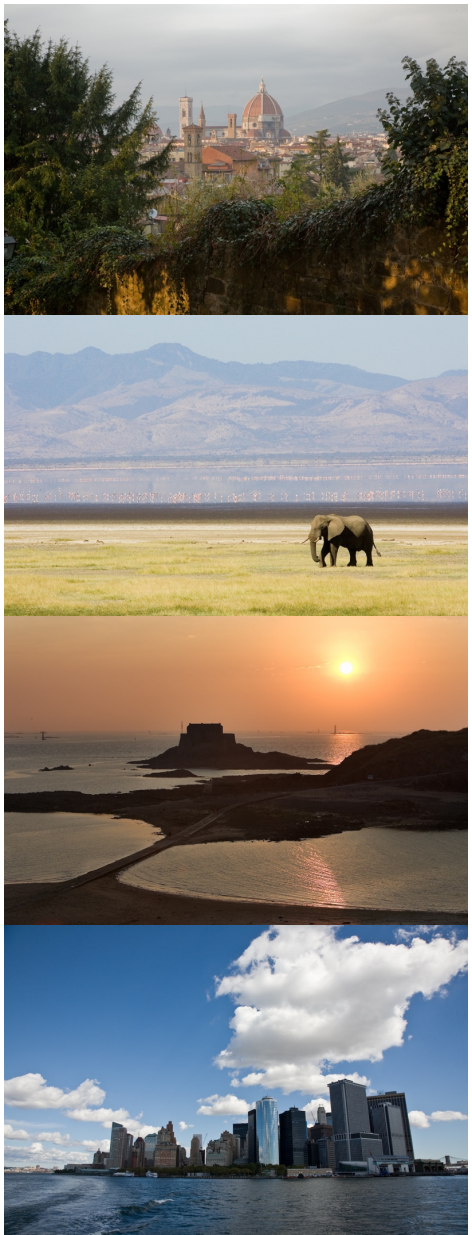
Untooning

- http://pixeloo.blogspot.com/2008/04/jessica-rabbit-process.html
- http://pixeloo.blogspot.com/2008/03/homer-simpson-untooned.html
- http://pixeloo.blogspot.com/2008/03/super-real-mario-world.html
- http://pixeloo.blogspot.com/2008/04/jessica-rabbit-untooned.html
-

Landscape

Landscape / architecture

- **Get a foreground element**
  - rock, tree, flower
- **Rule of the thirds, diagonals**
  - in particular for the horizon
- **Don't hesitate to zoom in**
- **Manage dynamic range**
  - sky is always too bright
  - graduated neutral density, HDR
  - golden hours or right after sunset
- **Use a polarizer**
  - darkens the sky, make colors stand out
- **Alignments**
  - Keep horizon straight
  - For architecture, correct verticals
- **Don't be deterred by stormy weather**
- **Slow shutter speed for water**



Foreground helps









Boring



More interesting (foreground)



Parallels: do or don't





Ansel Adams

- **Note foreground trees in lower right**
- **Sky has been darkened**



Equipment

Equipment

- **Do get an SLR, compacts are too limited**
- **Don't worry about brand (with a bias for Nikon/Canon)**
- **Don't worry about the body, get the cheapest one**
- **Worry about lenses**
  - Zooms are convenient but quality can be a problem
    - Avoid the basic zoom, but the one above is usually great
    - Avoid large range (e.g. 18-200)
    - Maximum aperture matters (the smaller the number, the better)
  - Get a prime in the 35-85mm range (cheap, high quality, wide aperture) 50mm f/1.8
- **Get a tripod**
- **Get an external flash if you want to take "event" pictures**
  - And orient towards (white) wall/ceiling
  - Good flash photography is very difficult
- **Count ~1k for camera+standard zoom+50mm**

Nikon

Tends to be a tad cheaper

- **D40 & D60 are good. D90 if you want to be more serious**
- **18-70**
- **55-200 is surprisingly not so bad and super cheap**
- **Get the 50mm f/1.8**



Canon

- **Rebel T1i or Xs for cheap options, 40D for more control, 5DII if your bank account permits**
- **17-85**
- **70-200 f/4.0 (amazing lens)**
- **50mm f/1.8**
- **100mm f/2.8 macro (great also for portraits)**



Other brands

Not as big a range, future not always clear (see Minolta), have been slower to get to digital SLR

- **Olympus**
  - Good system, but smaller sensor
- **Pentax**
  - Good entry camera
- **Sigma**
  - Intriguing sensor (Foveon), limited system, noise is an issue
- **Fuji**
  - One-trick pony (the sensor)
  - Nikon body
- **Sony**
  - Pretty good.
  - Lens selection not as good as Nikon/Canon

Shooting

- **Use aperture priority, work on depth of field**
- **Change your viewpoint**
- **Don't center things**
- **Pay attention to background**
- **Learn to adjust ISO**

- **Shoot raw**
- **Check your histogram**

Software

- **Photo management +lightweight editing**
  - Lightroom, Aperture, Lightzone
- **Fix white balance**
- **Crop to improve composition**
- **Manage contrast using curve and adjustment layers**
- **Boost saturation (or vibrance) a little. SLRs tend to be neutral**
- **Add light to dark areas (fill light)**
- **Sharpen a bit**
- **Convert to black and white**
- **Use Photoshop only if you really need to**

RECAP

Advice

- **Follow rules or really break them**
- **Simplify, avoid cluttered background**
  - move your viewpoint, frame tighter, shallow depth of field, desaturate
- **Don't center things**
  - rule of the third, leave space for gaze or motion
- **Avoid harsh light**
  - Golden hours, overcast days, avoid direct sunlight, go in the shade, fill flash, bounce flash, post-processing
- **White balance**
- **Portraits are all about the eyes**
  - Get them sharp, be at eye level

References

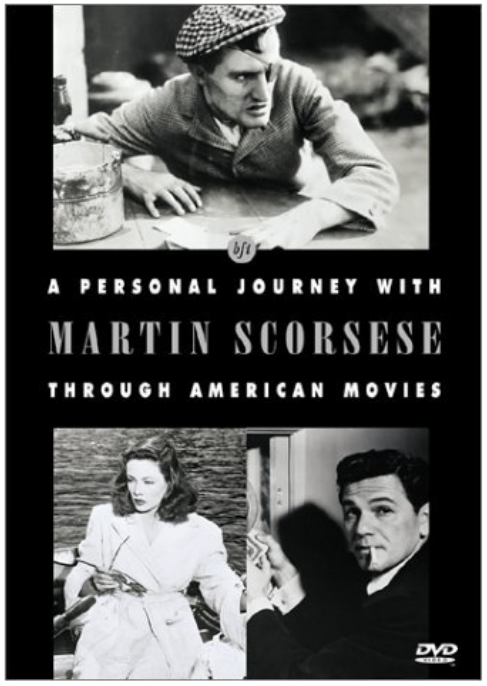
- http://www.nyip.com/ezine/
- http://www.betterphoto.com/home.asp
- http://www.kodak.com/eknec/PageQuerier.jhtml?pq-path=2/3/38&pq-locale=en_US
- **Fun interactive demo: http://www.kodak.com/eknec/PageQuerier.jhtml?pq-path=6369&pq-locale=en_US**
- http://sd.essortment.com/howtotakebett_rjbg.htm
- http://photography.about.com/library/weekly/aa080502e.htm
- 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**
- **http://luminous-landscape.com/essays/ten-movies.shtml**
- **The Video Journal https://www.luminous-landscape.com/video_journal/index.shtml**



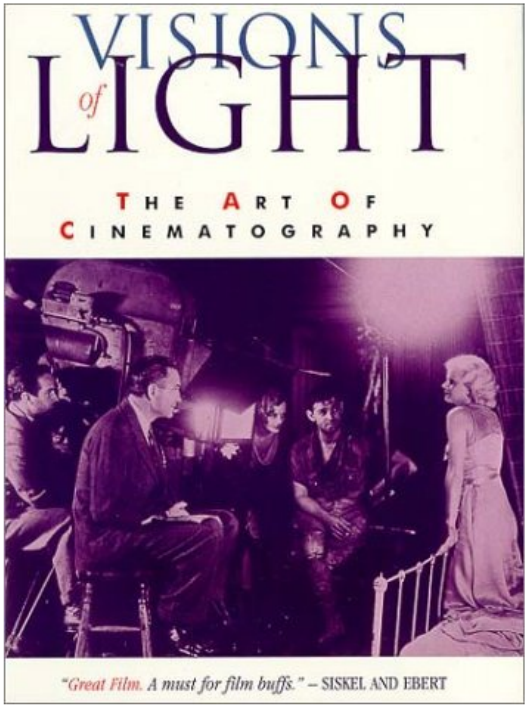
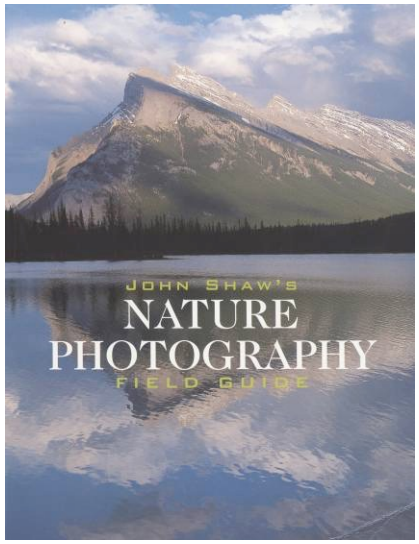
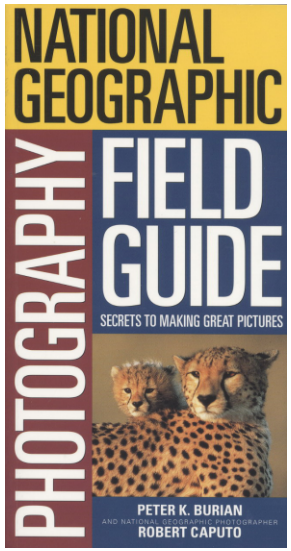
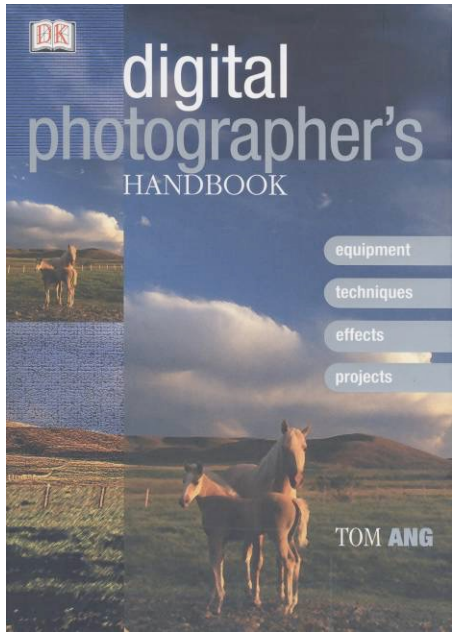
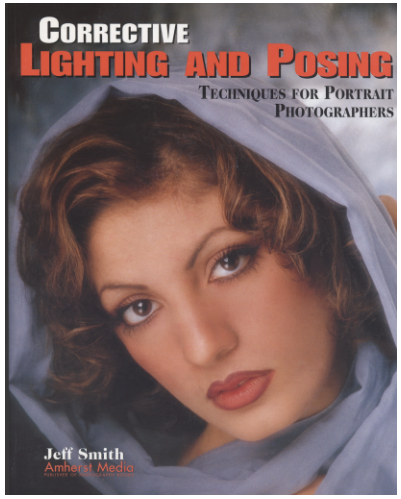


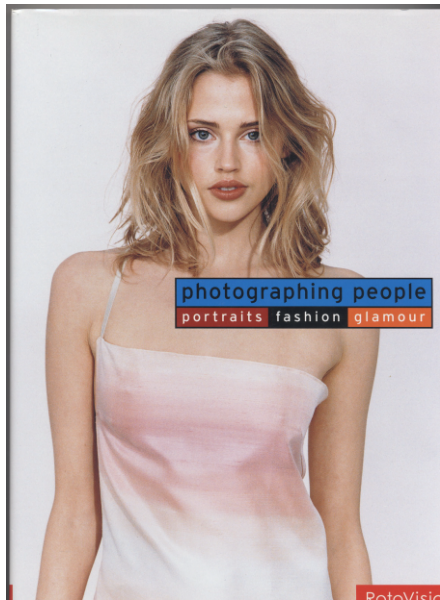
Photo books


JOHN SHAW'S
NATURE
PHOTOGRAPHY
FIELD GUIDE

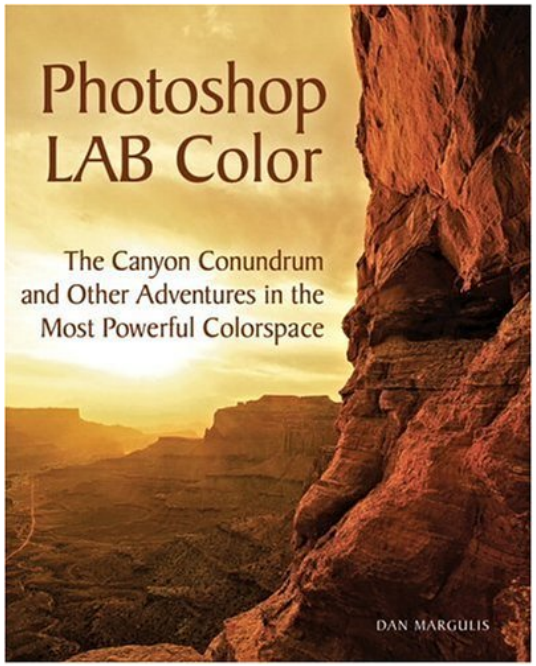

NATIONAL
GEOGRAPHIC
PHOTOGRAPHY
FIELD
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SECRETS TO MAKING GREAT PICTURES
PETER K. BURIAN
ROBERT CAPUTO

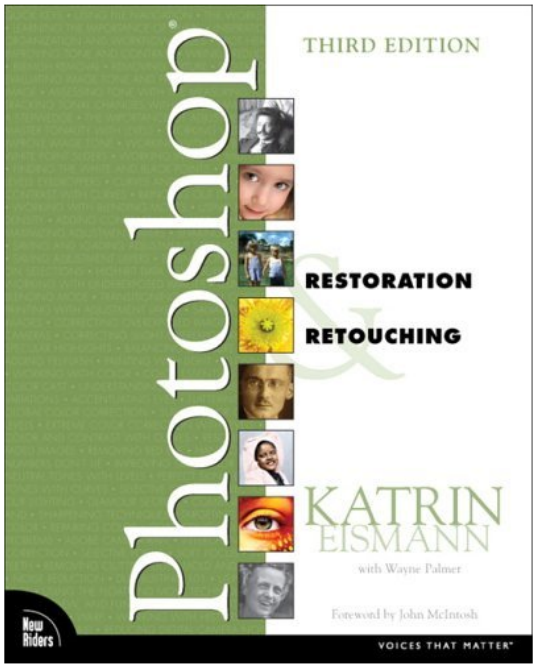

DK
digital
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HANDBOOK
equipment
techniques
effects
projects
TOM ANG

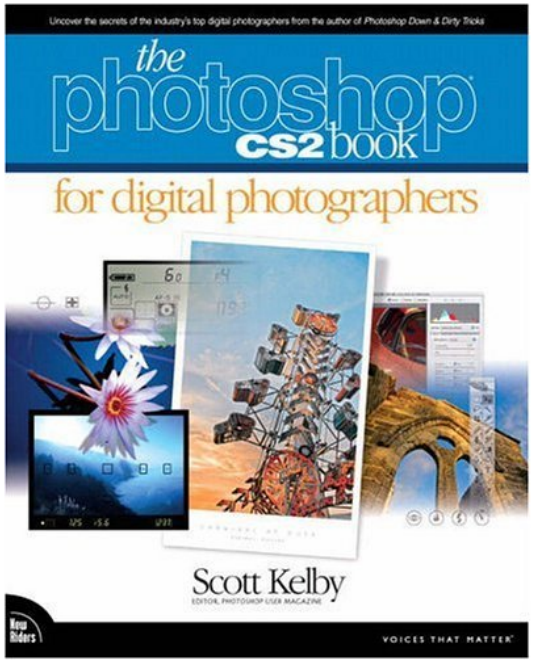

CORRECTIVE
LIGHTING AND POSING
TECHNIQUES FOR PORTRAIT
PHOTOGRAPHERS
Jeff Smith
Amherst Media


photographing people
portraits fashion glamour

Photoshop


Photoshop
LAB Color
The Canyon Conundrum
and Other Adventures in the
Most Powerful Colorspace
DAN MARGULIS


THIRD EDITION
Photoshop
RESTORATION
&
RETOUCHING
KATRIN
EISMANN
with Wayne Palmer
Foreword by John McIntosh
New Riders
VOICES THAT MATTER


Uncover the secrets of the industry's top digital photographers from the author of Photoshop Down & Dirty Tricks
the photoshop CS2 book
for digital photographers
Scott Kelby
New Riders
VOICES THAT MATTER

Art, science & depiction

- **Self-promotion:**
  - http://people.csail.mit.edu/fredo/ArtAndScienceOfDepiction/
  - http://people.csail.mit.edu/fredo/SIG02_ArtScience/

Cool retouching

- http://medialit.med.sc.edu/aniston.htm
  http://www.nppa.org/news_and_events/news/2005/03/newsweek.html
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  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