The Photography Tricks Chapters

Credits & Copyright

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f/16, 30 seconds, ISO 400, 25mm, processed in Photoshop

Photography has traditionally been the realm of the real. It documents things. You'd see something, snap a photo of it, and record that moment for as long as your photo exists.

Then people realized that the reality you capture is only as true as the camera's perspective. Perspective could be toyed with. This changed the way people worked with depth, color and reality itself.

Today, capturing reality is half the battle. Playing with multiple exposures, HDR and perspective can create worlds beyond what we can see with our own eyes. Trick photography takes that pioneering kernel of photography—capturing reality—and takes it one step further.

Now, we capture the reality of our imaginations.

In the following pages, we'll go through some of today's more popular digital photography tricks (some of which may even complement your landscape and cityscape efforts), including some really fun ones like light painting and spherical panoramas. The goal here is to help you understand the full potential of photography, even the crazy stuff, so you can instinctively recognize any photographic opportunity that comes up—even if it comes up in recording high-definition video which is now common with GoPros, you can see key frames and pull them out to process as photos.

You won't love everything. Photo experimentation is fun and educational, but it also takes time and a very specific mind. Light painters, for example, are a peculiar breed—you've got to enjoy stumbling through the dark and accepting whatever comes out, like a blind Jackson Pollock. Timelapse photography, meanwhile, takes hours of post-production. Double exposures often call for precise foresight.

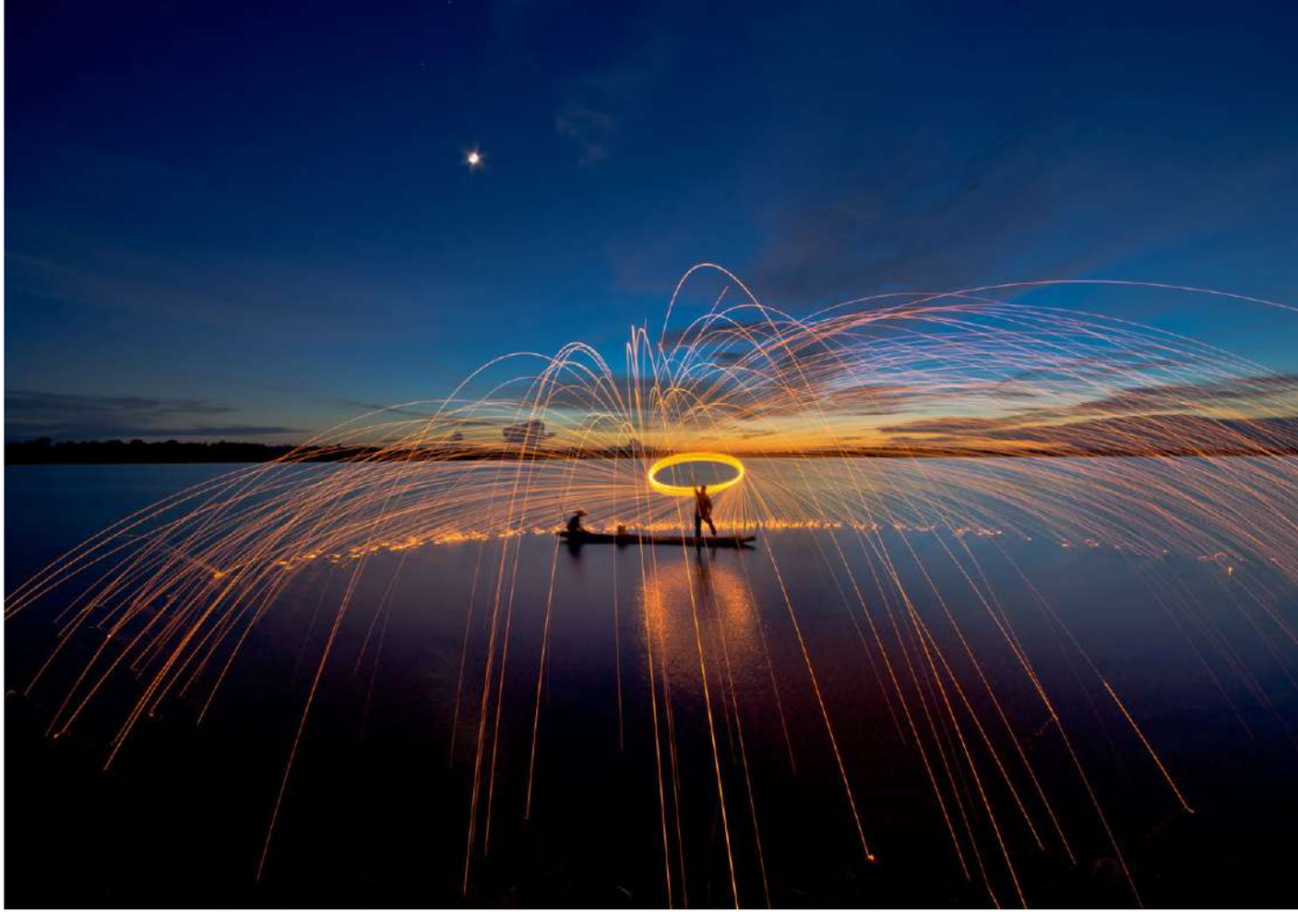
No photographer is great at everything. But with enough knowledge, hopefully you can find a few techniques that help you discover your own unique style.

Light Painting

Long-exposure photography is fun, sure. But imagine a explosion of bright light—rainbow colors, golden streaks, flying sparks—all swishing and swooping fluidly in otherworldly designs, even forming legible words or distinct patterns.

This is the world of light painting, a niche speciality of photography that relies entirely on a combination of physical artistry and long-exposure photography.

Light painting is conceptually easy: leave a camera shutter open long enough, and moving lights will etch their streaks into the resulting image. We do this all the time with regular cityscape night photography, especially when cars drive through our shots, leaving behind stripes of red and yellow light.



But the creative possibilities extend far beyond simple compositional photography. Light painting is also what happens when photographers set up their cameras for long exposures in dark scenarios, grab a light (say, a flashlight) and hop in front of the lens to paint a picture on top of the landscape. Light painters can draw patterns, write words or overlay images onto any given landscape or cityscape. And it looks damn cool.

At its most extreme, photographers have attached lights to hula hoops and swung them around, creating surreal glowing orbs in front of vast mountains like UFOs. Others sign their names in the corners of landscapes using laser pointers. True professionals have mastered the art of finding a tree in the woods, unlit even by the moon, and controlling the amount of light on every inch of space—they understand precisely what luminance will be achieved by raking light across each object for a certain amount of time, spotlighting different parts of the frame in a mystical way. The possibilities are truly endless.

Get started light painting

First, you'll need the tools. The list isn't extensive, but it will get you out the door:

- **A tripod**
- **Long-exposure control on your camera**
- **A dark location, indoors or outdoors at night**
- **A light source—which sounds broad, and is, and can be any of the following:**
  - **Flashlight**
  - **Glow sticks**
  - **Light strips**
  - **LED lights or strips**
  - **Laser pointer**
  - **Fiber optics**
  - **Smartphone**
  - **Sparklers**
  - **Steel wool (more on this later)**

You can even buy a specific tool for light painting, such as the **Pixelstick**, a sort of LED scepter that raised over $600,000 on Kickstarter, truly marking the next generation of light painters. But for beginners, a flashlight or glow sticks are just fine.

Light up your John Hancock

As a light painting trial, I recommend writing your name in a shot. It's easy, quick and quiet, and gives a great introduction for the mechanics of light painting

Find a quiet, dark location—this can even be your bedroom to start, although moving around outside may be easier—and set your camera on a tripod with a 10-second exposure. Then get in front of the lens with some kind of focused light and write away. It will take some practice—timing the speed of your movements and understanding light's inherent delicacy takes time. But the results can be very cool, even if you mess up.

(f/2.8, 30 seconds, ISO 100, 17mm, Free Advertising by Zach Dischner).





Your first awesome light painting: EXPLOSIVE STEEL WOOL

Using steel wool for light painting can be somewhat dangerous, but also a whole lot of fun—and it almost always makes for incredibly bombastic, lively, explosive images, especially in barren landscapes or abandoned cityscapes. A perennial favorite among light painters, this project is sort of predictably unpredictable: the light will blast out in every direction, but your core image can be controlled to an extent.

But this is important to clarify: ***the following activity is dangerous***. I need to remind you all that I'm in no way responsible for any burns or fires that result from you enacting this, and I'll try to guide you as best as I can to prevent that stuff from happening.

Items you'll need for this project:

- Fine steel wool (not rough—the package should have a zero, not a one or two)
- A metal wire container to hold said steel wool (commonly a kitchen whisk)
- Flexible wire or a thick cable
- If wires, then wire cutters
- A lighter
- Safety goggles
- An area with absolutely *nothing flammable around*

And here is how you put the whole thing together:

Step 1: Assemble your flaming-mace thing.
There's no good word for what we're making: it's basically a knight's mace, but on fire. Assuming you're working with a whisk, flex out your steel wool a bit and stuff it inside the whisk. You can also unroll the wool itself and cut it into smaller pieces if necessary. If you have a cable, attach the cable to the whisk; if you're using wire, use your wire cutters to cut a length into anything between five and eight feet long and tie that to the whisk. Make sure you've got a firm grip on the non-whisk end of the metal rope by fashioning a handle or something. Gloves are a good idea.

Step 2: Find a location you won't burn down.
Virtually no location is completely safe to swing around fire, but places with less flammable material tend to work better: think empty beaches and deserts, not dry grassy fields or crowded streets. While remote areas are safer, though, know that sparks look more interesting when bouncing off things, so if you can find some boulders along the beach, so much the better.

Step 3: Set up the shot.
Bust out the tripod and frame your shot. A moderate depth of field like f/8 is ideal, and a low ISO speed works better to reduce noise and focus the scene on your soon-to-be infernal steel wool. If you want a brighter image, you can bump up the ISO, but be sure to measure it out with your shutter speed, which, of course, should be long—though exactly how long will depend on your idea and execution. Typically, steel wool painting works well with 10 seconds; go longer and the blaze gets brighter, go shorter and the sparks get more detailed. If you do choose to notch down your aperture, remember that each stop downward approximately doubles the amount of time you should be painting and exposing your image.

Step 4: Test it out.
Take a few shots with a different light source before you use up all your steel wool and realize the effect didn't pan out. Adjust your settings accordingly.

Step 5: Come out swinging.
Ignite your makeshift mace with the lighter and quickly click your camera's shutter. Once the steel wool starts to glow, carefully start spinning it in a circle over your head. The more air gets through to your steel wool, the quicker it will burn and the more sparks will begin to fly. (That's why you want to fluff the stuff out first, to let more air in easily.) Keep this going in any way you want—a basic circle, or something more resembling aboriginal fire poi dances.

Elevating your light painting

Already got a grasp on light painting? Wanting to elevate it to the next level? Then let's go over some tips for cooler, more advanced imagery.

- **Go big or go indoors.**
  When painting over a landscape, try to cover a wide swath—and not randomly. See the end product in your mind's eye and get creative with patterns that complement your surrounding landscape or cityscape.

- **Try different light sources.**
  If you've done steel wool to death, and are bored of flashlights, move towards LED strips or fiber optic cables to create different patterns. You can even try setting longer exposures and using multiple sources in a single image: spend five seconds with a flashlight, five seconds with rainbow-colored fiber optics and 10 seconds with sparklers to achieve a blaze of multiple lights at once. Try to fill your landscapes or cityscapes with as many interesting and unique colors as possible.

- **Play with intensity.**
  Using dimmable lights can help alter the intensity of your light source at a given time, but you can also achieve this by focusing more on certain areas. If you're painting the outline of a tree and want the branches to be brighter than the trunk, give your flashlight more time there, or, using a dimmer, brighten up the luminance. This kind of variety can help create more precisely detailed images.

- **Don't shy from ambient light.**
  Use stars, lamps and city lights to your compositional advantage. They'll likely shine a bit brighter, but it's still better to integrate your surroundings rather than awkwardly try and avoid them.

- **Play with white balance.**
  By adjusting your white balance so it misunderstands white as another color, you can create eerie shots and change the atmosphere entirely with a simple button. This works especially well at night with celestial bodies above, highlighting the moonlight in a different color.

- **Use precise, artistic techniques.**
  Sure, you can swing a light around your head for 20 seconds and gawk at the results—or you can take a more delicate and toned-down approach. Understanding the subtlety of light is a huge factor in painting with it: gentle wrist motions and graceful movements are what separate the professionals from the amateurs. It might look a bit like dancing—that's a good thing.

- **Study the masters.**
  Look to great modern light painters like Eric Paré, Harold Ross and Ian Hobson to discover the vast differences in ways you can light paint. Paré is mystical and intimate; Ross is deliberate and classical; Hobson is wild and psychedelic—there's no right or wrong way to approach it, but seeing how professionals work (and most of these folks have tutorials and behind-the-scenes videos) can shed light on an artistry few recognize as even existent.

Using light painting in the urban landscape

Practicing light painting can benefit you as an artist beyond simply producing light-painted images. The concepts learned through controlling light on-screen translate into nighttime long-exposure photography, especially in cities. Once you understand how a camera reacts to lights waving before it, you can better understand how to set up and control your scenarios, even they they seem beyond control.

I'll remind you of some of the long-exposure moments we discussed in the chapter on shooting cityscapes at night. When confronted with busy streets, heavy traffic, freeway overpasses, intersections, busy airports or spotlights at major events, you can use all these moving lights to your advantage by accepting their natural flow and recognizing natural patterns. In some ways, this will help create a more natural landscape out of whatever you're shooting.

Most importantly, you've got to keep experimenting. Photographers only improve by trying new things. Even if inching around a dark room with a flashlight doesn't sound like the kind of photography you want to do, there's a lot you can learn from the experience.

Video Tutorials on Light Painting:

- A short documentary on light painting, using a variety of objects
- Comprehensive steel wool photography tutorial
- Creating light orbs and using custom white balance
- Steel wool light painting, explained
- What happens when steel wool light painting goes wrong

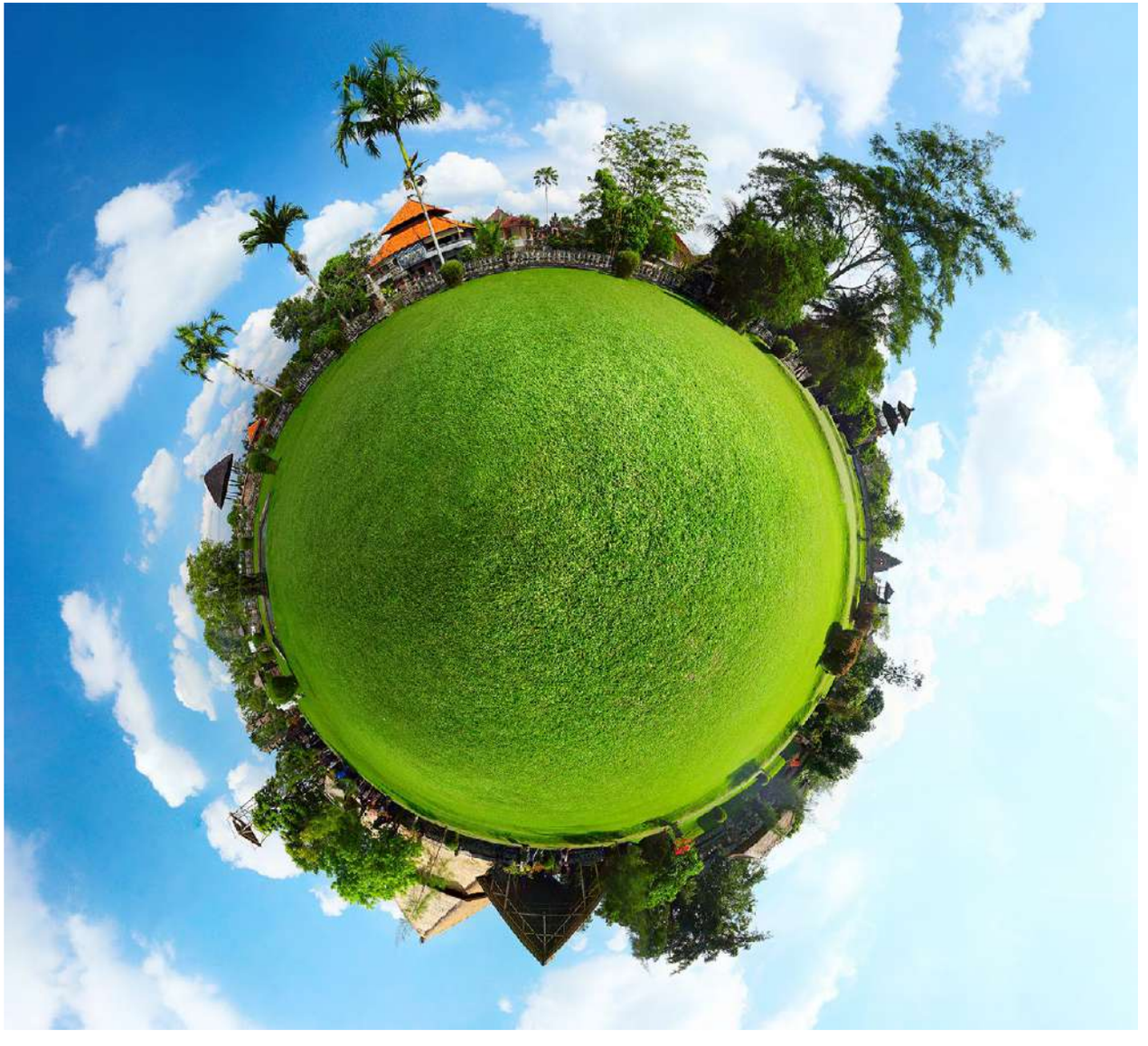
Panoramas & Spherical Panoramas

Count the number of times you've been shooting a landscape or cityscape, taken as many steps back as possible, and given up, muttering to yourself, "My lens just isn't *wide* enough…" It happens to every photographer. There's never a wide enough lens to capture it all—the vastness of the world, the expansive horizon. The only way to grab it is with a panorama.

Panoramic shots involve taking multiple sequential images and "stitching" them together. Take a landscape shot; shift your tripod to the left, take another shot; shift to the left, take another shot… Repeating this process will give you a series of photographs that can be stitched together to make a super-long shot.

Today, there are lots of ways to capture panoramic shots: most cameras offer in-camera modes, and products like Photoshop and Lightroom have evolved to accommodate this niche section of cityscape and landscape photography specifically.

Regardless of how you go about stitching your shot together, how you take the initial series will be a very similar.



Panorama II, London by Davide D'Amico.

What you need to shoot panoramas:

- **A sturdy tripod, preferably with a ball head;**
- **A bubble level on the tripod—standard levels are useful, but a double-bubble level that attaches to your camera's shoe mount is even better;**
- **A wide-angle lens.**

General tips for panoramas

For every shot, you want to **ensure your settings are the same**—switching focus, aperture or focal length midway through the series will mess up the whole thing. Stay in Aperture Priority mode, and keep your aperture relatively high (high f-stop). A consistent deep depth of field matters here. The same goes for focal lengths: no zooming in or out, or the image's perspective will be all wonky. Finally, switching to manual focus is a good idea, just in case autofocus decides to switch up between shots.

Next, though the natural tendency is to shoot panoramas horizontally, it's actually more useful to **shoot vertically**. This way, even though you'll be taking more shots, you'll have more room to crop the top and bottom of your final image.

Lastly, I'd recommend avoiding **in-camera stitching**. Experimentation is fun, but I find the in-camera stitching often makes a mistake, making it more difficult to process the image after the fact. If you're inclined to try it anyway, insure yourself by taking a series or two as well.

Types of panoramas

There are two types of panoramas: **partial panoramas** and **360-degree panoramas**. Partials are more common: you'll see them for sale in galleries, or hung up on walls in art houses or businesses. They're super-wide landscape shots. Often they're composites of a few images, between 5 and 10, that grant a 120- or even 180-degree viewpoint of a scenario.

But the types of shots that attract more views online, in my experience, are 360-degree panoramas—the result looks like a sphere of universe curled up into itself. They're a little more complicated to pull off, especially if you want lots of detail, and often require more than 10 shots to cohere. But they're a good deal of fun: they distort our reality, yet not entirely; they show us a view of our world we would never otherwise be able to see.

How to shoot a partial panorama

First, consider your final composition. Too many photographers forget this part: rather than just snapping shots for the sake of a stitch, it's better to have a clear idea in your mind's eye of how the finished product will look. Consider the rule of thirds in a wider sense and use the extra length given to leading lines to enhance the scene.

Once you've set up your camera—accounting for exposure and aperture as well as composition—take your first photo and rotate your tripod rig slightly. Then take another photo. Try to overlap your images by around 25 percent, so you can stitch them together effectively later in post-processing. If you're using a very wide-angle lens, overlap by 40 percent to be safe. After taking enough shots, you'll learn what amount of crossover works best with your lens. Continue shooting until you capture the whole landscape or skyline. As I said before, anything between 120 and 180 degrees is common.

If you continue shooting like this until you've reached a full circle, you'll wind up with a 360-degree panorama. They usually look a little funny—a bit warped, depending on how well they're stitched together—but can make for terrific landscape shots, especially from the tops of mountains.

How to shoot spherical panoramas.

With spherical panoramas, it's more about capturing everything—and I mean *everything*—rather than accuracy. I've found that a tripod can actually hinder my chances here, and that I can work faster without one—although you've got to have an eye for accuracy on your own, which a tripod does help immensely with.

With or without a tripod, you want to capture everything you can see in however many shots are necessary. How long this takes will depend on your lens: fisheye lenses can capture 180 degrees in a single shot, and so can technically grab everything you need in four quick shots, similar to a 360-degree panorama.

Without a fisheye, though, you'll need to incorporate not just 360 degrees of panorama, but also vertical shots from your feet to the sky. Think of it like peeling an orange in slices, starting at the bottom; peel one strip from top to bottom, then rotate slightly and start again. Once you've "peeled" the whole world around you, you're set.

Beware the parallax

Before we get into post-production, a quick word on parallax—a daunting-sounding sciency word that's really much easier to work around that you think.

First, what is parallax? It's the visual phenomenon that happens when stitched-together panoramas don't quite fit. Parallax is the cause of "ghosting," when objects in a panorama transparently half-appear but don't really, or when stitches appear blurry in a final product. In short, it's the byproduct of tilting a lens without moving it appropriately enough to create a fluid panoramic shot.

You can see the effects for yourself. Close one and hold a finger in front of your face, but focus your eye on something behind it. Now rotate your head left and right. Notice how it seems your finger is moving? It isn't, of course—but your angle of perception is. That's because your point of view is no longer perfectly centered—it's slightly askew.

There are ways around this, of course. The trick is to find the "no-parallax point" of an image, also sometimes known as the "nodal point." When the camera is far from physical objects—if your landscape is entirely in the distance, say, as in the top of a mountain—then parallax isn't as much of an issue. Sometimes it's completely avoided, since the nodal point and the rotation point don't cause much discrepancy.

Another way around the parallax effect is with a wide-angle lens for much the same reason. Because they make everything seem far away, they effectively replicate the distance effect that works when the camera is far from its panoramic subject—presuming there are no foreground objects to muck up the shot, of course.

But the easiest way is, without question, using a panoramic tripod head. This repositions your camera as you swivel, so that you dodge the nodal point of the lens. If the investment in new gear doesn't seem worth it to you, then you're going to have to work around the problem manually.

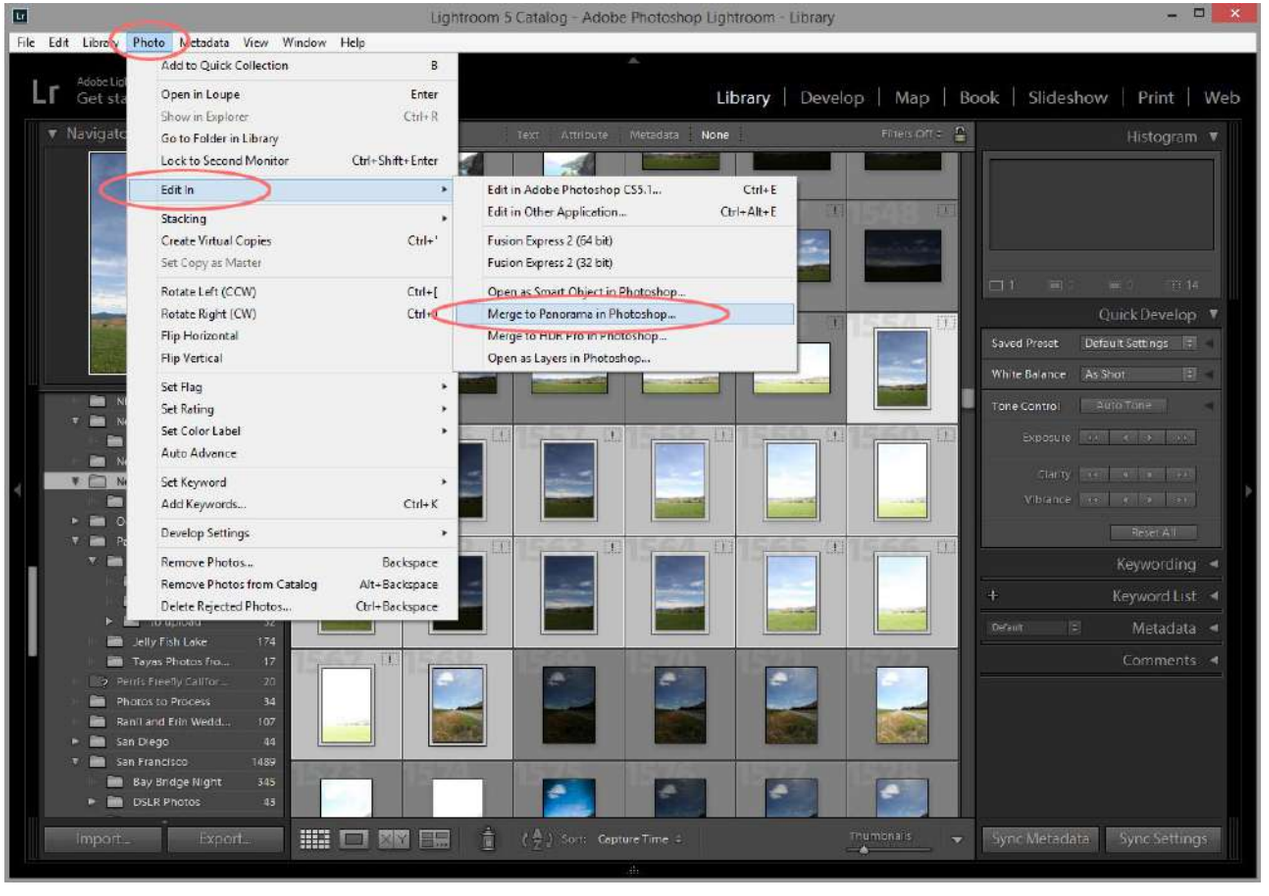
Software for post-processing panoramas

The most commonly used software on the market is Photoshop, but there are numerous plugins that are made specifically for helping to stitch together panoramic shots; among them, Flexify 2 is probably the most popular. If you don't have Photoshop, there are a number of free and open-source image editors on the market, like GIMP (with a plugin called Pandora) and Hugin. PTGui is also a quality product for producing 360-degree and spherical panoramas with ease, but it will cost in the low three-digit range to buy.

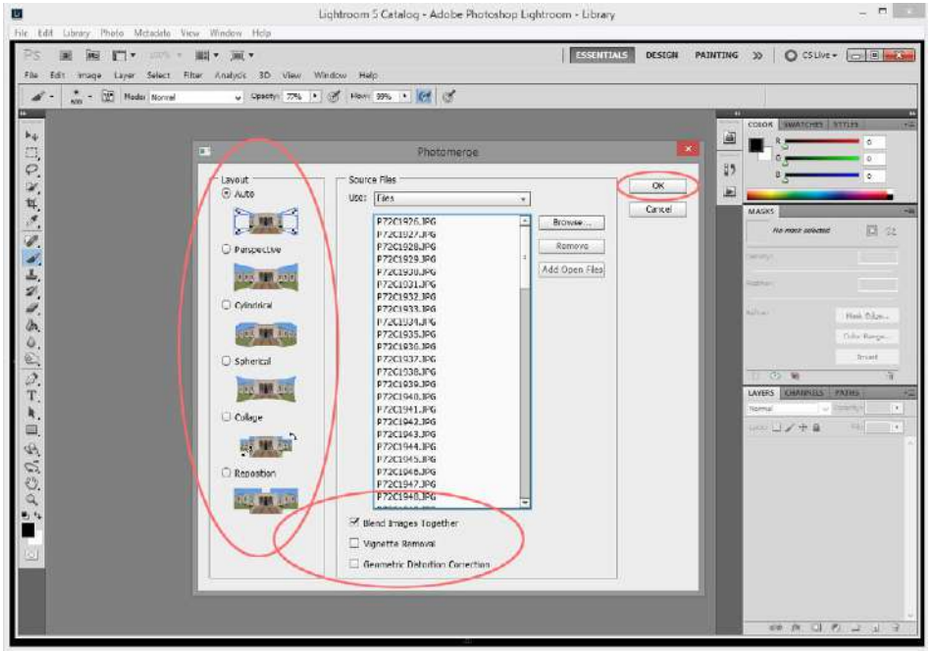
Finally—let's make your panorama

By now I'll assume you've snapped all your shots, downloaded the requisite software and avoided the necessary parallax woes. It's time for the real hard work: stitching together your panorama in post-processing.

The possibilities of panoramic post-processing are limitless. If this is your first go at it, you'll likely want to try a number of paths to see the differences before settling on whichever style you like best. Most of this will likely require Adobe Lightroom or Photoshop—the Photomerge Panorama tool in Photoshop is one of the most useful for combining multiple images into a single continuous one—whether the shots are horizontal or vertical. This is a reasonably accurate tool, assuming your shots can gel together. To make it work, just open your photos in Lightroom, then select them in "Library" view. Then go to the photo menu at the top and click "Photo," scroll down to "Edit In," then hit "Merge to Panorama in Photoshop." It should look like this:



Then choose which layout option you want to try:



The layout options might seem confusing, so we'll break them down here.

- **Auto** means Photoshop itself analyzes the source images to figure out how the final panorama will look best: either a perspective or cylindrical layout. If "perspective" and "cylindrical" confuse you, keep reading.
- **Perspective** creates a panoramic composition by assuming the middle image—e.g. number three of five—is the one with the correct perspective. It then transforms the other images by repositioning, stretching or skewing them in order to match the overlapping layers.
- **Cylindrical** reduces the "bowtie" distortion that sometimes happens with the Perspective option. It displays individual images as if they're on an unfolded cylinder. Overlapping content is still matched, and the middle image is still the reference point at the center. This option is better for wider panoramas.
- **Spherical** aligns and transforms your images as if they were wallpapered on the inside of a sphere. This is how you'd make 360-degree panoramas, but could also be used for nice panoramic results with other file sets.
- **Collage** matches overlapping content, while rotating or scaling the source layers. A little more scattershot than the others, which use the middle image as a commanding reference point.
- **Reposition** aligns the layers and matches overlapping content, but does not transform any of the source images by stretching or skewing.
- **Interactive Layout** is effectively a manual mode, good for opening the source images in a dialog box and positioning them yourself.

There are other settings, too, of course, that are more niche and complex. You can use **Blend Images Together** to, well, blend your images together—this option finds the most fitting borders and smooths out their colors and lines. Turn this setting off, and a harsh rectangular blend is used. You might prefer this if you want to retouch your blending masks manually, but novices may appreciate the auto mode.

Vignette Removal is a useful tool for dealing with uneven exposures in a single image. This setting will remove and compensate for darker edges (often caused by lens flaws or improper lens shading).

Lastly, if you have any major distortion—barrel, pincushion or fisheye—you can turn on **Geometric Distortion Correction** to put everything in its right perspective.

In general, I've found the auto options in Photomerge to work fairly well. But if they ever don't produce the outcome you want, use the Interactive Layout option and do it yourself. You can use the Photomerge dialogue box to manually rearrange source images and perform touch-ups on distortion and blending.

How to make tiny planet panoramas

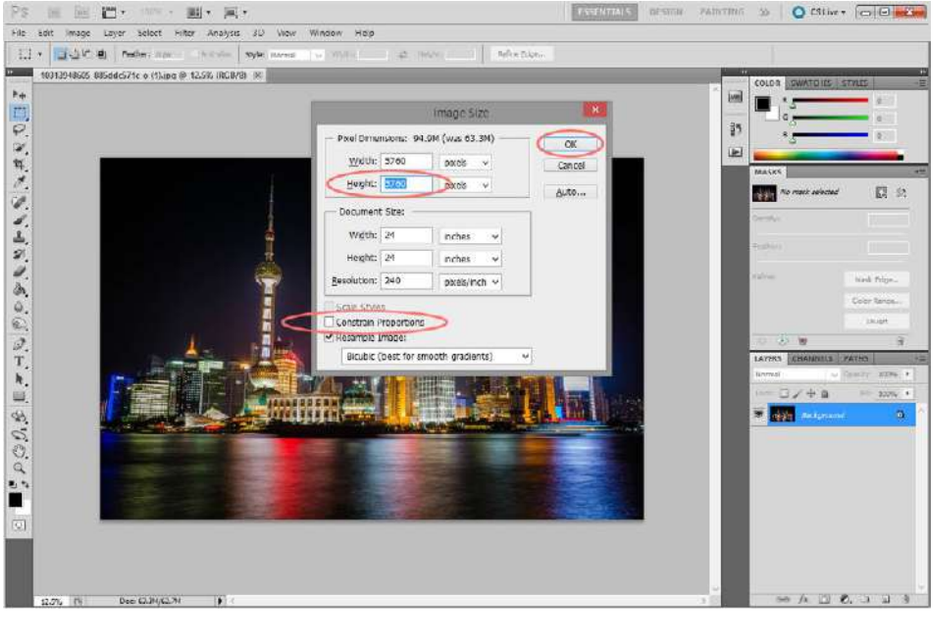
I'm sure you've wondered about those imploding little balls of landscape—tiny planets, spherical panoramas, however you want to call them. They seem like a neat trick, and get a lot of hits online because of their innovation, bright colors and creative perspective on the world.

While it's common to start with a full 360-degree panorama, that's actually not necessary. The technique works best simply when the ends of the panorama—the seams—blend together. This is obviously easiest with a 360-degree span, but it's not strictly necessary. With a consistent sky, almost any landscape panorama can be spherified just as well. And it's much easier than you think.

For this walkthrough, I'm going to use **this image I took from The Bund in Shanghai**. Feel free to download it from Flickr and follow along, or else use one of your own.

1. Open your image in Photoshop.

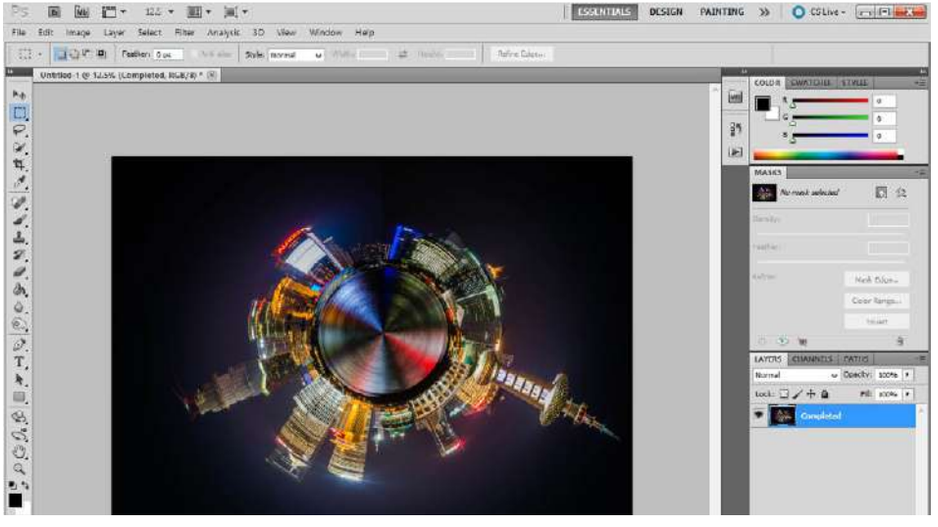
2. Make the image a perfect square. Find "Image" on the top banner, then select "Image Size" and adjust the height so it's the same as the width. (You might have to deselect the "Constrain Proportions" option so you can adjust the height independently of the width.)



You might notice some squishing. That's okay—it's all part of the process.

3. Now flip the image. Under the "Image" option, select "Image Rotation" and rotate it 180 degrees. Conversely, you can select "Flip Canvas Vertical" under the same tab.

4. Apply a Polar Coordinates Distortion filter, under the "Distort" section of the "Filter" option. Make sure to select "Rectangular to Polar."



5. That's about it! As a final touch, you can crop it or use the clone stamp tool to remove seams or blemishes in the corners of the sky.

Keep in mind that if you don't flip the image (Step 3), then when you apply your distorting filter, you'll find the opposite result—your land will stretch around the outside of a circle of sky in the middle. That can also be a very cool photograph, if you've got a consistent image with a tall tree or pointed figure sticking out in the middle, breaking the perfect horizon on its own.

Combine your tricks: Make a HDR panorama

Want to take your panorama skills to the next level? Try taking bracketed shots of each panoramic section. Convert each individual section into an HDR image by using the techniques we went through last chapter, and then merge those together in Photoshop.

You can also use Lightroom presets on each panorama section before aligning them with Photoshop. That's a good idea if you're trying to improve your results with a quick catch-all approach.

Beyond the basics

For other types of panoramic processing, check out a popular Photoshop plugin called Flexify 2. Just as panorama processing variations are virtually endless, so too are the outputs of this plugin, many of which involves barely pronounceable words. Here are just a few:

- Mirror ball
- Half-polar
- Tetrahedron
- Octahedron
- Icosahedron
- Rectilinear
- Stereographic
- Pinwheel
- Polar
- Orthographic
- Cube
- Dodecahedron
- Sinusoidal
- Hyperbolic
- Cylindrical
- Quasar

Looking for visual tutorials on panoramas?

Check out these great videos on YouTube, which I found pretty helpful when starting out:

- How to Photograph a Panorama
- The Keys to Panoramic Photographs and HDR Panoramas
- Finding the No Parallax Point
- How to shoot a 360 Degree Spherical Panorama in 90 seconds (using a fisheye lens)
- How to Make 360 Degree Tiny Planet Panoramas in Photoshop

Panorama of Down Town Manhattan by Neo_II.

Levitating subject(s)

Photography is stillness. We can try to capture motion, but a photograph will inevitably be an unmoving moment, a single fraction of a second. Few photography tricks play to the beauty of that stillness like levitation.

Levitating someone on-camera is among the most eye-catching—and mind-bending—photographic tricks around. Imagine seeing someone floating gracefully in mid-air, surrounded by a lush natural landscape. It's a really beautiful moment that any landscape photographer with a surrealist eye has surely tried at some point.

We all float on

There are two common techniques for making someone appear like they're levitating: the natural way and the post-production way.

The natural way means you need to find a calm, acrobatic and talented jumper—someone to literally jump in mid air, but not *look* like they're jumping while they're doing it. This requires extreme precision and patience to catch exactly the right moment and illustrate an emotional state of mind at the same time. Much easier said than done: have you ever tried jumping casually? It's a bit of an oxymoron.

The post-production way requires a prop to stand on, like a stool or a chair. The person can stand on the stool and, using the clone stamp tool, you can remove the object after the fact and replace it with your background. In landscape scenarios, this can be as easy as setting a stool on the beach, and then disappearing it among the sand. If you're going to attempt this, make it easy on yourself at first—no need to try to match the background of a complex cityscape.

Levitating tips

Whether you're forcing a model to jump up and down repeatedly or trying to perfect their tip-toeing on a stool, there are some very handy tips for levitating subjects in landscape or cityscape photography.

- Quick shutter speeds are a must. Your subject can't be blurred from motion at all, or else it spoils the whole illusion.
- Consider using props to fill in the scene. Nothing says "magical floating" quite like holding an umbrella in mid-air.
- If you're post-processing the illusion, be sure to shoot in overcast weather. Clone stamping away the stool or chair becomes much easier when you don't have to contend with shadows.
- Also for post-processing: always take variations on the same shot. You'll need at least one of the scene without the subject; one of the subject standing on the platform; perhaps one of the subject on the platform with his or her hair lifted up, as if they were standing in zero-gravity; and maybe a few of various items of clothing (if appropriate) being lifted up for similar effects. Getting all these shots in advance makes it much easier to accomplish the final effect. You can do this by combining the best attributes of each photo, similar to the way we process HDR.

Examine the pros

The international queen of levitation photography is arguably **Natsumi Hayashi**, a Japanese photographer who's made a career out of shooting herself in mid-air. Her technique is seemingly simple, but arduous to nail down: she is a graceful jumper, and uses a self-timer to snap several shots while she's in the air. It sometimes takes her up to 200 tries to manifest the image in her mind.

If you want to read an interesting article wherein some of the best levitation photographers share their setups, check out this one on Fstoppers: **"Secrets of the Best Levitation Photos Shared."**

Lastly, here's an **interesting YouTube video walking viewers through a levitation photo shoot**, including a glimpse at the post-processing techniques.

Long exposures during the day

Take a shot of a river. On a clear day, you can probably see the water surging through, one droplet at a time; the clouds flat against the sky; and any little bugs or birds flying through the frame. This is not necessarily a bad way to shoot a river landscape, but it's not the way most professionals do it.

To create a sense of flow and power in the river, most professionals would leave the shutter open for longer than usual. But there's a problem: by leaving the shutter open longer, you're exposing the camera to way more light. On a sunny day, over-exposure is inevitable.

That is, unless you have a neutral density filter—or ND filter, for short.

How an ND filter works – sort of like your lens is wearing sunglasses, blocks light from reaching the sensor allowing you to reach longer shutter speeds.

What's an ND filter?

An ND filter is basically a pair of sunglasses for your camera. They allow less light to reach the camera's sensor without really changing the lighting or color, so you can leave your shutter open longer without worrying about over-exposure.

ND filters can be either screwed onto the front of a lens, or else slotted on (if you have an adapter and a holder, which are less common). They're made of either glass or polyester, with glass being the better (and relatively pricier) option.

Why use an ND filter?

There are loads of different shots you can take with an ND filter, both in cities and landscapes. In either case, the main reason people use long exposures is to create a sense of movement.

Consider a crowd of people moving through a busy street market. A long exposure can create ghostlike creatures out of human bodies. If there's a solid standing centerpiece—a person standing still, a statue or a crowded building—then the effect is doubly impressive.

This works well on cars, also. Usually streaking headlights only appear at night, but with an ND filter you can create long streams of cruising metal during daytime hours as well.

In landscapes, water and clouds are the most common reasons to pop on an ND filter. These natural movements look somehow static when captured with a normal shutter speed. Longer ones can turn spotty rivers into flowing torrents, and a few clouds into a haze of whiteness.

In any case, ND filters and long exposures tend to add depth and texture to otherwise flat shots. A filter is a one-time investment, and one which every pro photographer should make.

ND filters: variable vs. fixed

There are two types of ND filters on the market: variable filters and fixed ones. Fixed filters come with a set degree of dark stops, which are ideal if you can understand the lighting situation you're in.

The biggest benefit to fixed filters is that they're more precise and of a higher quality. The problems, though, are twofold: firstly, even though you can layer them atop of one another, that gets pretty expensive. The second problem is the time it takes to do that.

Variable filters can simply be adjusted to fit a range of lighting conditions. They take a slight hit in terms of image quality depending on the lens, but the benefits even it out: they're much faster to work with and lighter to carry around. Ultimately, it's your call.

Without nd, 1/400 sec

With nd, 1 full second shutter speed. The filter used here was a Tiffen 77mm Variable ND Filter.

Still subjects during long exposures

At the end of my chapter on shooting motion from pedestrians, I mentioned a common type of very poetic shot: a single person standing still among a crowd. Homeless people, human statues or individuals sitting on park benches make ideal subjects for this type of shot; they seem ignored by a world that's passing them by.

Well, now we're going to talk about how to do just that—as well as riff off that idea to brainstorm other types of shots that involve still subjects in front of moving backgrounds.

The background, of course, doesn't have to be made of moving people. There's no shortage of movement in cityscapes, or even landscapes: you can shoot a subject standing in front of a moving waterfall, zipping traffic or any kind of special event, like a parade. Creativity is key here: the more of these shots you take, the more perceptive your eye will become for what could work as a potential long-exposure shot.

The reason these shots work so well, to harken back even further, is because they look interesting. Let's recall the early chapters of this book, wherein we established what makes an interesting shot—remember contrast and texture? They're the two key elements we see in this type of photography. We're contrasting stillness with motion, and using that motion to blur out a wonderful background texture against the sharpness of a foreground subject. Add some interesting composition and maybe a few leading lines, and you've got all the basic tenets of photographic law. This isn't groundbreaking stuff—it's Photography 101, just with a twist.

f/14, 6 seconds, ISO 160, 24mm, for this shot I asked my friend to try to stand as still as he possibly could on that square where the lines intersected. There is so much activity and movement at this place, Shibuya Crossing, that this was the result. 3 shot bracketed exposure, used exposure blending to combine the best attributes of each. The "portrait in the city" Lightroom preset was applied to each of these.

Still starting, starting still

This photographic trick is extremely easy to prepare for. Beyond the scenario itself (a willing model, a moving background), all you need is a tripod to get started. At night this comes particularly easily, because long shutter speeds come naturally; however, as we discussed in the previous chapter, you can also set it up during the daytime with an ND filter blocking out the light.

You can set your exposure/shutter speed to any pretty much anything longer than 1 second and the technique will work. As you can see in the example photo here, shutter speeds between 1-5 seconds produce blurred individuals with that are still somewhat defined. Shutter speeds between 5-10 seconds produce less defined streams of blurred masses. Both can work well, it just depends how you want your final result to look. Some of my best images including the example provided in this chapter have come from combining multiple bracketed exposures implementing a range of shutter speeds. As with HDR and numerous other techniques mentioned in this book, exposure bracketing is extremely useful for balancing out variances in bright lights and darkness - and in this case amounts of blur.

And if you're shooting yourself—especially in a cityscape selfie scenario—feel free to ignore everyone stopping and looking at you strangely. Confidence is a great deterrent against onlookers, and they're likely to shrug and move on. Besides, the longer your set shutter speed, the less likely any gawkers will visibly show up in your shot. (And besides, even if they do, it might look kind of cool.)

Here are the bracketed shots so you can see the shutter speed results:

4 seconds

2 seconds

8 seconds

f/8, 30 seconds, ISO 200, 14mm, full speed ahead by Robert S. Donovan.

Tricks for when you don't have a tripod

I admit, a lot of the tricks we've talked about up until this point have relied on long exposures. And while I've dealt with ways to survive scenarios where tripods aren't allowed in an earlier chapter, I can't stress enough how important it is, and how doable certain photo tricks are regardless of whether or not you have a tripod handy. The point I want to drive home is to get you thinking like a photographer—think creatively and resourcefully, regardless of the situation.

Tripods, tripods everywhere!

Look for objects you can use as tripods in a pinch. Cities are filled with these things. Try, for example, setting your camera down on...

- Mailboxes
- Fire hydrants
- Fences
- Walls
- Curbs
- Benches
- Rocks
- Thick hedges
- Railings
- Parked cars
- Tabletops

Most of these can be found pretty frequently around a city. Nothing available? Then MacGyver your own tripod with some makeshift materials. Try using…

- Rolled-up jackets or shirts
- Stacks of books
- Backpacks or luggage
- Shoes
- Camera bags

A new perspective

Even setting your camera down on the ground can produce interesting long exposure results combined with a unique perspective. Sometimes, these shots become our most interesting ones, precisely because of how unexpected they are.

For most of these you'll need to set your self-timer on anywhere between two and 10 seconds. if you're setting your camera up on a makeshift tripod that's so high or low that you can't see the viewfinder, keep in mind the basic rules of blind shooting: switch to manual focus, focus on your subject in advance and zoom in beforehand using live view to ensure a crisp shot, set your camera down and then leave it alone. By using manual focus, you're ensuring that autofocus won't screw anything up when you press the shutter button.

The Pocket Pod tripod substitute.

Tri-possibilities

Of course, if you want tripod options that aren't tripods, don't want to muck up your sweater, don't trust stacks of books and have a bit of cash to spare, there are a few great low-key alternatives to tripods on the market.

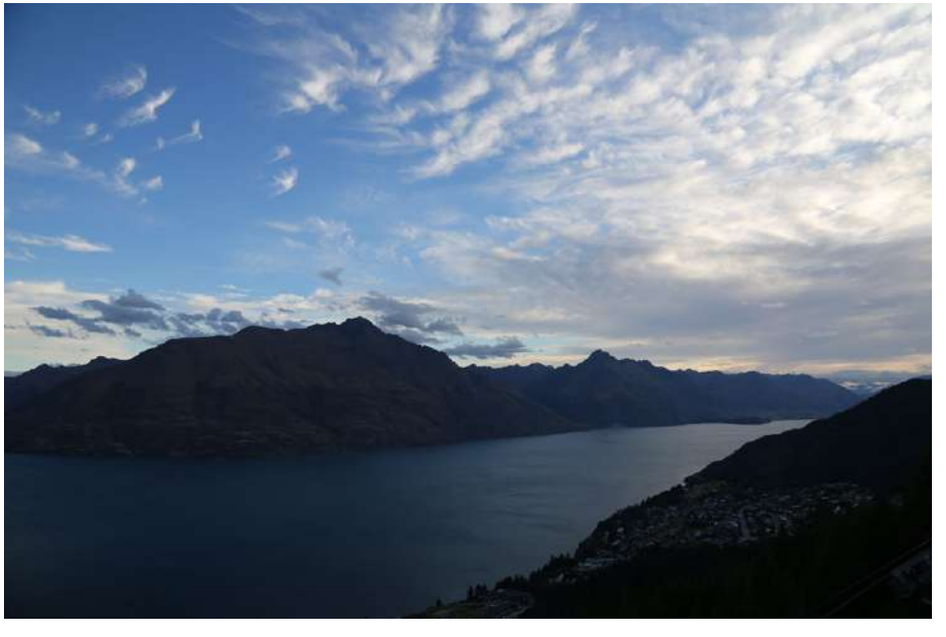
- **Pocket Pod** – a bean bag system that's ideal for SLRs that need lenses propped up.
- **Pocket Pod XL** – a larger version of the Pocket Pod.
- **GorillaPod** – a mini-tripod with movable legs—ideal for uneven surfaces.
- **The Pod** – a bean bag deal with a tripod head-sized screw top.
- **Pillow Pod** – which is, for all intents and purposes, an SLR-sized bean bag.

Swapping out a Sky

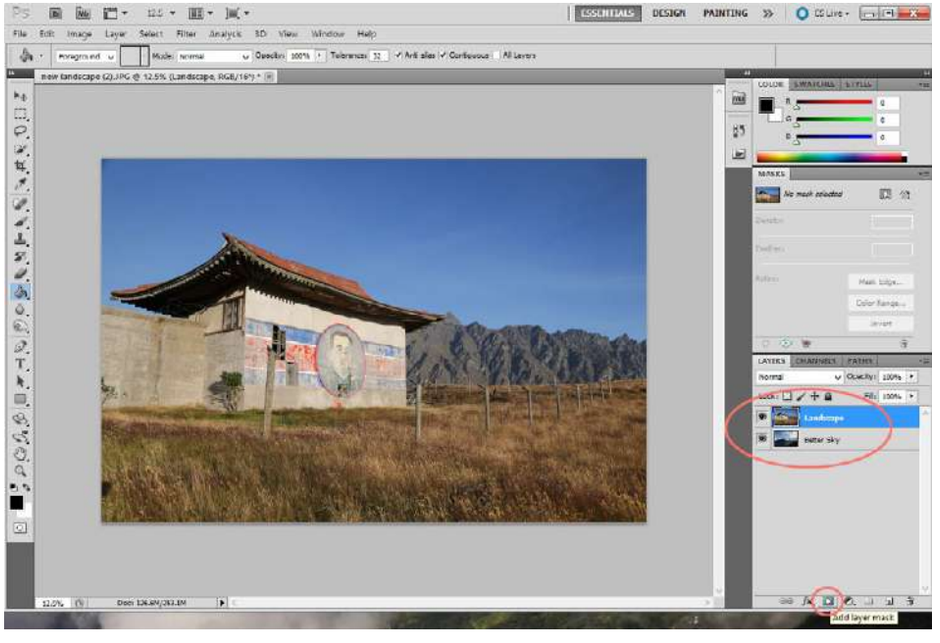
Sometimes you might capture a landscape/cityscape with an amazing foreground, but the sky in the background is bland and boring. It might be a good candidate for a sky replacement! As we talked about earlier in the book, cloudy or stormy skies can be much more dramatic then solid blue skies. So if you see a great sky, take a few extra photos, you might be able to use them later as a sky replacement as we will show you how to do here.

1. In this example, I took this shot of an interesting and strange building up in the mountains. The grass, building, and mountains are all fantastic, but the sky is solid blue without a cloud in the sky and doesn't add much interest.

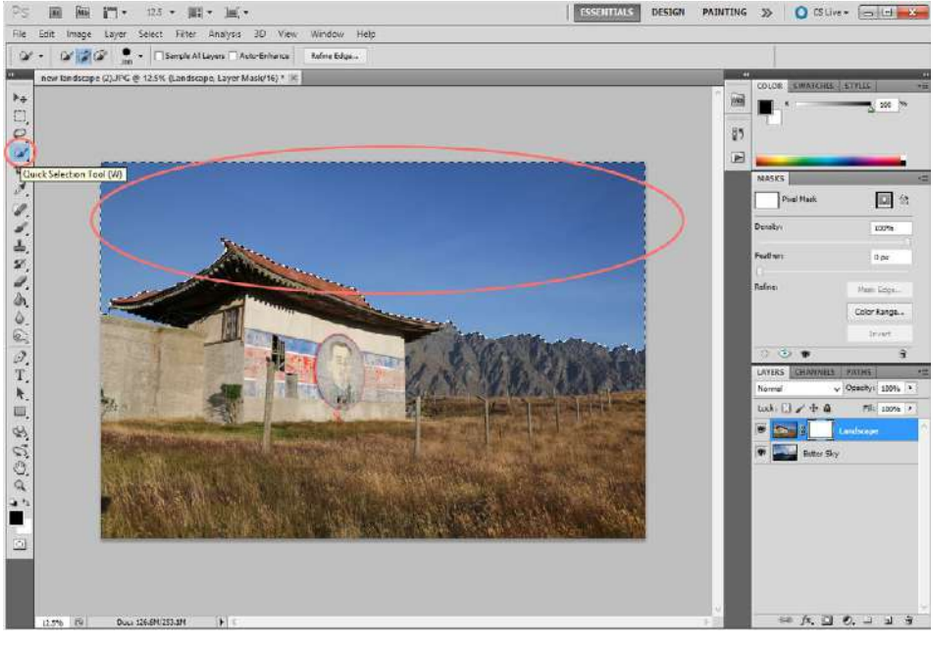
2. So I went through my other photos from the same trip looking for a good sky candidate and settled on this one:



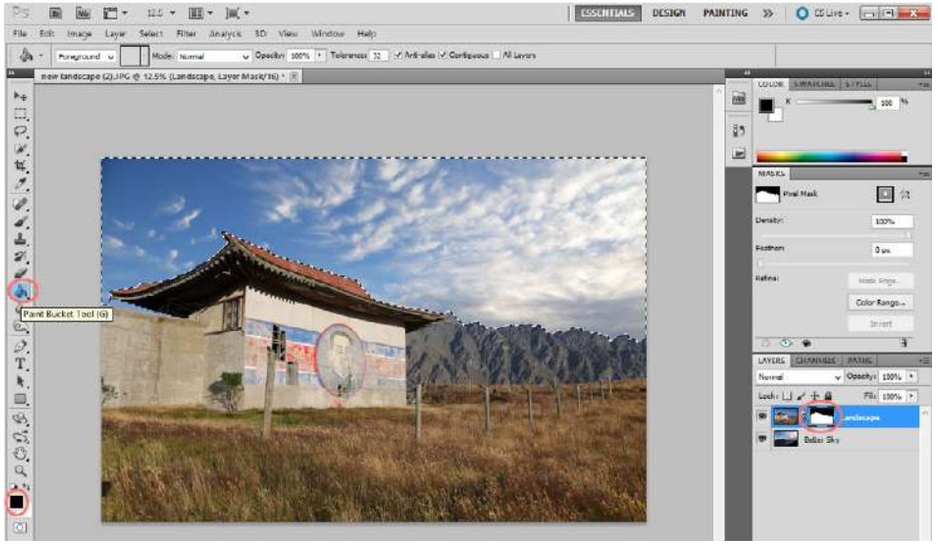
3. Now I open those two photos as layers in Photoshop. Using Lightroom you can do this in the Photo menu at the top and click Edit in > Open as Layers in Photoshop. You can also do this using Adobe Bridge. Once in Photoshop I recommend putting the primary photo as the top layer. Then add a layer mask to the primary photo.



4. With the layer mask selected, use the Quick Selection Tool to select the sky. The tool should select it easily if it is solid blue.



5. Then, with the layer mask still selected, switch to the Paint Bucket Tool, make sure the color you are using is black, and bucket the whole selected sky Black. This will tell the layer mask to let the bottom layer show through so you should see your new sky now.



6. And that's it! So here you can see the preliminary result.

7. Final Result: And here I took it back into Lightroom and applied the "Just Right" Lightroom preset to improve Color/Contrast a bit.

Star Trails at Night

Have you ever looked up at the stars and stood in awe of how minuscule humanity seems? Seen the billion-year-old beauties glimmering from light-years away? Almost every landscape photographer has, as well—and the challenge of capturing that awesomeness is among the greatest in the field of photography.

Capturing star trails demands patience, skill and a number of techniques we've used before in this book. But the payoff is worthwhile: star trail photography actually captures the full rotation of Earth in relation to the stars above. The results are almost always amazing and baffling: streams of starlight cascading curvaceously across the night sky, the length of the streaks dependant on how patient you were during your outing.

But there's more to it than just that, of course.

The right light

Lighting is arguably the most important part of a starry photoshoot. You'll need to find a location far away from cities or light pollution, which obscure our views of the stars and brighten up the sky with our millions of streetlamps and apartment lights. (The Light Pollution Science and Technology Institute **has some helpful maps** here that show you where you can travel to in order to escape light pollution.)

But even if you find a remote area, you'll need nature's help, too. Moonless nights are best, so the light from the big glowing orb doesn't interfere with your delicate long exposures. Cloudless nights are a given—clouds would mug up the whole scene.

Another good tip for starting out is to try and spot the north star, Polaris. All the stars will circle around it, so its position will give you some idea of the curvature of the stars themselves. If Polaris isn't visible from your vantage point, don't fret: the stars will seem to travel across your scene in a partial circle nevertheless. This is also the case with the South Celestial Pole.

Framing that matters

It might be difficult in the pitch-blackness (which is why knowing your scenario beforehand is useful), but finding an interesting foreground that will work with long exposures is a great and often surprising addition to star trail photography. Mountain ranges or old buildings (no lights, obviously) work well to occupy the third of your composition, which still saves you plenty of sky.

A few notes on camera setup

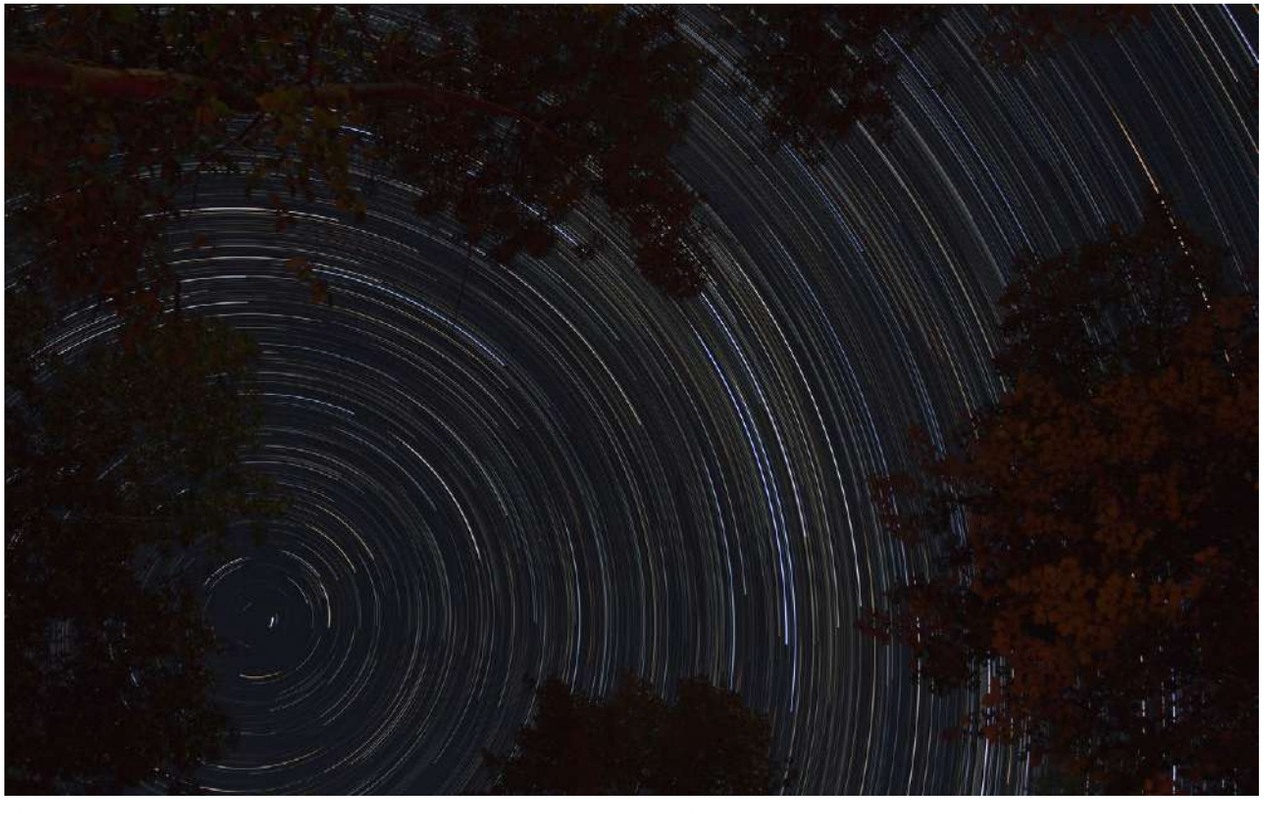
- This is imperative: your camera must be *absolutely still*. We're not just talking about long exposures—we're talking about two hours of stillness in sequences of 30-second exposures. Position it firmly, and weight it down if possible, so the wind won't move it at all.
- Use manual focus, and focus to infinity (in most situations). That said, sometimes I find it's better to use Live View to manually focus on a bright star.
- Turn off image stabilization—since we're using a tripod with long exposures, we want as little mechanical movement as possible.
- Turn off in-camera noise reduction if applicable to your camera.
- This goes for every shoot, but is especially important on these long hauls: make sure your battery is charged and that you have a spare. Not only is star trail photography especially good at draining batteries, but many professionals will shoot the same long exposure shots until their batteries die. Make that time last.
- This tip is optional: consider shooting in JPEG instead of RAW. I only suggest it because of how many images you'll be shooting—smaller file sizes work in your favor, and the StarStaX processing software (which we'll discuss soon) doesn't support RAW files. Of course, you can always export JPEGs from Lightroom fairly effortlessly.
- Depending on the weather and time of year, some professionals will invest in dew caps to prevent dew from forming on their lenses.

The method behind the starriness

There are two prominent methods for capturing star trails. The first and most common method involves capturing lots of sequential images using an intervalometer. These tend to be 30-second exposures, one after another, over the course of one or two hours. (You can do more, but one or two should be sufficient; the longer you shoot, the longer your star trails will be.) Once you're done, you can go home and stack them all together in post-processing.

But there is another—and riskier—way. You can, if you want, shoot one *very* long exposure—approximately one hour is recommended—and this will show some decent star movement in and of itself. The biggest drawback here is the obvious risk involved—what if the camera moved a bit and you didn't notice? You may find your "all-eggs-in-one-basket" approach yields nothing more than an hour-long cracked egg.

For that reason, I recommend stacking your images in post-processing. We'll start with a guide to that method before delving into the single-exposure one.



"My first successful star trail photo. Basically I set the camera to take 30 seconds exposures one after the other for 3 hours until the battery ran out. I stacked the resulting 300 some odd photos and this is the result." f/4, 160 ISO, 17mm. Star trails at Killbear Provincial Park by Imtiaz Ahmed.

"This was my second attempt at doing star trails. The photo consists of 108 photos all consisting of 30 second exposures." f/5, ISO 200, 17mm. 80/365 Star Trails by Mike Poresky.

Method one: Stargazing in spurts

Before we get started, know that owning an intervalometer will make this process considerably easier. It's a handy automating tool that runs on its own, so you don't need to waste time every 30 seconds resetting your exposures.

Once you're in position, you should begin by switching over to your camera's manual mode. Use a wide-open aperture, the lowest f-stop possible; in this case, scarce light trumps our desire to have a deep depth of field, and a wide aperture lets in as much light as possible from the slim amount of starlight available. Unfortunately, lens quality matters here, too: expensive lenses capable of low f-stops will visibly outperform lenses that don't drop below f/3.5. The wider your aperture, the brighter your stars will shine.

Shutter speed we've discussed—30 seconds should do it. And don't worry about white balance; any fixed setting is fine, such as daylight or shade. (Just try to avoid auto white balance, which may result in color variations between exposures.)

A more complicated setting is the ISO. Obviously higher is better, as this lets in more light and may reveal fainter stars, but a too-high ISO can also bring about more noise. I'd recommend testing out a shot with ISO 1000: if your sky still looks dim, keep increasing the ISO until you have a shot full of stars. Hopefully you won't need to delve into too noisy territory to find that spot.

With the settings taken care of, set your intervalometer to continuous shooting and kick off the sequence. Let it run its course, snapping 30-second exposures for anywhere from 30 minutes to two hours. One hour is a good first goal, as this will usually deliver a dramatic enough image with long, overlapping trails.

A quick (and advanced) technical note: Some true (and truly dedicated) professionals sometimes won't use an intervalometer. This is because sensor heat can be an issue with this method of photography, and by avoiding the intervalometer they can give the sensor some time to cool down between shots. The hotter the sensor gets, the noisier your exposures will be. But be aware that this level of dedication can get extremely tedious. Also, longer waits between shots can create larger gaps in your star trails.

Method number two: The longest exposure you'll ever take

Here is the aforementioned riskier of the two methods: the single, hour-long exposure. For this technique to work, it is even more critical that you have an absolutely clear sky with no moon visible and no big/thick clouds passing by.

Similar to the previous technique, a high-quality and fast lens—preferably one that can achieve around f/2.8—will boost your results here. Start, if you can, with your lowest f-stop, and only raise it if you feel you need to balance out a longer shutter speed. We'll also reverse our ISO methodology down to 100 now, since the long shutter will handle the light factor.

As for the shutter speed itself, it's something of a matter of trial and error. Different scenarios will be affected by different lighting situations and how remote your location is. This could mean anything from 30 minutes to three hours. Experienced photographers will sometimes take a few test shots, substituting long exposures with a very high ISO to try and make an educated guess as to how long their shutter speed should be. If the test shot is perfectly bright when set at the highest ISO and a 30-second exposure, then a similar result might be accomplished with a one-hour exposure and the lowest-possible ISO.

Once those settings are done, program your intervalometer for the desired shutter speed length, anything from 15 minutes to an hour. You're done for now—come back when it's finished and see how it turned out.

Single exposure technique. "I should have let this shot develop a little longer, but after 18 minutes I got impatient. The star trails over Mono Lake are faint and short as a result. Live and learn." 18 minute shutter speed, f/10, ISO 100, 28mm. Mono Lake Star Trails by Joe Parks.

Starry software

There are a few software options when it comes to stacking or compiling star trail shots together. Here are the most common:

- StarStaX
- DeepSkyStacker
- Star Tracer
- ImageStacker
- Startrails.de

My preferred software is StarStaX (you can download it here), and so even though all of them work similarly, I'm going to use StarStaX for this walkthrough. What these programs do is blend your series of star trail shots into a single image using any number of blending modes and options.

The program itself is fairly straightforward: simply drag and drop your photos into the lefthand column, select an output folder and click "Start Processing". That's it. The program will merge your sequence together, even filling in the gaps between star trails (if you did the 30-second on-repeat version, such little spots may occur) if you use the "Gap Filling" option.

Also keep in mind that, in some situations, you can use this starry trail sky to swap out a night sky using the technique we discussed in the previous chapter.

Watch it yourself

Curious to see star trail photography in action? These YouTube videos offer a solid glimpse into the technique.

- Star Trails Photography Tutorial
- How to Make a Star Trail (Beginning to End)
- Image Stacking Demonstration with StarStaX

Upside Down & Forced Perspective

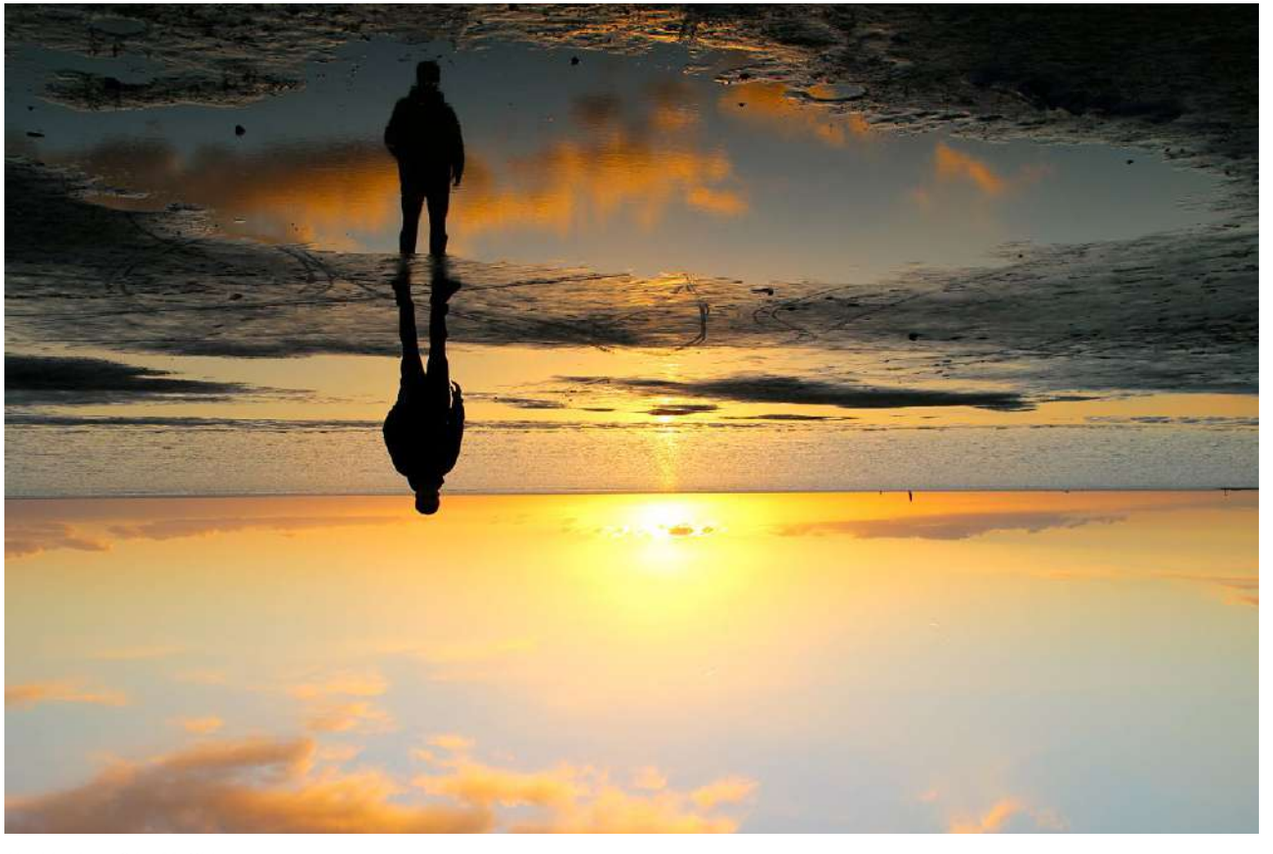
Don't feel like a bully—forced perspective doesn't mean you're forcing anyone into looking at your photo a certain way. Rather, it refers to the manipulation of perspective in your shot, whereby you make objects appear closer or farther depending on their placement before the camera, and not according to reality. So while you're not forcing the viewer per se, you're still tricking them to see exactly what you want them to see. Think of it as an optical illusion—a magic trick any photographer can pull off.

While this trick seems easy sometimes ("Hey, look at me! I'm holding up the Leaning Tower of Pisa!"), that kind of gag can get pretty tired pretty quickly. The real trick behind the trick is creativity—show us something truly original.

The viral trick

Don't discount the power of this genre: using forced perspective techniques in landscapes and cityscapes can set your work apart dramatically, foremost because of its inherent virality. If you manage even just one of these types of shots, it can do much more for your personal brand online than any regular landscape or cityscape shot. Clickability and shareability count for a lot these days.

You don't need to establish yourself as a trick photographer, either. DIversifying your photographic portfolio can increase your appeal without limiting your audience. You just need a lucky break. In any business—but especially photography—that all boils down to how many options you give yourself.



Upside down? by Matthias.

Turn that town upside-down

Here's a quick tip: in landscape and cityscape photography, an easy and captivating style of forced perspective is an upside-down composition. These types of photos often get widely shared online when done right, because they're still novel without seeming like a novelty; the perspective can add meaning to a scene and catch one's attention more easily.

To do these types of shots, all you need, really, is a good opportunity: grounds that look like skies are great, and city reflections (think bays and rivers) work perfectly to achieve this effect. But to make it easier on yourself, you may want to invest in a tripod that can offer secure upside-down shots: some poles can be inverted so the camera hangs between the legs. To the tripod's credit, it's actually much easier to balance the camera this way without shakiness; on the downside, you'll have to basically lie down on the ground to try and see through the viewfinder, unless you have a movable display screen. Or the easiest method is to take the shot normally and then flip it in post-processing.

Glued in Firenze by Christiaan Triebert.

Keep your eyes open

Above all, the only way to truly navigate through optical illusion photography is by keeping your eyes open for opportunities. Look for natural and manmade mirrors, reflective surfaces, and any objects that can be manipulated through the lens. This technique isn't like basic photography—you can't just hike to a pretty mountain and take a few snapshots. With this very deliberate style, you've got to hunt your locations out, keep your mind sharp and stay on the lookout.

f/4, 1/640 sec, ISO 100, 24mm, upside down by Thomas Leth-Olsen.

f/5, 1/800 sec, ISO 800, 30mm, [39/365] How do you see the world? by Sander van der Wel.

Fisheye Landscapes & Cityscapes

Horizon placed in center to minimize fisheye distortion. Santorini Fisheye View by Pedro Szekely.

We haven't talked much about fisheye lenses in this book. That's unfair to the little fellas. While many professional photographers might scoff at the mere mention of them, fisheyes can be a remarkably innovative tool for capturing weird and wild perspectives that many of us rarely get a chance to see.

For those unaware of what a fisheye lens does, you've still likely seen the effects of one: they are a type of ultra-wide angle lens that distorts reality by bending it spherically, creating a panoramic or hemispherical result. Fisheyes are great at capturing extremely wide shots—panoramic angles, up to 180 degrees—but only at the expense of bending the ends of the image up and down into a circle.

For cameras with a 35mm sensor or film, a typical circular fisheye lens might have a focal length of 8mm to 10mm. Full-frame lenses have slightly longer focal lengths, usually 15mm to 16mm. This makes them super-tight and compact—an easy addition to a set of heavier-duty lenses.

Minimize distortion with this one simple trick

If you're devotedly reading this book in order, you might recall that, in an earlier chapter on horizon lines, I mentioned that you should rarely place your horizon in the center of your image. (Rule of thirds, remember?) Well, when it comes to fisheye, that's the trick: ignore that rule.

When dealing with landscape photos via fisheye lenses, placing your horizon in the middle of your frame is actually the best way to minimize distortion. In some cases, of course, you'll want to emphasize that distortion, but to achieve a simple panoramic-style image with as little forced manipulation as possible, a central horizon line helps to keep the image looking at least a little normal.

If you want to see what I mean, just grab your fisheye lens and look through your camera's viewfinder. Tilt your camera up and down: the farther the horizon line is from the center, the greater the distortion.

Don't fight the fisheye

Of course, you may not want to minimize distortion—after all, you're working with a fisheye lens for a reason. Distorted images can be great eye-catchers, too, especially online, where viewers do a double-take while trying to figure out what exactly the original image once looked like. Our minds tell us that something isn't quite right with the scene, and we spend time trying to figure it out.

The farther the horizon line is from the center of the frame, the more curved the earth becomes.

Horizon placed off-center to maximize fisheye distortion. Fisheye Sunset 2182 by Kain Kalju.

Play around with this. Especially if there's something above or below the horizon that can take up the inside of the circle, curving the frame can be a great creative tool for capturing a wide visual landscape.

Long exposures with fisheyes can also be a great deal of fun—in a city, zooming headlights will turn into blazing highlights running circles around your image. Use this movement to your advantage, but test out a few angles if it's your first time; experimentation is crucial, which includes a few safety shots in case the long exposures don't work out. As with any long exposure photography, patience and a sturdy tripod are essential; you can refer back to any of the chapters that deal with long exposures to get a sense of how this might work.

Dive into fish territory

As I mentioned above, a lot of straightlaced photographers may roll their eyes at the thought of using a fisheye lens. But aspiring photographers depend on new experiences to understand the full spectrum of their craft. I wouldn't recommend a fisheye all the time—but when it comes to the occasional eye-catching landscapes and cityscapes, it's a great tool to have.

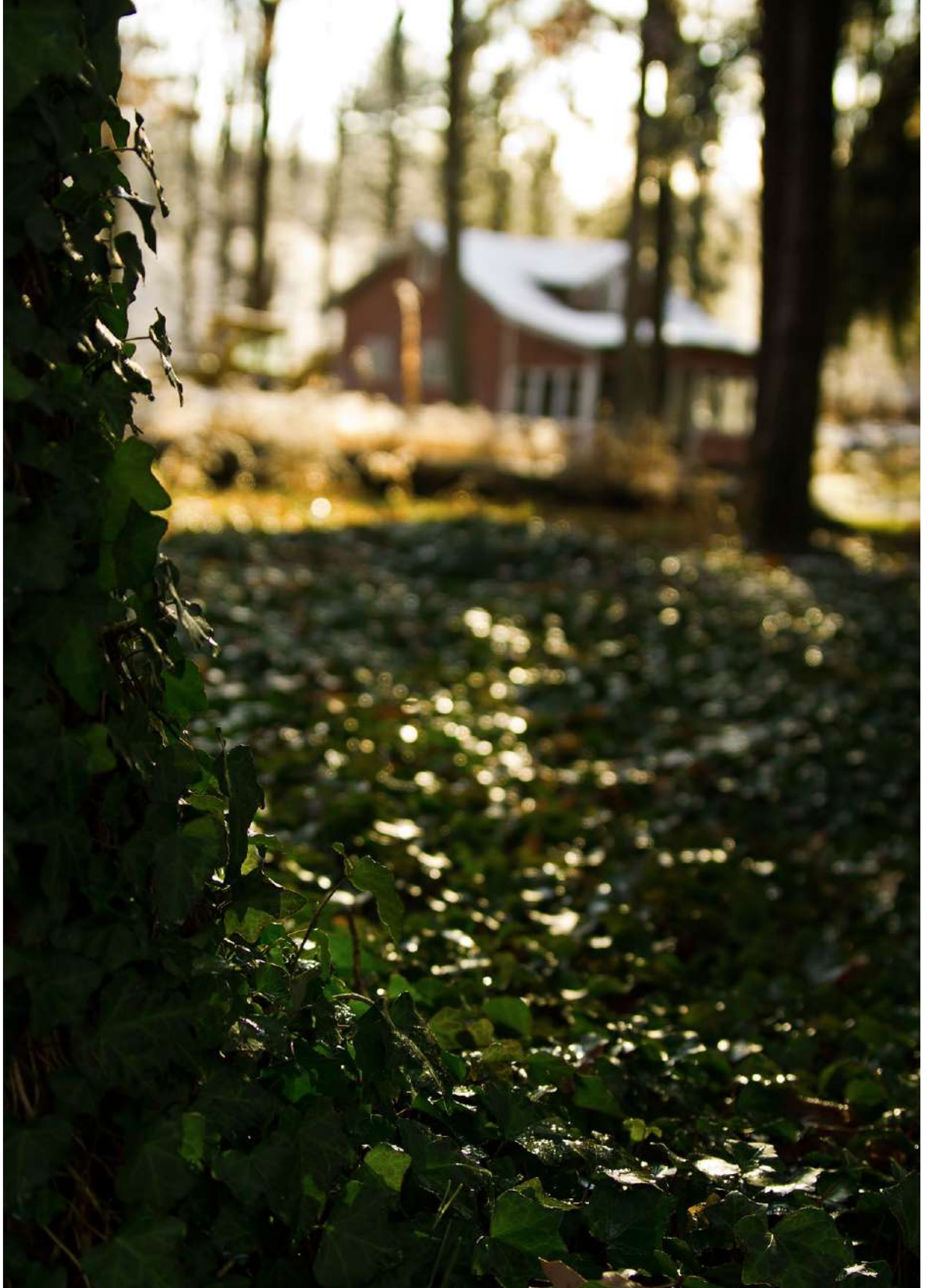
If you're wary of buying one (with good reason—they often cost well over $1,000), try a rental for a weekend. Just testing it out can be a lot of fun, adding a few variations to your portfolio, and it will certainly help open up your mind to a whole new world of possibilities.

Shallow Depths in Landscapes & Cityscapes

For most of this book, any time aperture has come up, I've advised that you go deep. As a rule of thumb, a deep depth of field is crucial to landscape and cityscape photos—it allows you to keep everything tightly in focus, and reduces the odds of any part of the image being blurred or shunned.

For just this brief chapter, let's pretend I never said that.

This is either an unconventional trick or a full-on, full-time preference for some of you. The fact is, shallow shots can still work in landscape or cityscape scenarios. You just need to frame them differently. Some landscape photographers have enjoyed great success by incorporating compositions relying on shallow depths of field. The only technical "trick" is a very wide aperture—a low f-stop—and a keen eye for this style of photography.



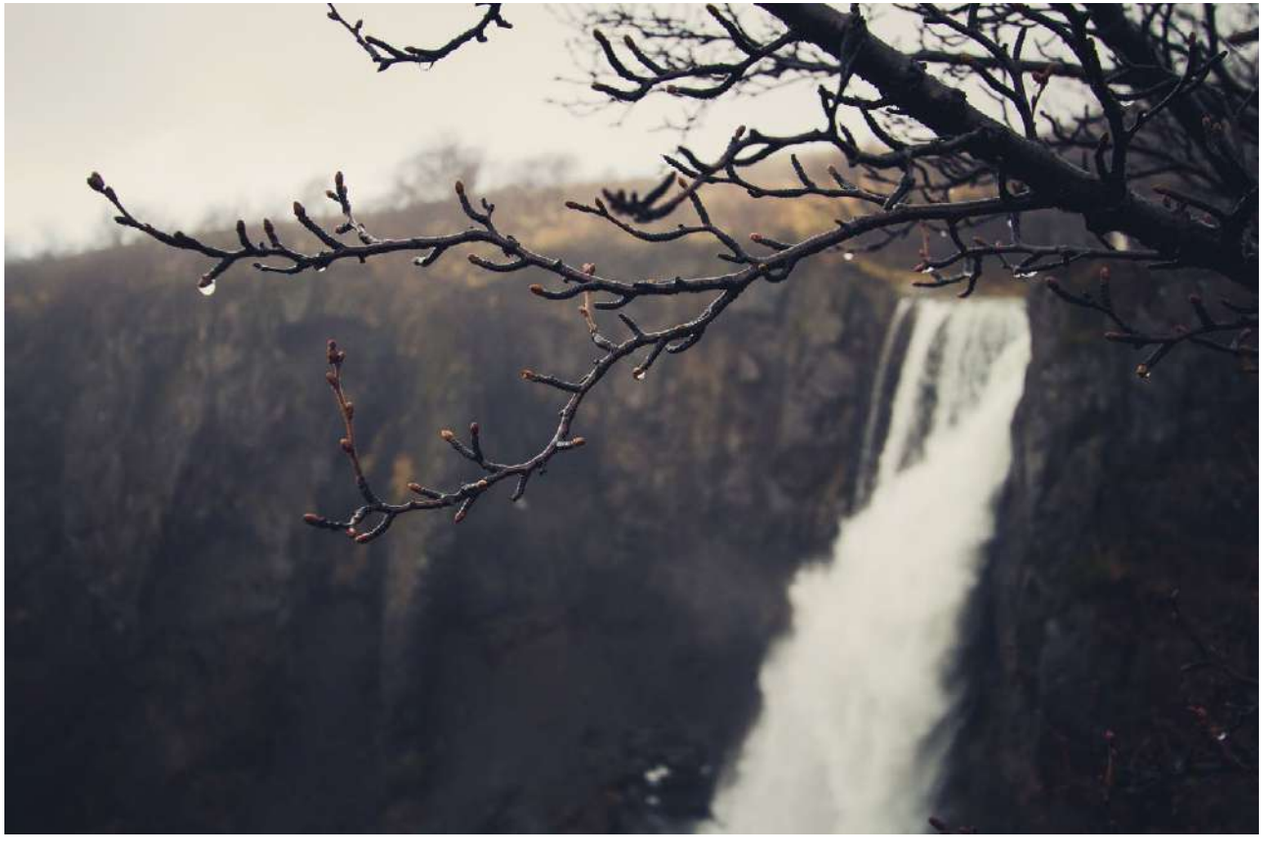
f/2.8, 1/160, ISO 100, 28mm. House-O-Ivy by Ricardo Camacho.

Keep it subtle

These types of shots often work best when you focus on a subtle subject in the foreground, and blur a visually impressive background. You don't want your backdrop mountain to look like a mistake you messed up the f-stop on—you want your image to look deliberate.

Deliberation is the real secret ingredient here. If your shot looks sloppy or accidental, the effect is ruined. You want to create a particular sense of mystery—like you're offering something to the viewer, but not quite giving them what they want. Make them stare at your image for longer, and they could get absorbed by it.

If your background image is clear-cut, then you've got to use your foreground focus for a good reason. Don't arbitrarily focus on a tree in front of a waterfall unless that tree is something truly special. Even if the background is clear, your logic won't necessarily be.



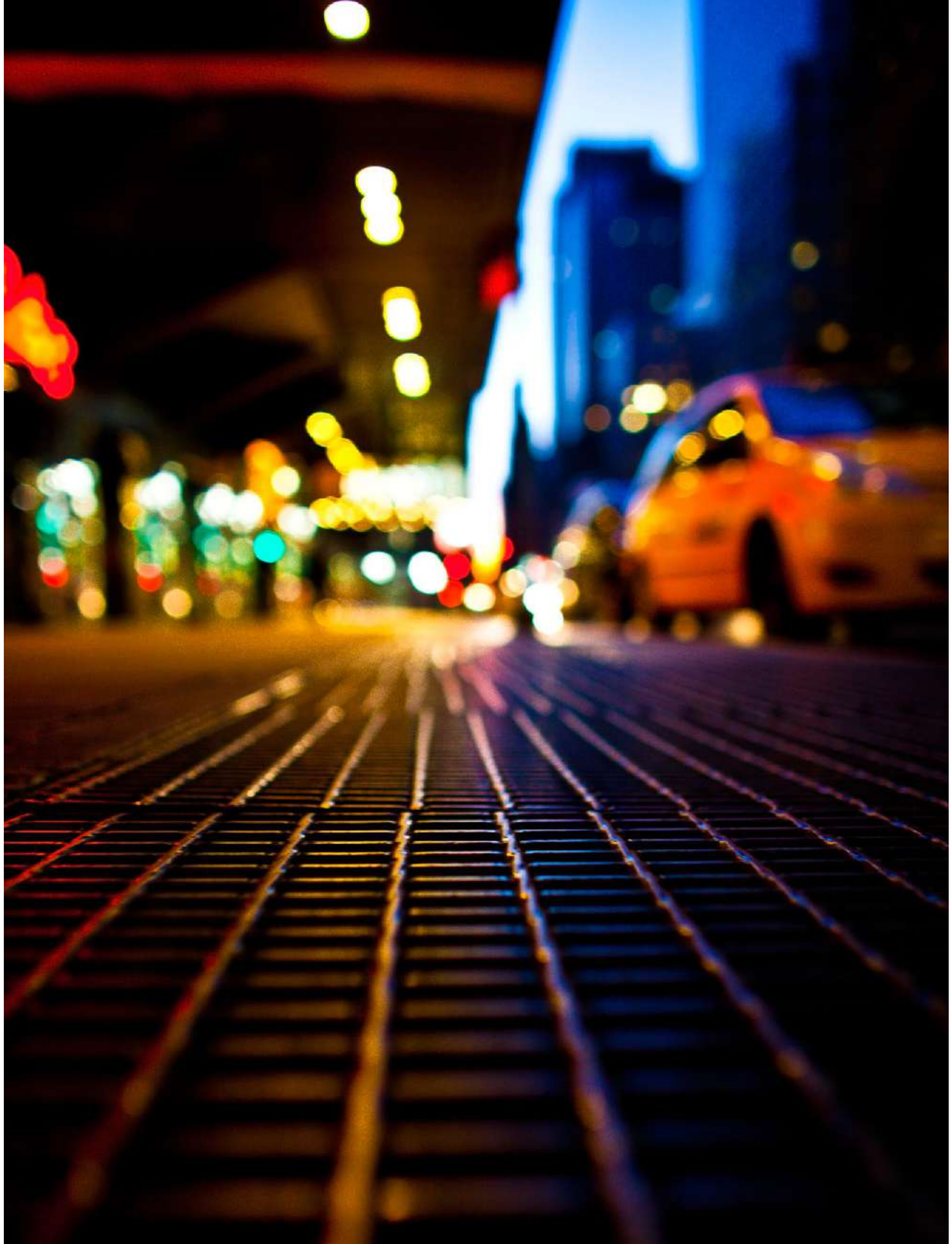
f/4.5, 1/60 sec, ISO 1000, 22m. Hudafoss, Iceland by Claudia Regina.

Keep it surreal

Sometimes these shots offer a touch of surrealism to the shot, which can create an affecting ambience. By keeping the audience on edge, or somewhat out of the loop—blurring an image in the background, or even (if you do it right) the foreground—can lead to deeply artistic imagery.

For cityscape photographers especially, knowing what types of structures produce what types of bokeh is essential to shooting this way. Use that higher-end lens and find a brightly lit building at night to turn lit-up windows into star-like blurs, or transform a background of trees lining a street into a foggy forest behind a parking meter. We'll discuss bokeh more in depth, including its variations and the best ways to capture it, in the next chapter.

As with many of the styles of photography in this section of the book, shallow depth of field images are not in the traditional style. Nor will it likely become your go-to style of shooting. But this entire section is about diversification, and blending multiple tricks and styles is how to get there. Knowing how to optimize certain situations is the hallmark of a great photographer.



Bokeh in Landscapes & Cityscapes

We're now going to enter a realm often dominated by portrait and macro photography: beautiful, blurry bokeh. But it is also a powerful tool for the shining lights of cityscapes.

As a quick recap, bokeh is the composition of polygonal shapes out of specks of light in the background. Some bokeh is soft and round; others are hard and hexagonal. The quality of a high-end prime lens is often defined by the quality of its bokeh. By creating an ambiguous background, incorporating patterns and textures into your imagery, you're opening up your viewer's mind to limitless possibilities. Audiences tend to appreciate the technique, too, because of how great it is to see something new, a piece of their city ablaze in bokeh.

f/1.8, 1/40 sec, ISO 800, 24mm. 42nd Street by Owen Byrne.

Measuring bokeh

Before we delve into the art behind bokeh, let's talk about the math behind it. As a basic measurement: distance + light = bokeh.

We'll start with **distance**. As we know, the closer your camera is to the subject, the shallower the depth of field will be behind the subject. So if you're shooting a street sign in front of a flashy billboard, the distance between you and the street sign will affect how the backlight appears. Taking a few steps forward or backward will affect the style of bokeh.

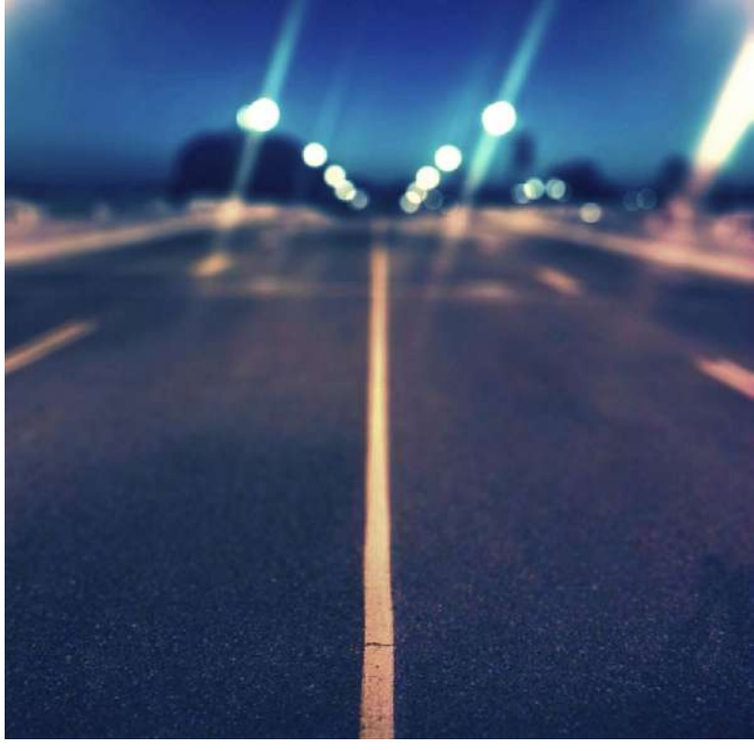
The next factor is **light**. Background light can be any variety of things: sunlight breaking through tree branches, passing cars' headlights, high rise reflections in rivers. The light source doesn't need to be direct in order to create bokeh; it can come from virtually anywhere.

Bokeh through the lens

Lens quality is a major factor in bokeh. To best achieve this effect, you'll need a high-quality lens capable of very low f-stops—f/1.4 or lower. Some lenses that specialize in wide aperture ranges even allow you to adjust your bokeh style: extremely wide apertures produce softer bokeh, and narrow apertures define the bokeh a bit firmer.

But it bears mentioning that expensive lenses capable of high f-stops aren't essential here. Great results can be achieved with more common lenses, depending on how you set up your shot, and how far you distance your subject from both yourself and the background.

You can see how street lights turn to bokeh when blurred, Navigli by Alessia Damone.



Small details by Asparukh Akanayev.

Artistic possibilities

Bokeh depends on much more than this, of course. Shapes, colors and textures affect it just as much. Cityscape bokeh is a great example—the combination of yellows, blues and reds that invariably appear at night make the perfect backdrop for a romanticized view of city streets. Matching gentle bokeh in the background with a richly textured foreground is an excellent combination of soft and rough; getting creative with low angles (think sewer grates or cracked sidewalks) can open up possibilities also.

The next chapter will deal with another aspect of creative bokeh: controlling the shapes artificially, with a surprising arts-and-crafts project.

Shaped Bokeh

Want to see a real trick? Unlike some of the in-camera distortions we've dealt with so far—forced perspective, star trails, long exposures—this next one takes a fair bit of time and preparation to pull off. The upside? You also wind up with a totally original, unreplicable shot. It would be far more trouble than it's worth to work this one out in Photoshop.

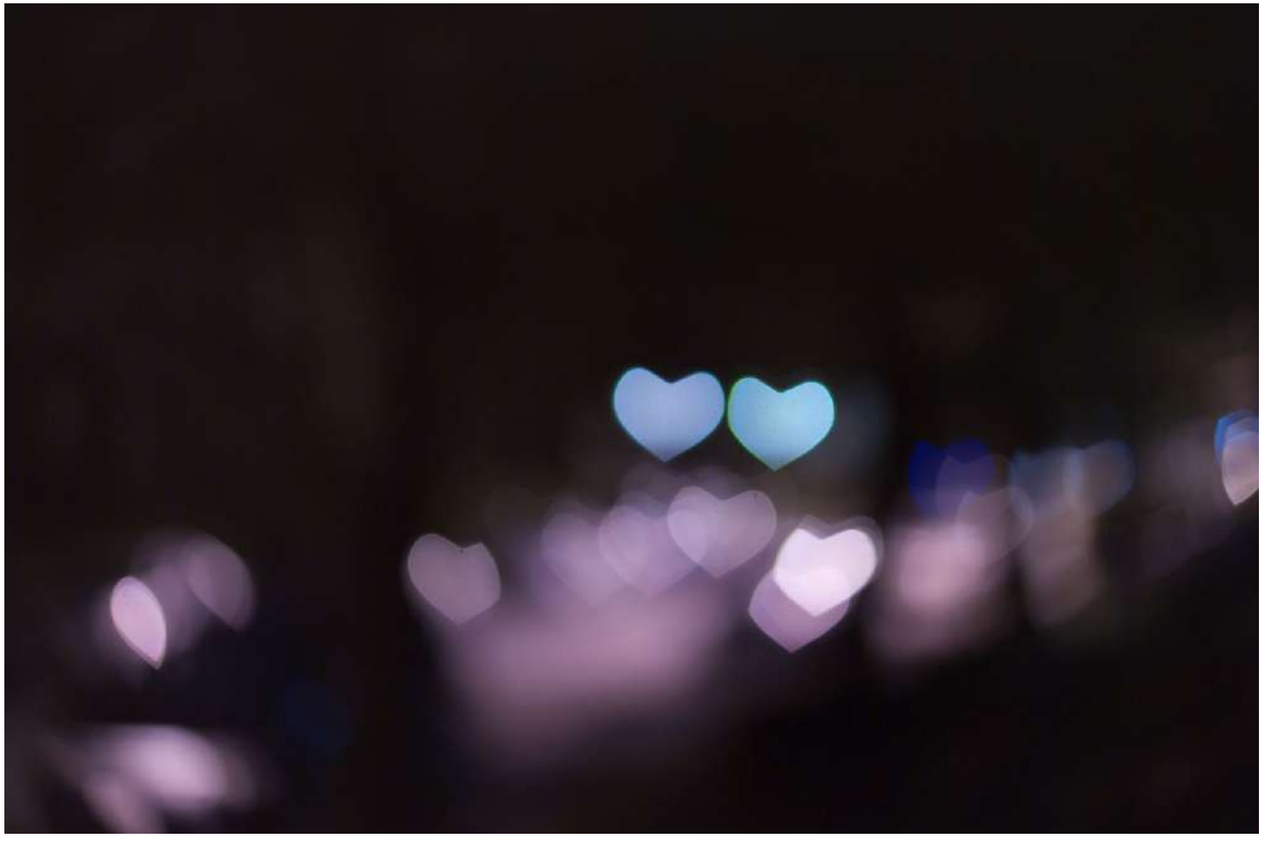
Changing the shape of your bokeh—transforming those faint background blurs into stars and hearts, for example—involves good old-fashioned cutting and pasting. In fact, it's possibly the only photographic technique that calls for scissors and tape. But before we get too far into the specifics, let's go over the bokeh basics.

Why is bokeh round?

Bokeh is basically round because apertures are round—the physical sliding mechanisms that control the size of your lens opening open it up into a rough-edged circle. Depending on both the distances between your camera and the subject, and your subject from its background, "natural" bokeh might look like anything from a blurry circle to a slightly more jagged blurry circle. But never anything else.

That is, unless you want to make it something else.

You can create shaped bokeh by adding a thick piece of paper to the front of your lens and cutting a shape in the center of it, then taping it to the lens itself. It's a bit crude to look at, but it works wonders. Cut a heart, and your bokeh will be shaped like hearts; cut a star, and you'll be seeing stars.



f/1.4, 0.5 seconds, 50mm, ISO 200, Heart shaped bokeh 1 by Iouri Goussev.

How to shape your bokeh

First, you've got to **decide on a shape**. It's easy to start simple, but feel free to get creative if you like—check out Clipart, wingdings or emoticons for inspiration.

Next, **print the shape out** on a piece of paper. It may take a few tries to get the size right. When you cut it out, it's got to be exactly in the center of your lens. Because lenses are perfectly centered, your cutout will have to be also.

When you've got a good printout, it's time to **cut the image out**. You'll want to make sure the cut is precise, because you want as little extra light coming through as possible. Stick to the dotted lines.

Next up, **tape the paper to the front of your lens**, or attach it to a lens filter that you can snap on. Spare UV filters are perfect for this—the kind some photographers use simply for protecting their lens, rather than affecting the light. Place the filter over the image and trace a line on the paper, then cut the circle out and attach it to the filter front.

(Some bokeh shapers prefer to create a full-on paper cylinder that can fit over the front of your lens, which is worthwhile if you think you're going to return to this trick more than once. You can swap out your cutout front and reuse the cylinder as many times as you need—after you cut out your circle, you simply cut another rectangle and tape it around the outside of your circle, thus creating a cylinder to fit over your lens.)

f/1.4, 1/10, ISO 200, 50mm, Self portrait through custom shaped bokeh widget by Iouri Goussev.

Lastly, all you need to do is **find a good lighting situation**. (Be sure to use a **wide aperture** to get the strongest bokeh effect.) We discussed what kind of lighting situations to look for in the last section—headlights and streetlamps are great opportunities in cityscapes. While hearts and smiles are nice, you can try creating thoughtful visual links in your work, like transforming the brightly lit windows of high rises at night into actual stars.

Want to see it in action? Here are three great videos to take you through the process, step-by-step:

How to Make a Bokeh Lens

Make Your Own Bokeh Frequent Use Kit

Shaped Bokeh Demonstration

Double Exposures

Golden Gate Bridge Double Exposure by *Kat*.

Remember film cameras? Every time you took a shot, you'd have to advance the film strip to the next frame, until you ran out at around 24. If you didn't advance the frame, you'd be opening up the shutter to capture two images on a single frame of film, doubly exposing it. The overlap could look cool if composed correctly, or it could look totally wonky and wrong.

That's the essence of double exposure, a technique that has, since the exit of film cameras, taken on a second life in digital photography. Obviously, digital cameras don't work the same way—but Photoshop can make up for that, and some higher-end digital cameras themselves offer a "multiple exposure" function.

So regardless of whether you're using Photoshop or doing it in-camera, we're going to explain the process here.

With a digital camera

First, you've got to find the multiple exposure feature. It's not very common, so you might have to dig deep for it—spend some time skimming through your camera's options menu.

From there, you'll find a few sub-menus you can choose from. I'll use the Canon 5D as an example—if you have any other model or brand, the specific wording might be different, but the gist of these should remain the same. I'd recommend this route:

1. Choose the Function / Control setting
2. Under Multiple Exposure Control, choose Additive
3. Stick with two exposures (multiple exposures are fun, but start with double to get a feel for it)
4. When choosing a location for source images, choose All Images
5. Choose Continuously under Continue Multiple Exposures

Also, there's an optional option for selecting a previously taken photo as your base image. If you don't, you can take two new ones to merge together.

Tongwell Lake by *Brian Tomlinson*.

Using Photoshop

If your camera doesn't have the multiple exposure function built in, there's always Photoshop. Photography puritans will decry this method as "less authentic" since it's not technically a double exposure, and that's fine—let them doubly expose their film slides in darkrooms and claim the authenticity title. They are, technically speaking, not wrong, since anyone using Photoshop isn't actually exposing film twice (or thrice, etc.). But there's never a need to be that pedantic. If the image works, it works—and Photoshop can still make it work.

Also, it's wicked easy. Here's how to do it:

1. Open two photos as layers in Photoshop
2. Decide which one you want to be the base layer, and overlap it with the second image
3. Set the top layer's opacity to 50 percent—and you're theoretically done!
4. If that doesn't produce the blending effect you want, reverse the opacity to 100 percent and go to Layer Options, find Blending and choose something like Screen Blend
5. Toy around with the settings if you find a style that fits your image better

Sounds easy, right? I suspect that's the reason such hardcore darkroom enthusiasts scoff at the thought—perhaps they're jealous that modern photographers can achieve the same effect easier now than ever before. Of course, the Photoshopped version will look a bit different; film does offer a certain sort of magical quality that certain digital reproductions can't match… yet. But for experimenting with a new trick, post-processing works fine.

Tips on double-exposure photography

Sure, double exposures can work with really anything—but the worst of them feel random. As with forced perspective, light painting and even basic photographic composition, you've got to make sure your images are shot deliberately. When deciding what you want your shots to be, think ahead. Some images work better overlaid than others. Don't just overlap a mountain onto a skyscraper and call it symbolic. Think about how the images will blend, and what that blend will say.

Some of the most stunning double exposures come from primary shots silhouetting a subject against a nearly all-white background. The secondary shot isn't as critical to pose this way—it's the fact that the initial one is made from stark black and white, and is easy to overlap with another image, since the white will allow the second image to take over. If one is minimalistic and the other complex, it often works better than overlapping two frantic shots into something unrecognizable.

Iceland Double Exposure by *Richard P J Lambert*.

That said, the two shots can be whatever you want them to be. Double exposures are all trial and error. Most photographers find a style they thrive in through experimentation—some will tend towards overlapping nature with technology, or humans against a blank-slate background, like the sky or sea.

Want to see how to create double (or multiple) exposures in action? Then check out these videos:

In-Camera Digital Double Exposure Tutorial

How to Make a Double Exposure in Photoshop

Slow Shutter Zoom

Photography is stillness—this is obvious. But sometimes, at its most daring, photography doesn't capture a moment so much as a movement. Blurred bodies walking through a long exposure are one thing; headlights zooming through a city night are another. But what about a landscape moving on its own?

This technique is called a slow shutter zoom, or "racking the lens." It's the result of shifting your lens's focal length during a long exposure—taking the viewer on a ride through the process of a long shot. The results can be unbelievable, and are totally achievable without the use of any post-processing.

We are setting a long exposure about 8 seconds in this. Keeping the standard zoom lens at Tele mode and then just after clicking the shutter button, we turn the lens to wide mode. Keeping in mind that exposure at wide mode is more than the tele. This gives the explode effect to the image. f/13, 8 seconds, ISO 100. Click n Zoom by Yogesh Mhatre.

Zooming in on the technique

The most important rule is to keep your tripod sturdy. Use one that can be weighted down from the center. Of course, as with any long exposure shots, stillness is imperative; the difference here is that you'll be handling and moving the camera lens. It's not like a long exposure shot with a self-timed or remote shutter release; this is you pushing and holding the hardware. Make sure it doesn't move.

Next, set up your camera for a long exposure in a low-light situation. Compose and focus your shot like a normal long-exposure shot. (We've gone over this in past chapters—feel free to revisit those for tips on long-exposure photography.)

Once you press your shutter release, slowly zoom in or out during the length of the shutter's opening. Sounds easy—if it's a three-second exposure, you've got three seconds to zoom in or out. This will take lots of trials and even more errors: it's best if you can time out your exposure to match the time it takes to completely zoom your lens in or out, taking into account the fact that you might want to stop and pause for effect at some point.

Tips on racking

Try to make the zoom itself as smooth as possible, otherwise you'll find "bumps" in your final image where the light is stronger on the parts you lingered on. On the other hand, sometimes lingering can create a worthwhile effect, especially if you want to emphasize the reality of a photograph: for example, if you set your camera to an eight-second exposure, you could leave your camera alone for the first four seconds (a self-timer would be a good supplement here), and then zoom through the last four seconds. You can experiment with the parts of the zoom to emphasize different elements.

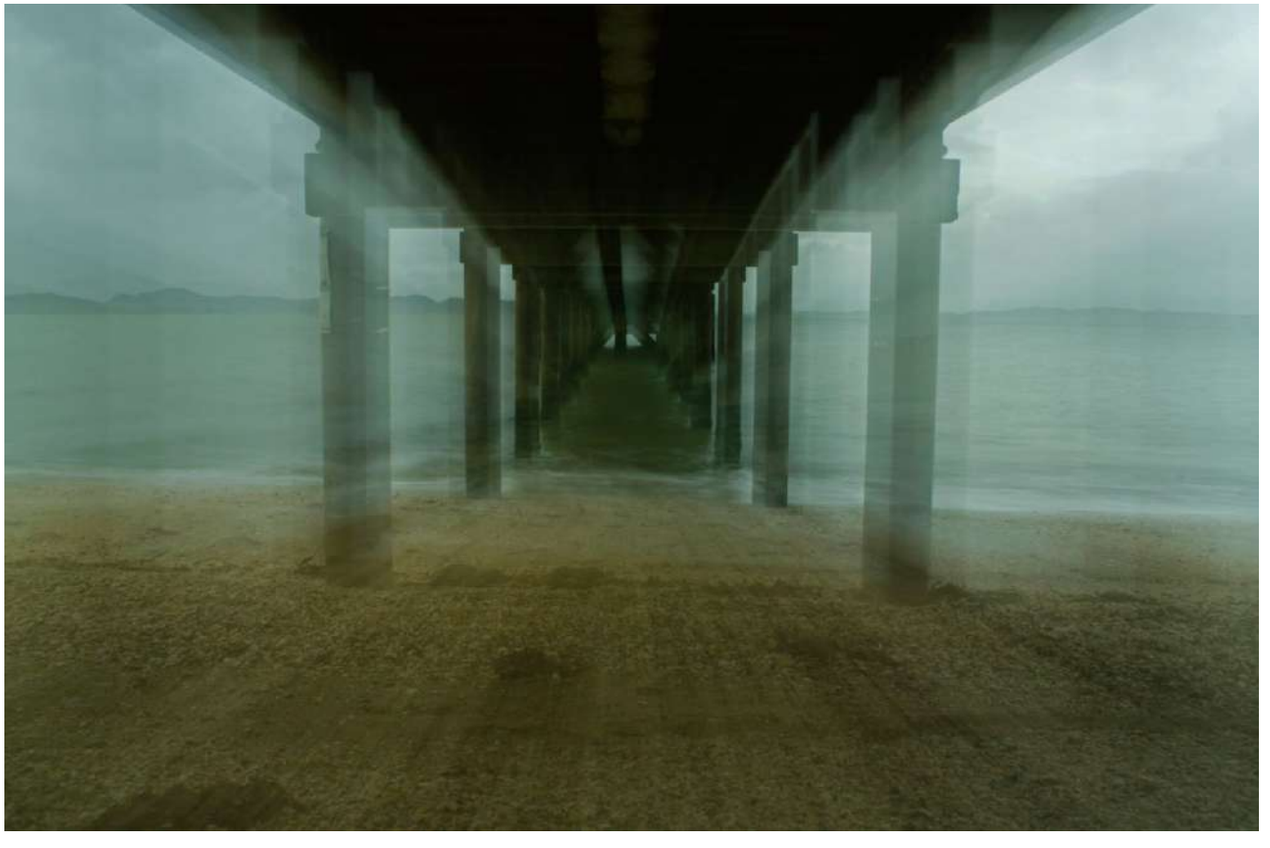
Also this technique works best in dim lighting scenarios that allow small rays of light shining into the scene—think of lights from a distant skyline or sunlight beaming through clouds. They'll streak outwards from the center of your image to all four corners, creating a very cool, even futuristic "hyperdrive" effect.

Keep in mind that whatever is centered in your frame will be the least affected by distortion. The center of your image will always be the sharpest, and all the blurred light streaks will lead your viewers eyes to the center like leading lines—unless you choose to crop them out. Compose the image properly and remember what you're focusing on, and how you're using the technique to deliberately guide your audience towards something interesting.

No zoom? No worries

If you want to try the effect but don't have a zoom lens (maybe you're shooting with a prime, for example), you can achieve the same effect by physically moving your camera forward and backward. The trick here is to avoid also moving your camera left and right—the whole thing will just end up looking blurry. Using a moving platform or vehicle (like the front window of a train), the car will propel the camera forward and can produce a similar effect.

If you're not in a train, you can still get inventive. Dollies and skateboards, if the surface is smooth enough, can achieve a similar result—and possibly some very cool perspectives. As always, experimentation is key.



f/20, 4 seconds, ISO 200, Zoom effect by Photos by Angela.

Infrared Photography

Solitude by *greg westfall*.

The first time I saw an infrared landscape, I was blown away. It's a marvellous sight—dramatic clouds, surreal colors, unnaturally even lighting. These images seem both dreamlike and hyper-realistic, a fantasy version of our own world. A bizarro world. And only dedicated photographers have access to it.

Infrared photography gives artists the chance to show their audiences a view of the world that's literally impossible to see otherwise—infrared light is outside the spectrum of light our eyes can detect. It's entirely up to the film or image sensor to capture it, which is a very empowering thought for the technologically minded. In this infrared light, cameras help us better understand the world we live in.

A brief history of infrared photography

Infrared light is as old as light itself, but humans' interaction with it only dates back around 200 years. It began with a German-born British astronomer, Sir Frederick William Herschel, who in 1800 noticed that certain colored glasses passed more heat from the sun than others. He tested his theory out by measuring their exact temperatures and noticed that, as the thermometer moved from the violet spectrum to red on the opposite end, the temperature increased. When he shifted the thermometer beyond the red glass, the heat continued to rise. Despite the area being invisible to the human eye, that section of light became what we today know as infrared light.

Infrared photography wouldn't come about until 1910, when the Royal Photographic Society published a journal edition featuring infrared photos by American physicist Robert Williams Wood. Wood used experimental film and very long exposures, and sensitized his own photo plates. It wouldn't be until 1930 that Kodak would produce actual infrared film, and not until the 1960s that infrared photography as a style even took off, after musicians like Frank Zappa and Jimi Hendrix used the effect on their album covers.

Since the rise of digital photography, though, infrared has been on the decline. In 2007, Kodak discontinued its production of the film, and rolls today cost between $10 and $20 each—a telling fact about a niche photographic style in contemporary times.

Three modern methods for infrared images

There are three ways of capturing infrared photos: With a film camera, buy a roll of infrared (IR) film; with any SLR, buy an IR lens filter; or convert your DSLR for infrared use. Here, we'll go through all three.

Method 1: Infrared Film

While most of this book has focused on digital techniques, hardcore infrared enthusiasts will know that buying a 35mm IR roll of film is the way to go. Most camera stores sell them for around $10 or $20, and even if they don't carry them in stock, stores are often able to order them if you specially request it.

Developing the film, however, is another story. Not all photo labs can process IR film, although most can send the rolls out to a lab that can. Depending on the location of the lab and the priority of your prints, this could take up to a week or two to get back.

Method 2: IR Filters

Regardless of whether you shoot analog or digital, a lens filter can replicate the IR look perfectly. The filter you'll want to buy is called a Circular IR filter. Like any regular UV or polarizing lens, an IR filter can twist on and off of the front of your lens easily.

An IR filter actually blocks visible light from passing through the lens, allowing only IR light to reach the camera's sensor. The one side effect is that you'll need to use extremely long exposure times, to compensate for the darkness caused by shutting out all that visible light. Most digital cameras have an internal filter to remove most infrared light, so between that filter blocking IR and the attached lens blocking regular light, you're basically shooting darkness. Time to bust out that tripod again.

The Popular Hoya R72 Lens Filter for Infrared

Don't be surprised when you open up your IR filter for the first time and it looks almost black. Even after you swivel it on, the view of your image from the viewfinder or screen will be black. This would make composition tricky—except that most SLR lenses come equipped to work around this problem. Look through the viewfinder for a little red mark—maybe a line, diamond or dot—that's beside the regular white focus mark. The red symbol is meant to help photographers check their focus and composition specifically in IR situations.

As for composition, you've got to remove the IR filter. Just twist it off to compose and focus your image as normal, then switch to manual focus and re-attach the IR filter. Here's the tricky part: you'll have to focus the lens partway between the current visible focus and the infrared mark. (Reasoning: in many lenses, infrared light has a different focal point than visible light.) For any lenses that don't include infrared focus marks, you're out of luck; focus becomes more of a guessing game. You can fire off a photo then check the result closely on the LCD; if you detect any unwanted blur, adjust the focus ring slightly and try again until you have a sharp result.

But the upside to all this trial and error? Cost. For roughly $50, an IR filter is not a bad deal; even if you're shooting film, the cost of an IR filter is cheaper than three or four rolls of IR film. It's a solid, flexible and common investment. Some of the most popular filters come from Hoya, a Japanese filter manufacturer; their R72 and RM90 filters are among the most popular and highly rated in the field.

Method 3: Converting a DSLR

The last method is simultaneously the most flexible, expensive, complicated and ultimately convenient way to shoot IR: convert your DSLR to shoot exclusively that style. This takes time and money, but often yields the best results.

To convert your DSLR, you'll need to remove the internal filter I mentioned earlier—the one built into your camera that blocks infrared light. This filter can be substituted for one that only allows in IR light. It doesn't change the functionality of your camera at all—except that all of your shots will be infrared, and it's possible that your camera will never go back to normal. (Certainly not easily, or cheaply, or within a manufacturer's warranty.) You've been warned.

If you've got a spare or old DSLR that fits the bill, there are several companies that can do it for you. For guaranteed results, it's best to choose one with a solid reputation, like **Lifepixel**—the whole process should cost between $200 and $500, depending on your camera body.

Of course, you can bypass paying those several hundred bucks by taking the DIY route, but you'll still have to buy a kit that shows you how. If you're familiar with electrical handiwork this shouldn't be too hard; if you're a novice, it's not recommended.

Finding an IRresistible lens

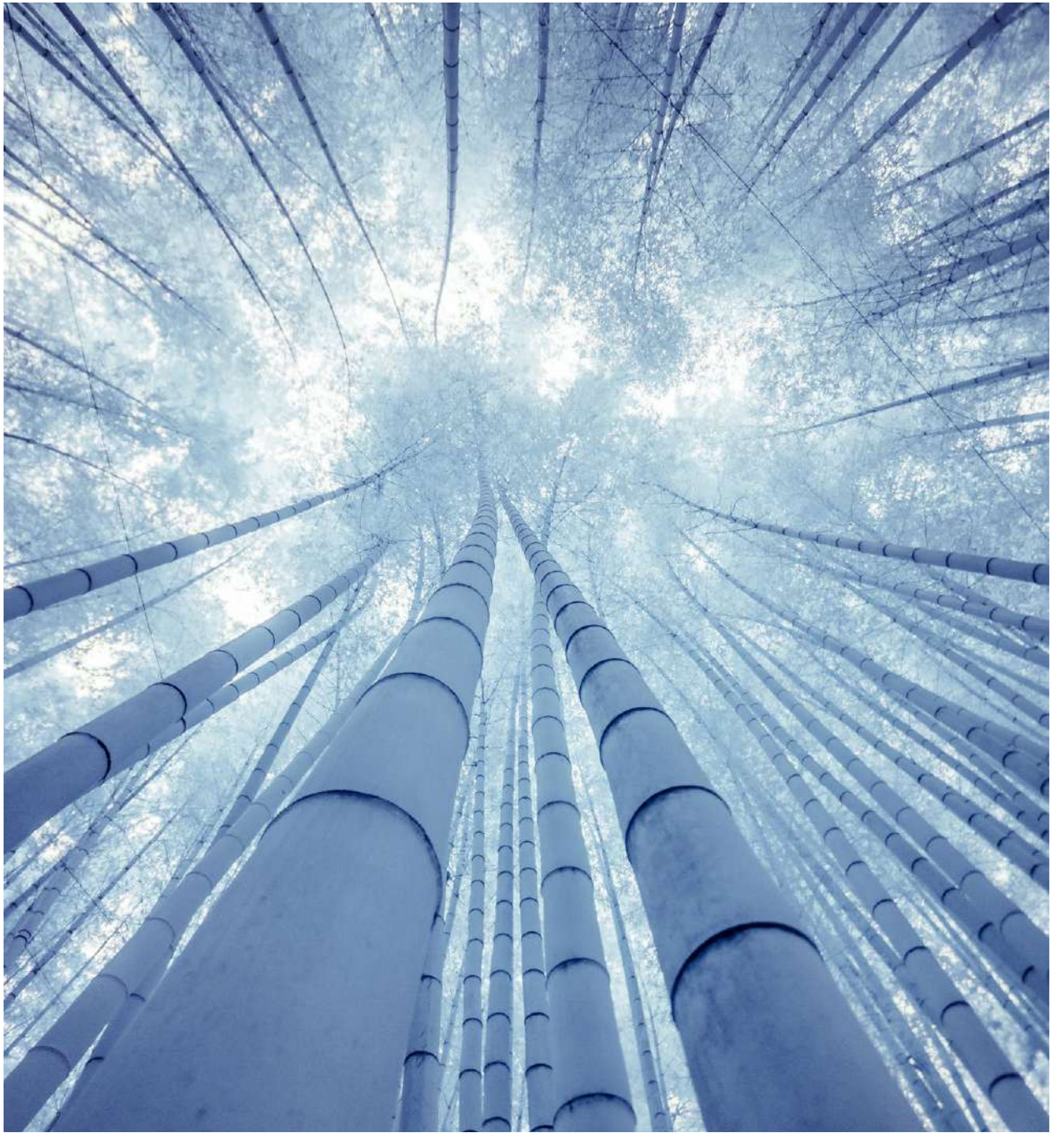
Good news for budget photographers: expensive gear doesn't always translate to better shots in this field. Lenses are hit or miss when it comes to IR. There are a few common issues that creep up:

1. Depending on the internal coating of your lens, the IR light might cause some suddenly visible reflections, called hotspots. They'll typically appear in the center of your image, and are the result of certain coatings not being transparent to infrared wavelengths.

2. Some lenses, shooting in infrared light, are more susceptible to **flaring** than others. Watch for this effect when shooting, and use basic maintenance to avoid it as much as possible: keep the lens and filter clean, and use a lens hood whenever possible.

3. You should start paying much closer attention to **white balance**. Infrared light is primarily collected in the sensor's red channel, which will make your images appear more red than normal. An easy way around this: set a custom white balance. All cameras differ slightly in this arena, so try setting the custom white balance on a variety of objects (such as green grass or a gray or white card) to familiarize yourself with how your camera will behave.

Of course, your best bet is to avoid lenses that others have reported as being problematic for infrared in the first place. **Here is a list of them**, care of Lifepixel. The list isn't too large—most lenses don't have a problem with IR, or, if they do, they suffer a minute enough version of the problem that nobody would really notice.

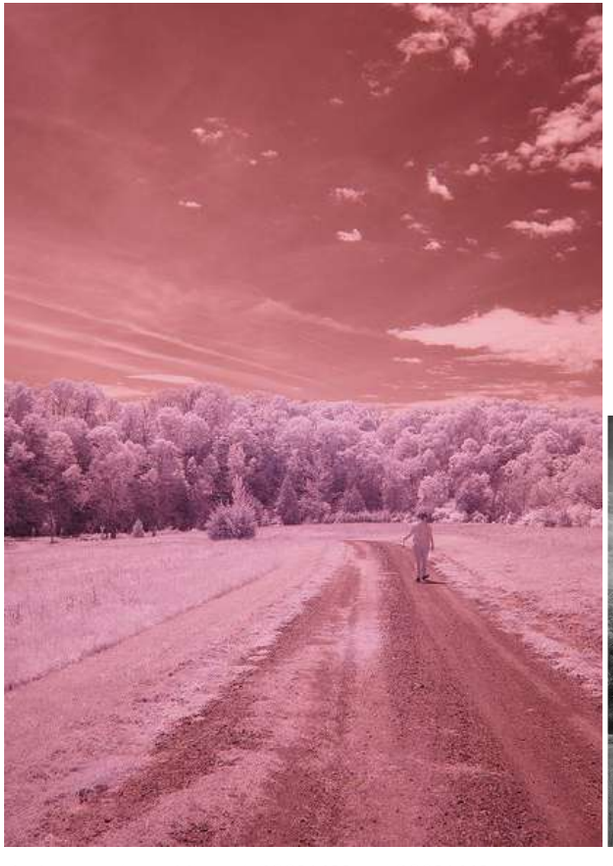


Post-processing infrared images

Can't get the red out of your image? It's a common problem. Some photographers embrace it; others would rather not all their landscapes look like images drafted from hell.

That's where Adobe comes in.

First, I need to stress how important it is to be shooting these in RAW. You can get the most out of editing your infrared photos with a large file size.



Post-processing out the red, DSC01438 and DSC01440 by Mike Lewinski.

The key adjustments in Lightroom are the Temperature slider and the Tint slider. Wiggle them back and forth to avoid changing the depth of your blacks and whites or the levels of contrast or brightness. You should be able to eyeball at what point you achieve a tone that fits your image.

If you're working with Photoshop, use the **DNG profile editor**, or else stick with Levels, the Hue and Saturation sliders, and the Channel Mixer. You won't need to go overboard by using all of them, but they'll change the image in different ways, and experimentation is the only way to get the right color.

Step outside with these external links

If you want a step-by-step tutorial for processing infrared in Lightroom & Photoshop, I can't offer anything better than these comprehensive guides:

- **Basic Infrared Editing in Photoshop**
- **Infrared Editing Using Both Lightroom & Photoshop**
- **Advanced Infrared Processing in Photoshop**

And if you're looking for some more reading, I recommend these pages and websites, which are basically hubs for IR enthusiasts:

- **Lifepixel Info & Consulting for Camera Conversions to Infrared**
- **List of Good and Bad Lenses for Infrared**
- **Lenses to Avoid for Infrared Photography**
- **List of Good and Bad Cameras for Infrared**
- **DIY Tutorials for Converting Cameras to Infrared Listed by Make & Model**

Tilt-Shift

Real tilt-shift with the Leica M Monochrom and a Canon 17mm tilt-shift lens. Lines, Light, Shadows, and Reflections by Andreas Overland.

Ever see a photo that makes reality look like a toy? Mountains become Play Doh; buildings smallen and condense. The perspective of the entire world is distorted into something so miniature that it's simply unreal. That's tilt-shift photography: using camera movements to selectively focus on a landscape or cityscape, creating a seemingly miniature scenario.

True tilt-shift photography requires the use of special lenses that are able to both—wait for it—yes, tilt *and* shift. (It's shocking how original the people who invent these lens names are.) Canon currently has four tilt-shift lenses on the market, while Nikon offers three, and a host of third-name brands fill in the gaps.

Tilt-shift photography is another one of those niche genres that catch viewers' attention for surreal, gripping imagery. (Remember forced perspective, spherical panoramas and light painting? It's like that.) But it's especially common in landscape and architectural photography to control the perspective of the entire scene and capture a wider shot than normal lenses are capable of.

nex Tilt-Shift system by Andrew Xu.

Photoshop tilt-shift effect. f/5, 1/320 sec, ISO 400, 17mm. Real models by Kenny Louie.

Tilt, shift, repeat

How does tilt-shift photography work? With the right lens, it's fairly easy. First, the **shift**: the shifting lens movements allow the photographer to control where the lens's imaging circle sits in relation to the camera's sensor. The key phrase there is "in relation to"—that alterable relationship means that the center of the *lens's* perspective doesn't correlate to the center of the *image's* perspective.

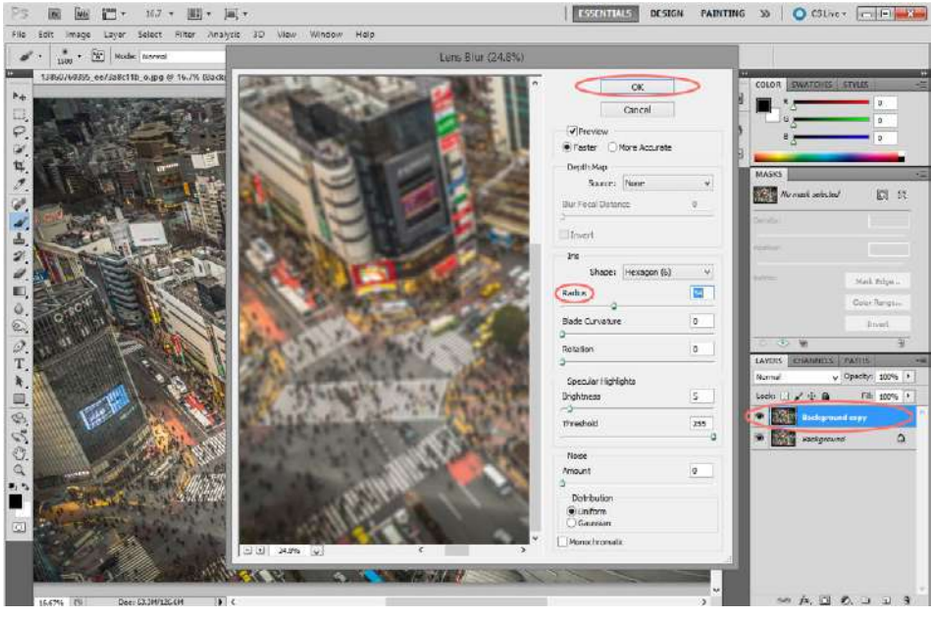
Now let's talk about **tilt**. Recall how every photo has a plane of primary focus—use a prime lens shooting along a flat surface and you'll see it easily. Well, tilt movements allow the photographer to tilt that in-focus plane so that it's not necessarily perpendicular to the axis of the lens. This forces the depth of field to be wedge-shaped, while its width increases with distance from the camera. That means the tilt effect doesn't necessarily increase the depth of field, but it lets the photographer choose the focal point of the depth of field to better suit the subject matter.

If you can't make it, fake it

Can't afford a tilt-shift lens, or just plain don't want to buy one? Photoshop has made it possible to fake tilt-shift photography with decent accuracy—in fact, the fake has become arguably more popular than the authentic product. (I'll concede here that it's impossible for Photoshop to re-create tilt-shift photography completely, but the effect is still pretty close.)

Here's how to do it:

1. Open your photo in Photoshop. Choose an image that lends itself well to looking like a miniature model—something from a bird's eye view, with a lot of variously sized objects like people, cars and buildings. For example, I'll be using this aerial shot of Shibuya Crossing in Tokyo for this tutorial—feel free to download it and follow along if you like.
2. Create a duplicate layer of the background by selecting Layer > Duplicate Layer.
3. On the top layer, apply a Lens Blur filter by going to Filter > Blur > Lens Blur. Use a radius of anywhere from 20–40. For mine, I'm using 34. Then click OK and watch the image blur.



4. Stay on the top layer and add a Layer Mask.
5. Select the Gradient tool from the toolbar, and change the gradient style to "Reflected Gradient".
6. Select the layer mask. Click and drag the gradient tool across the area you want to be in focus. For this example, I'm applying the gradient over the intersection where the people are. It may take a few attempts to get the gradient to focus the way you want—dragging the gradient doesn't come as naturally as using other tools in Photoshop—but you should get it eventually.

7. That's it—now just save the image and show the world your work!

A quick note: while this method is the most common way to replicate a tilt-shift effect, feel free to experiment with other blurring tools in Photoshop. I sometimes like to apply different brushes on top of the gradient to fine tune the blur, which can be a subtle but rewarding cherry on top of this miniature cake.

Multiplicity

Sometimes you need a subject in your shot, so you stand your camera on a tripod, set its self-timer, and jump in yourself. Sometimes you need multiple subjects, though—what then? Simple: stand your camera on a tripod, set its self-timer, and jump in yourself—again and again.

Multiplicity is an unusual trick because, unlike more subtle effects, it's blatantly obvious what's going on: using software like Photoshop, you're manipulating reality to insert someone or something into a shot multiple times.

This works well when displaying a series of movements: think of a monk walking from a temple in a mountainous landscape, when you'd take multiple shots to capture each stage of his progress. You can literally see him every step of the way. It's also a fun way to portray solo travel—if you've just climbed a difficult mountain, you might strike a few poses to convey all the different emotions you went through while climbing up. At its best, this is a trick that gets really creative and fun.

Laying multiplication on the table

This technique, like most others we've covered, requires a tripod and absolute stillness during the shoot. I recommend Aperture Priority mode with a high f-stop, typical of landscape and cityscape photos, to make sure that the depth of field is deep and as much of the scene is in focus as possible. The same goes for metering: consistency is key, otherwise some shots might appear dimmer or brighter than others, which will throw the whole thing off balance. Manual focus, too, is a good idea, so your camera doesn't automatically re-focus with each shutter.

Once your settings are in order, start snapping away—either with your subject or a self-timer turned on yourself. Take as many as you like using as many poses as you like. The only requirement here is that the tripod doesn't move and the lighting should stay the same for every shot in a series.

Putting it all together

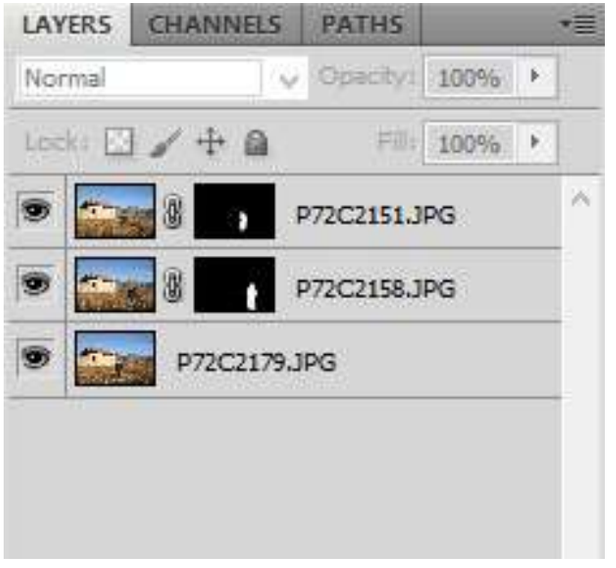
Once you've got all your shots, open them up as layers in Photoshop. (As we went through in the section on post processing, this is pretty easy to do with either Lightroom or Bridge; you can also use a script in Photoshop to load them as layers by selecting Scripts under the File tab, then choosing Load Files Into Stack.)

Once all your layers are visible and, well, layered, follow these step-by-step instructions:

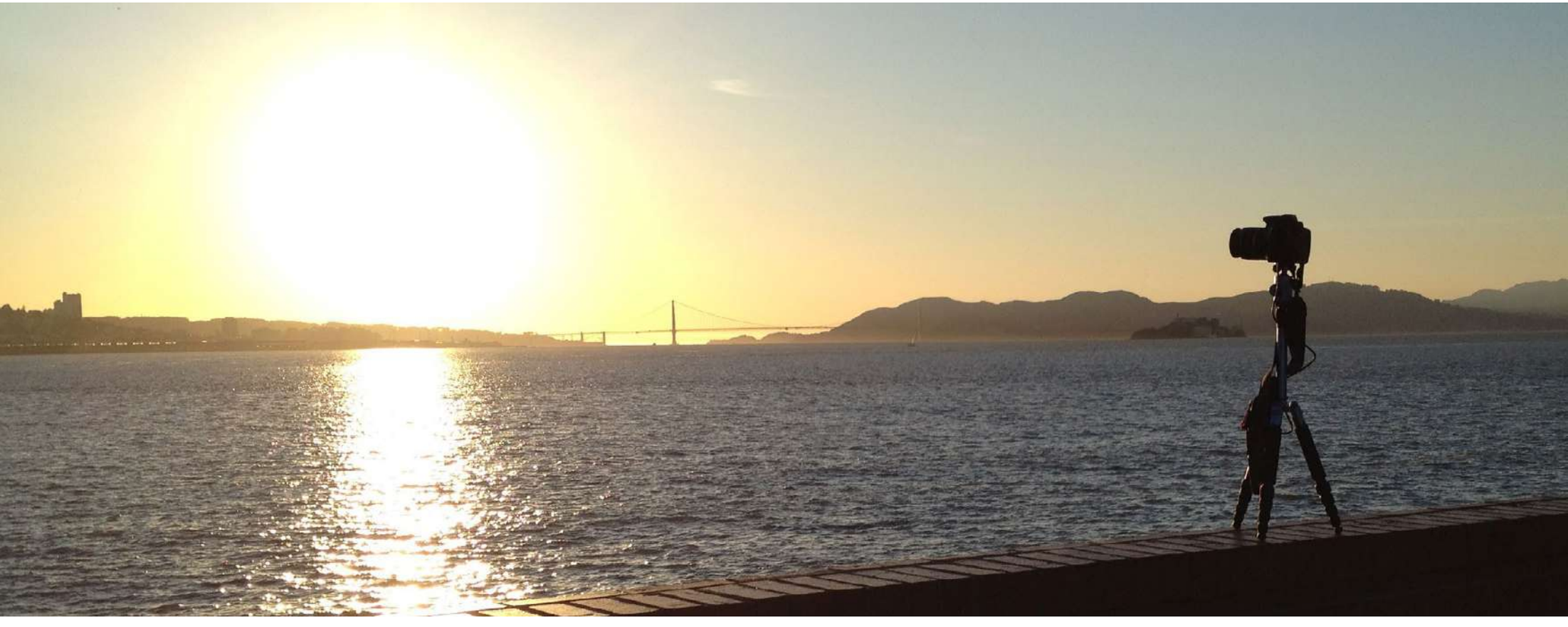
- Click on the topmost layer and apply a layer mask by selecting Layer > Add Layer Mask.
- Select black as a color for a paint brush and paint over the person in that layer. The person should disappear, as if you were erasing them.
- Invert the mask by pressing Ctrl + I. This will make the blackened area visible, and vice versa. You should be seeing double—two people.
- Repeat these steps for every layer until you reach the final layer. (The final layer should stay as is, since there's nothing beneath it.)

That's all there is to it—a fairly simple Photoshop trick. It's a very cool technique for creating action sequences, if you feel like spicing up your landscapes with an unusual, almost supernatural effect.

The shooting itself is what takes the longest, so plan ahead if you're eager to give it a shot—the Photoshop work shouldn't take much time at all.



Timelapse Photography



No landscape stands still. Trees are always moving, clouds always flowing, animals pop in and out; the sun sets and shadows shift. Photography is great, but at this point it can't show us the true nature of a landscape. Cities, too, are in a constant state of motion, between pedestrians and cars and flickering traffic lights.

Long exposure are one way to deal with this movement. Time-lapse photography is another.

Time-lapse photography—basically photography in motion, a halfway-mark between photo and video—is much easier than it used to be. That ease has bred a new generation of adventurous time-lapsers who've created limitless uses and varieties of time-lapse videos. But don't be daunted: sometimes the simplest ones are the most effective. We'll start with a simple one right now, but one that any DSLR user should be able to handle.

Your first time-lapse

For this one, you'll need an intervalometer. Whenever possible, I've tried to show you tricks that use as few extra materials as possible, but sometimes an intervalometer is just plain necessary.

Start by setting up your trusty tripod and setting your camera to Aperture Priority. Find your focus area, then set the camera to manual focus to avoid any re-focusing. You can shoot anything here—a simple view from a window can work beautifully. Connect the intervalometer and set it to snap a photo every five seconds or so, and leave it alone for a half-hour. When you stop the camera, you'll find approximately 360 photos.

Transfer those photos to your computer and use any standard photo editing software to compile the shots into a video file. At 30 frames per second, your video should turn out at around 12 seconds long.

Think about this for a second: you're condensing 30 minutes of reality into 12 seconds. This isn't just a snapshot of a moment: this is a fluid movement of life in motion, fast-forwarded. That's a very powerful tool.

Interrogating the intervals

The amount of time your camera takes between snapshots should boil down to a matter of preference rather than practice. Obviously, taking a shot every 10 seconds will allow more of the scene to change than if you took one every three seconds.

As a general rule, I don't stray beyond three to 15 seconds, and the deciding factor is motion. Landscapes, for instance, which rarely see drastic motion, can be caught once every 15 seconds or so—if anything, this helps the clouds move along faster in the final product. In a lively cityscape, though, I'd stick with shorter intervals so nobody jumps ahead in the movie too rapidly.

RAW or JPEG?

Ah, this old debate again. Greater file sizes, or faster loading speeds? Again the answer falls more to your project than a definite right answer. If you're strapped for space on your memory card, JPEGs will do fine; if you can spare the space (or if you aren't expecting over 500 shots) then RAW files would be better. As always, RAW files leave you with more flexibility to edit in Lightroom or any other program.

Speaking of software...

Let's talk programs. Time-lapses can seem monumentally complex at first—don't let it daunt you. The key is always to start simple. There's always time for complexity later on.

Speaking of complexity: there are a lot of software options for time-lapse videos. Like, a lot. As you dive into this field you'll learn the pros and cons of each; for now, you can get a sense of the field with this basic list:

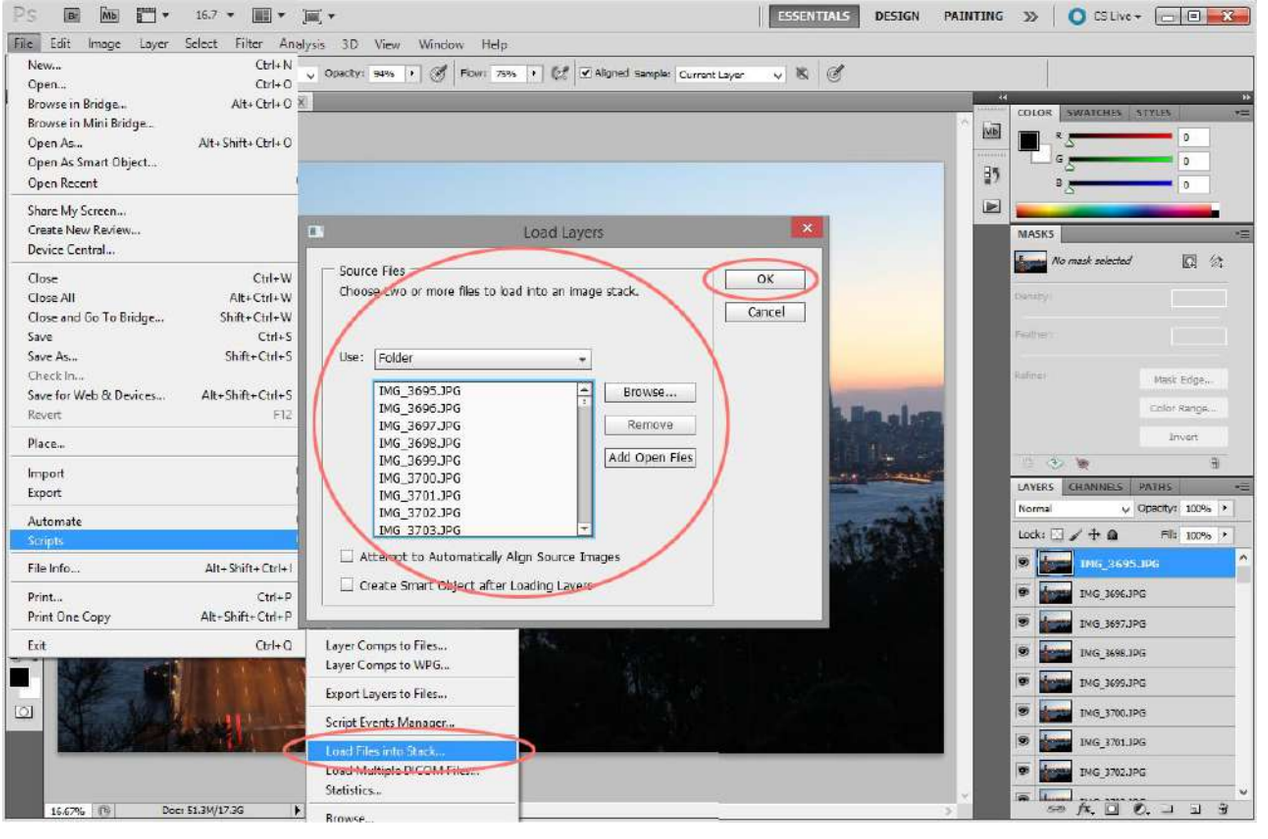
- **Adobe Photoshop –** Quick and simple to use, but suffers from limited functionality
- **Adobe Lightroom –** Great for batch editing, especially with the Sync feature's ability to copy photo edits across a whole swath of images; problem is, the presets take lots of time to render into a video format
- **Quicktime Pro –** Regular Quicktime can't do this, so you'll have to upgrade to Pro for it; the upside is that it's among the most simple pieces of software to create a time-lapse
- **Adobe Premiere and Premiere Pro –** It's not the most intuitive software on the market, but Premiere can get the job done with a decent amount of options
- **Adobe After Effects –** Recommended by professionals, After Effects offers an amazing selection of options and plugins to remove flickering (more on flickering later), but it's both expensive and difficult for beginners
- **Final Cut Pro –** A go-to resource for independent filmmakers, the Final Cut series is fairly easy to understand on a basic level, even if you're primarily a photographer
- **LRTimelapse –** If you're dedicated to the cause, this high-end, high-niche option is among the most widely used by time-lapse professionals
- **Photolapse –** A more basic time-lapse photo software, this one is free (awesome) but only works with JPEGs (less awesome)

How to Construct a Time-lapse in Photoshop

For this time-lapse exercise, I was sitting on Treasure Island, overlooking the Bay Bridge leading into San Francisco. I took a few photos, but thought that still images might not be enough to capture the full scope of what I was seeing. Propping my DSLR on a firmly rooted tripod, I focused on the bridge and switched the focus to manual mode. Aperture Priority at f/13, ISO 400, 36mm focal length. I set the intervalometer to five-second intervals. Aperture Priority ensured that, as the sky fell darker and darker, the camera kept the fixed aperture but automatically lengthened the shutter speed to compensate for the dimming light.

Between my starting and post-sunset finishing time, I let the camera snap away until I had 344 photos. Sticking with 30 frames per second, this gives me enough for an 11-second time-lapse video. Here's how it goes:

1. Load your photos into a Stack in Photoshop.
   Go to File > Scripts > Load Files into a Stack
2. Select the folder your time-lapse images are in and wait for the photos to be listed. It might take a minute, especially if you're working with several hundred. Select them all and hit OK.
3. Once Photoshop starts stacking your photos in layers, take a break—
   this will take a little while depending on how many photos you shot.



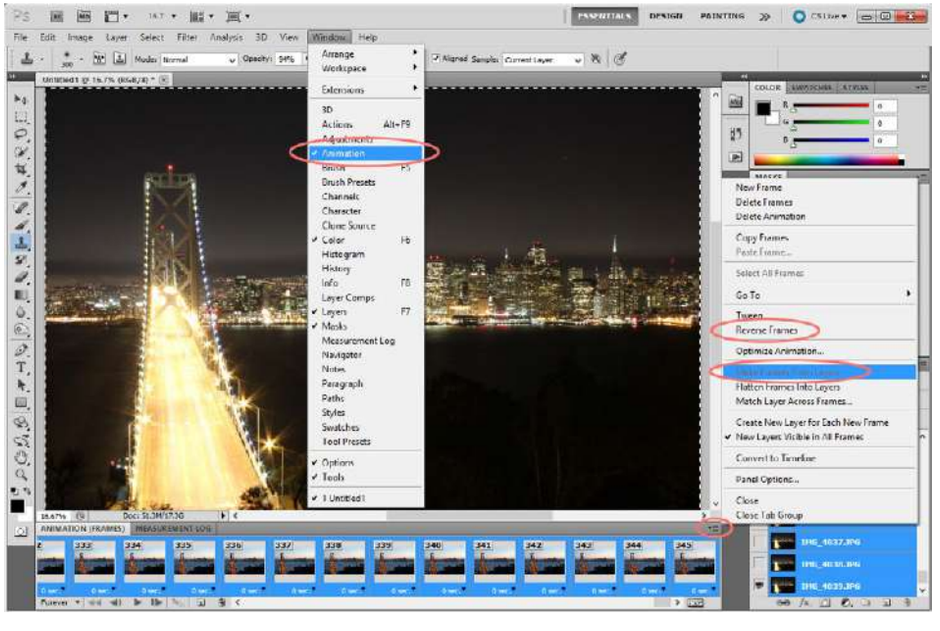
4. Once all the photos in your timelapse sequence are stacked into layers, open up the Animation window by selecting Window > Animation.

5. Select all the layers in your stack by selecting the first one, scrolling to the bottom layer while holding the shift key, and then selecting the last one. Then should highlight all of them.

6. Once you have all the layers selected, find the Animation menu and select the option to “Make Frames From Layers.” This will list out all your layers as frames for your animation sequence.

7. Make sure your photos are in the right chronological order, from start to finish. If they’re in reverse (and it isn’t on purpose), you can find the option to “Reverse Frames” from the Animation menu.

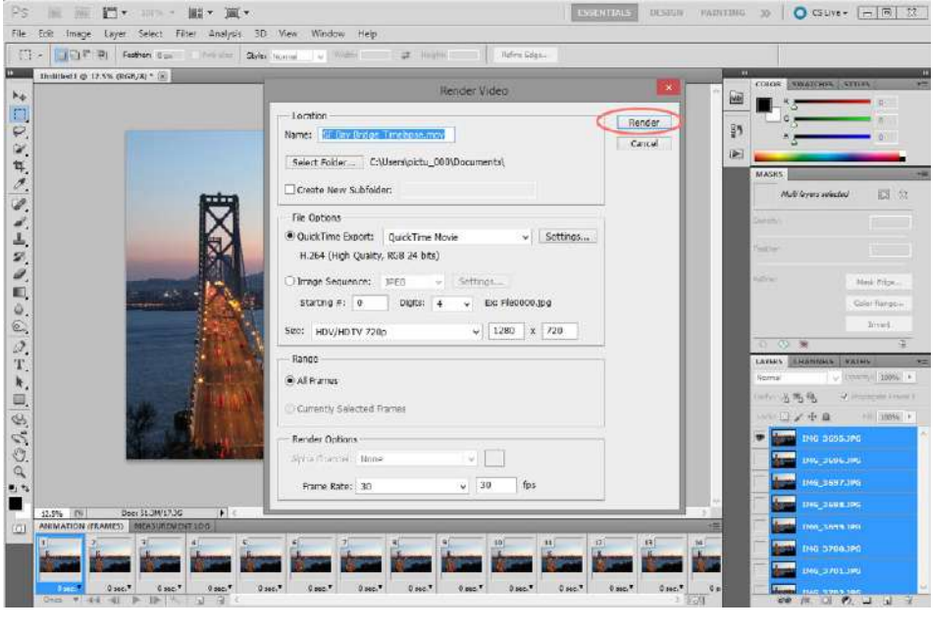
8. Assuming your frames are in proper order, make sure there isn’t any delay between them—under each frame it should say “0 sec.” or “No Delay.” If it doesn’t, click on it and select “No Delay.”



9. That’s all there is—now we’re ready to export. Select File > Export > Render Video.

10. In the Render Video dialog box, set your desired export settings. I gave mine a name and left it as a QuickTime movie export. I selected HDV/HDTV 720p for a size, and a 30 frames-per-second frame rate, although 24fps also works well.

11. You’re all done—just hit “Render.” See how it turned out and think about what you can try differently next time.



If you’re curious to see how mine turned out, you can watch it here on Vimeo:

Flick off flickering

As you can see in my time-lapse video, there's a bit of what's called "flickering"—the light flickers on and off, as if someone is hitting a light switch in the sky. This phenomenon is the result of individual frames appearing to be over- or underexposed relative to its surrounding frames. Cameras, after all, aren't perfect; sometimes a cloud will swing by and alter a scene's luminescence.

There are in-camera techniques to naturally reduce this, such as going full manual on all settings (even white balance); using a manual lens to reduce aperture flicker; or bulb ramping. That last one might sound new—bulb ramping, also called "bramping," is a technique whereby a photographer would use their camera's bulb setting to closely manage exposure and adjust it over time throughout the time-lapse sequence. DSLR exposure settings are limited to a third of a stop, which means flickering occurs when the camera jumps to the next exposure setting. A bulb ramping device connects to your camera and uses the camera's bulb setting to override the automatic third-step exposure changes.

But if you're looking for simplicity, there are several software products and plugins available that do a fine job of removing flickering in post-processing. One of the software applications I mentioned earlier, **LRTimelapse**, works very well for this; another popular plugin is called **GBDeflicker**, which works with Adobe After Effects and Premiere.

Controlling motion during time-lapse videos

Want to add a whole new dimension to your time-lapse photography? Try using a motion-control pan head or mount instead of a traditional tripod. This will move your camera slightly between each shot, adding a whole new element to the results. For instance, your camera can pan down the length of a track, pausing incrementally to take photos on its own—then, when you put it together in post-processing, it will look like a smooth movement into the scene.

If you're looking for motion-control equipment, I'd recommend Dynamic Perception as one of the leading companies in this arena.

Hyperlapse

If you really want to take time-lapse photography to the next level, hyperlapse is the answer. Hyperlapse technology frees photographers up from the shackles of silly old tripods, and allows them to wander freely, snapping photos constantly and merging them into a video.

Imagine walking down a hiking trail, taking a photo every few steps, and then processing them all together into a time-lapse video. It's a first-person account of a landscape experience. Normally, such a product would appear jerky and awkward, but hyperlapse software allows users to crop and stabilize these photos to create, for example, a smooth tracking sequence through a large distance in the woods. Walking down a busy street or hiking up to the peak of a mountain and panning around—suddenly, a whole world of movement opens up that tripod-bound photographers can't enjoy.

If you're interested, I recommend Adobe After Effects' recently released Warp Stabilizer, which can help process and stabilize hyperlapses together.

After all this talk about video, you may as well see a few. Take a look at these helpful video tutorials on time-lapse photography:

- **Time-lapse Photography Tips from Start to End**
- **How to Create a Time-lapse at Sunset**
- **How to Make Star Time-lapses at Night**
- **Motion Control Time-lapse Demonstrations**
- **How to do Hyperlapse**

iPhone Photography

There are no definitive data sets on this subject, but let's be real for a moment: smartphones have become the most widely used cameras in the world. (Imagine how many selfies are taken each second—how many Instagram shots, Snapchats, Vines and tweets—and you'll likely agree.) Apple's iPhone is leading the pack, although Android has been catching up for years and isn't slowing down. As the world develops, the numbers are only increasing.

While smartphones obviously lack the sensor and power of a DSLR, they gain points in the size department: phones are always handy, always in our pockets. As a result, even while I'm traveling, if my SLR is stuffed into my backpack and I want to grab a snapshot, I'll whip out my phone—it's just more convenient.

That said, it's important to know how to get the most out of them. And, if you flip back through this entire book, you'll realize almost every tip applies just as much to iPhone as to SLRs. Companies have caught onto this link between smartphone and professional photography, too: they sell tripods for iPhones, and you can set your iPhone camera on a self-timer. You can even snap manual exposures using camera replacement apps and also long exposures, which are involved in a huge number of these photographic tricks. It's all right there, in that tiny pocket-sized rectangle.

Captured with iPhone 5, post-processed in the Camera+ app.

Ditch the default

The later generations of iPhones have decent cameras, which roughly replicate the performance of a digital point-and-shoot. But image quality isn't their problem—focus is. If you're finding trouble getting clear shots even during daylight, try holding the phone with two hands and taking a deep breath while you're pressing the shutter. Also, I'll mention this because a surprising number of people don't know it, but you should always tap the focal point of your image to tell the meter sensor where to focus.

If you feel like moving up a notch, though, you shouldn't have to rely on the default camera. Two good replacement apps are Camera+ and ProCamera. Both allow you to set focus and exposure independently, as well as manually adjust the exposure, which are nice features for those who take photos seriously. And, of course, both also have a wealth of post-processing options.

If I had to choose, though, I'd choose Camera+ in a heartbeat: it has a cleaner, more intuitive interface and strikes me as much easier to use.

Processing tricks

Naturally, the best way to post-process iPhone photos is to use Photoshop or Lightroom. But in-camera (or should I say in-phone?) processing apps are growing more and more sophisticated, and offer a good alternative to editors in a hurry. In some cases, the quality is outstanding—take Camera+ for example, with a simple adjustment called "Clarity" that blew me away when I first tried it.

I shot this image from the hip with an iPhone while walking the streets of Shanghai, and the Clarity scene adjustment simply brought it to life through revived brightness and contrast.

These apps also offer loads of filter options that can tweak any landscape or cityscape shot. They're similar to Instagram's popular offerings, including vintage and stylized face-lifts, but they can also create much more subtle and effective changes in color and tone.

B.C.: Before Clarity in Camera+

After Clarity in Camera+

Social smarts

I don't need to tell you that most smartphone photos find their homes on Facebook. And if the images posted to social media were the only judges of quality, then you might assume smartphone photography to be of very poor quality indeed. But this is far from the truth.

Whenever you upload a photo to Facebook directly from a mobile device, Facebook actually recognizes the type of device and compresses the heck out of the image itself, cropping and pixelating to fit it on the server without taking up too much space.

In other words: Facebook sees you've taken a photo on your phone and says, "This is probably crap, so you probably won't mind if it looks like crap." Facebook is now the world's largest photo sharing network by far, can you imagine how much server capacity they would require if they didn't compress everyone's smartphone uploads?

Facebook does, however, recognize that professional photographers sometimes want to share high-quality images on their social media pages. With that in mind, they've permitted desktop and laptop computers to upload images at higher resolutions. You should be able to see this option when you're uploading from a computer—the upload and desktop load times will be significantly longer, but you'll be able to see the difference.

And if you want to get the best possible quality without overloading your social media? **Here's the trick**.

Resize your photo width to 2048 pixels from your computer before uploading it. Given the size and format, Facebook should accept and display the image easily and clearly. (To be honest, this applies to all images, not just ones taken via smartphones—Facebook is a fickle beast.)

So unless you're breaking news by uploading a photo to social media ASAP, hold off on uploading the image—if you rush to upload it from your phone, you'll sacrifice quality for time. Wait it out. Whenever I want to upload a smartphone-taken snapshot, I'll first upload it to my computer, resize the width to 2048 pixels and then—only then—toss it to the Facebook dogs. If you don't take my word for it, test it yourself. You'll be surprised at how many friends are suddenly impressed with your newfound skills.

Want to see smartphones tackle bigger shots? Here are some helpful video tutorials on smartphone photography:

- 7 Smartphone Photography Tips & Tricks
- iPhone Landscape Photography Techniques
- The Best Camera is the One That's With You - Chase Jarvis

Extracting Frames from Videos

Frame extracted from ContourHD video, similar to GoPro, processed in Photoshop.

The world of professional videography and photography is getting smaller and smaller, and up-and-coming professionals in both markets are growing up with both skills handy. It makes sense: DSLRs shoot as high quality video footage as almost any camera, while new video cameras, like the latest GoPro, record 4K video at a stunning 30 frames per second. That means each frame shot on those settings is about eight megapixels big. That's huge.

With this crossover deepening, and video quality getting better, imagers in several industries have begun extracting key frames from HD videos to process them as photographs. This trend infuriates some photographers—rightly so, if the photographer takes up to 10 minutes to set up a shot that a video can grab seemingly randomly—but, frankly, the results are starting to speak for themselves. These days I view videos as one more place to look for great photography.

When someone looking to buy a photo finds one, the way in which the photo was captured tends to stop mattering. I learned this personally. After successfully selling an image extracted from video to a book publisher, it reinforced my beliefs that great photographs can come from almost any camera—DSLR or otherwise—and while my path to this particular extraction technique was a bit unusual, I've found it works wonders in situations where I can't carry a DSLR.

When you can't carry a DSLR

A hobby of mine is wingsuit flying—that extreme sport wherein people launch themselves from airplanes wearing what are essentially flying squirrel getups. Unlike skydiving or hang gliding, in wingsuit flying your arms need to be outstretched. Taking photos is hard. Carrying a DSLR is harder.

While it's possible to mount a DSLR on your head and fire off photos using a mechanism between your teeth, I decided against that route due to the weight of it. (Occasionally a parachute opens faster than expected, causing a "hard opening"—this phenomenon, combined with added weight atop your head, can seriously damage your neck.) Since my neck is long and frail enough without adding pounds to it, I decided it was safer to mount a small ContourHD camera on my head. The Contour is essentially a GoPro with a more streamlined shape, which is nice for aerodynamics and reducing snag points that could interrupt a parachute deployment.

That's the way I capture all my wingsuit shots these days: I record my flights using the highest video resolution possible, and afterward mine the footage for stills on my computer. It's a tricky process. Some shots have spectacular framing but are too blurred from motion; others are crisp but the subject is sticking out of the frame. Every once in a while, though, with the right lighting conditions, a frame pops up that actually works.

This is what led to one of my biggest photo deals ever—a photo of mine being sold to a major New York publishing company for a front book jacket. Since it appeared on the cover, a few photographers have asked me how I got this image, so I figured I'd share it in this book.

How frame extraction from video led to a major photo sale

I've always wanted to fly in Dubai. The city's futuristic skyline and incredible depth struck me as perfect—a glimpse into a possible future, a way to connect with a reality we can only imagine.

In that way, wingsuit flying is the perfect sport. You can fly through the air like a bird—an uncontrollable bird that can only fly downward at extreme speeds. It's not an easy way to get into the sky, though. The United States Parachute Association requires flyers to first be knowledgeable skydivers, which involves Assisted Free Fall training and a resume of 200 freefall skydives. An amazing adventure? Of course. A dangerous pursuit? It can be.

But I still pursued it with extreme care, more for the adventures than any professional drive. And for me, Dubai—the cosmopolitan titan of the Middle East, in the United Arab Emirates—was high on the list of places I wanted to fly. I bought a plane ticket as soon as I saved up enough cash, and boarded the plane from Los Angeles.

Dubai's dropzone is dangerously urban, so before I could actually fly there, I had to prove to them, essentially, that I wasn't going to fly into anyone's 20th-floor office window. After miraculously (and barely) passing their parachute landing accuracy tests, they granted me clearance to wingsuit at their lovely Palm Islands dropzone. I was thrilled. The conditions were a photographer's dream during my first flight—almost the golden hour, with a detailed landscape hovering beneath me, few clouds to obstruct my view and the infamous Palm Jebel Ali islands ahead in the distance. It was on that first flight, while chasing my friend in another wingsuit, that I captured the image.

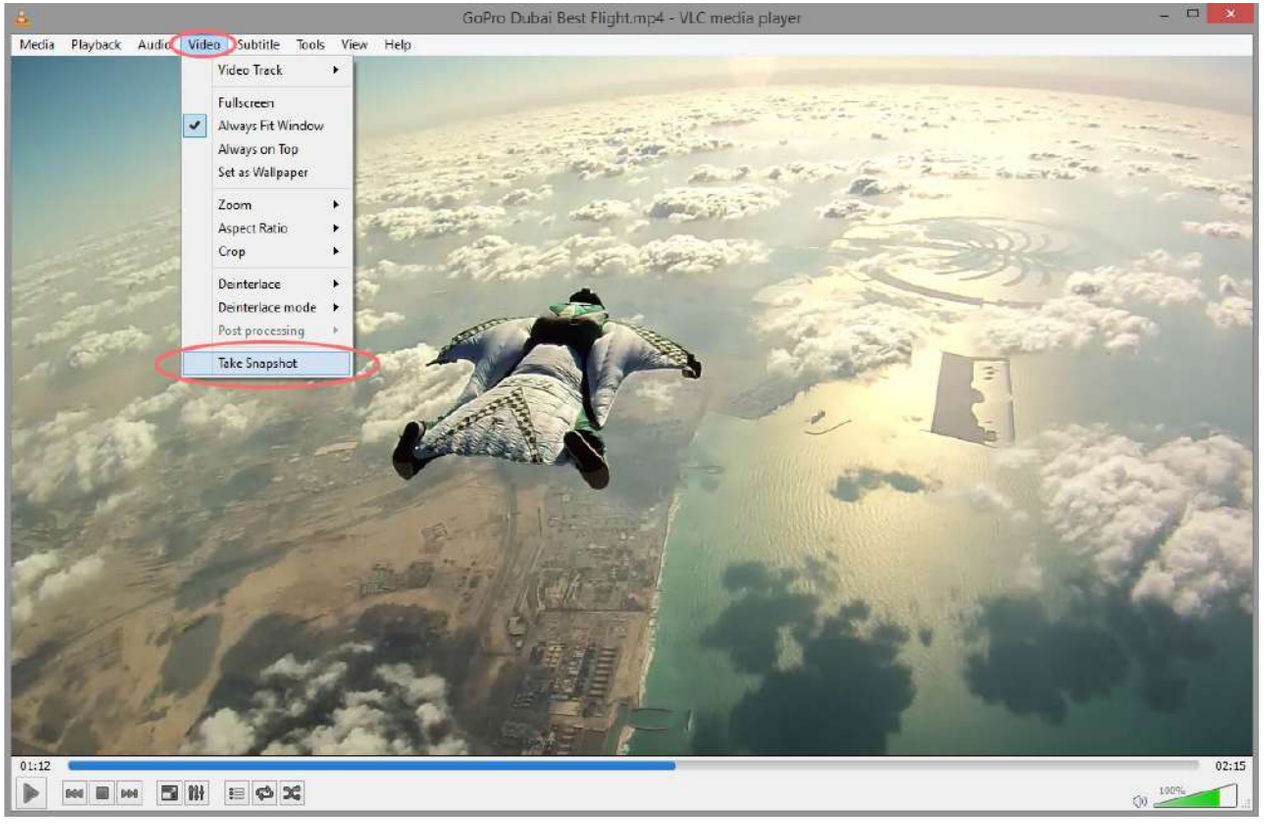
But it wasn't until I reviewed the footage afterward that I knew I'd caught something special. I extracted a few stills from the best moments. I edited together a video of the experience, and you can actually see the still I'm referring to at the 1:11 mark: **https://vimeo.com/54479746**

The extraction process

In order to actually extract the stills from the video, I like to use VLC Player. VLC is a free, open-source multimedia player that consistently works well and plays essentially anything. It also has a feature that allows you to take a “snapshot” at any frame.

So when nice images pop up in the raw video footage—combinations of sheer luck in composition and lighting—I paused it on the best moments and take a snapshot. VLC will save the still to your “My Pictures” folder (unless you direct it otherwise) as a PNG, JPEG or TIFF file.

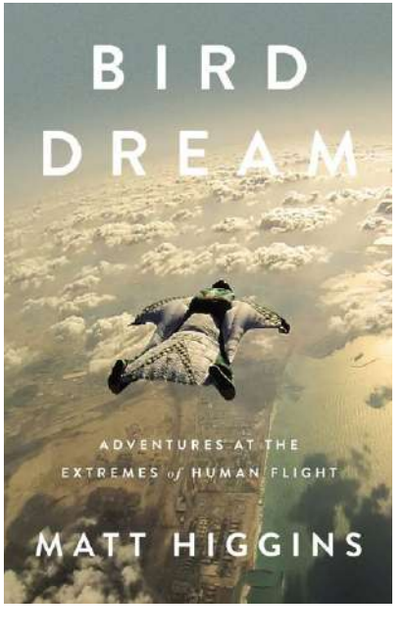
I recommend opening your newfound snapshots in Lightroom to start processing them like any other photo. The quality, of course, won’t be as strong as a RAW file from a DSLR, but if you process carefully and subtly you can make noticeable improvements. On this particular image I didn’t have to do too much—a little sharpening here, a color filter there; I downplayed the blue sky and gave it more of a “desert” feel, like how we discussed in an earlier tutorial.



Sharing is caring

Finding the photo is only the first half of it. The second half is getting it out there. After I edited this particular shot, I shared it on Flickr with under a Creative Commons Attribution-NonCommercial licence. I like that option because it allows your photos to spread quickly without necessarily giving it away for free. It can still earn revenue from commercial projects with permission—which is exactly what happened to me.

It was on Flickr that a publishing company's art director saw my photo while seeking a cover photo for a new book. They contacted me, we discussed the fact that it was an image extracted from video, but they still thought it was the best image to represent the book. The contract was signed, and the book was printed and released to stores all over the world. Sometimes it's as lucky as that.



Fly away

I wanted to end on this story to encourage you to keep an open mind and think outside the norm. For all the money I've spent on camera gear; for all the weighted tripods and filters, the wide-angle lenses and primes; for all the camera bodies I've upsold and upgraded—one of my most successful and popular images ironically came from a video still. It wasn't a long exposure, time-lapse or tilt-shift. I didn't use any of that fancy gear although I would have liked to. I just kept an open mind and looked for photography wherever possible.

And yes, there are elements of compositional creativity there—a cool color palette, the rule of thirds, a well-placed horizon line, and textures within the clouds, sea and land. It's a good image. It adheres to the basic elements of art. But it was also born from luck.

There is, quite literally, no way to know what will work and what will fail. The only way you can succeed is by looking at the world through perspectives nobody's seen yet. Take your camera on an adventure; as the travellers say: Get lost. Preserve that childlike sense of wonder and explore the world around you.

After all, photography's a great excuse.