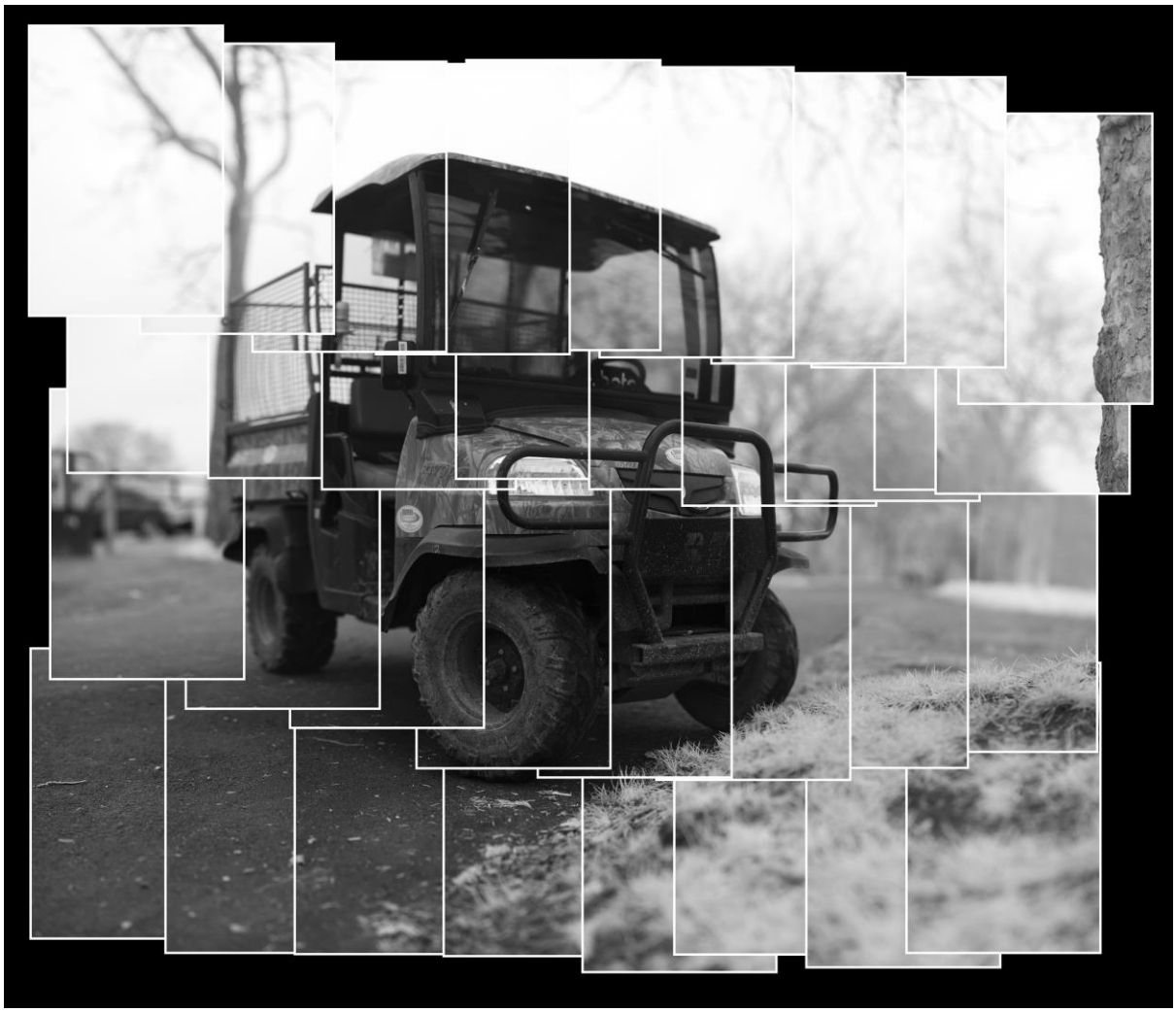
Infrared & Subject Isolation

For infrared there are two techniques I gravitate towards for increasing subject isolation and pushing the surreal feel of an infrared scene. One is optical (real) and the other is a digital post effect (fake). Both require quite a bit of work, but can be a fairly relaxing workflow and very rewarding when it works.

Technique One

The first technique - **Bokeh Panorama** (A.K.A. The Brenizer Method) - involves shooting a panorama (usually multiple rows) with a fast telephoto lens. Preferably wide open. This has the effect of emulating a wide angle lens with an impossibly large aperture. For example a 35mm f/0.7 (full frame equivalent) is easily achievable. Although this is a very simple concept at its core - The process, envisioning and workflow does take a little time to get comfortable with. For anyone interested in trying out the technique I made a tutorial for it here:

https://www.edwardnoble.com/guide-bokehpano



Aligning the frames manually is not needed. 3 or 4 could be easily achievable by hand, but when shooting between 30-100 images or more it's a different story. Using software that can automatically stitch the images is highly recommended.

Adobe Lightroom and Photoshop can automate the stitching process, although this particular option is not recommended due to it unnecessarily hogging copious amounts of memory, whilst taking a very long time to do a rather poor job. Luckily there are a few excellent (and free) options out there, including my personal favourite - Microsoft ICE. A couple of reasons why ICE is so good are: It has a clear & simple workflow, it's very fast and has great projection options. The 'Perspective' options is particularly good for avoiding converging verticals (like a shift lens).

Bikes and cars are a good size for the technique. Larger objects tend to need larger lenses to really show off the effect.

Moving subjects are harder to shoot successfully, but not always impossible. Animals, like these grazing deer, worked with minimal stitching errors, of course shooting the entire batch of images quickly makes all the difference here. Many people prefer using this technique hand held which can speed up your shooting speed, as well as the time needed to set up a tripod. Speaking of tripods: It's worth noting that a panoramic head is a necessity to avoid parallax stitching errors, although this issue is minimal on 200mm and longer lenses.

When choosing a subject for a Bokeh Pano there are a few things to consider. Something that doesn't move at all will assure better stitching results, but don’t worry about foliage blowing in the wind too much. On the Bokeh side: A subject that isn’t too large and can be positioned some distance from the background (ideally a pretty one) will help a lot, especially when you don’t have the largest aperture lens. I often use foliage because the broken light makes for a great bokeh effect.

People make a great subject for this technique for many reasons. Getting them to hold still long enough is one thing but clothes and hair moving in the wind will be the main cause of stitching issues.

Lens choice is extremely important when shooting this technique, perhaps the most important aspect. The desirable factor here is a large physical aperture size. Not the f-stop, but the aperture diameter (focal length divided by f-stop). The bigger the better, so primes (fixed focal length / not zooms) are a must… almost. A 70-200mm f/2.8 (@200mm) is the most obvious exception, but much better, cheaper, lighter and easier to use primes can be found. Portrait lenses tend to be the best option here.

A 50mm f/1.8 is a common lens that many will have already and that's fine to start out with. For a more extreme effect fast prime with focal lengths between 85-135mm will be significantly better. A 200mm f/2.8 can still work well, but lenses like this are big and heavy. If emulating a wide angle field of view long lenses will require exponentially more images to stitch and the extra weight will get cripplingly difficult to use quickly.

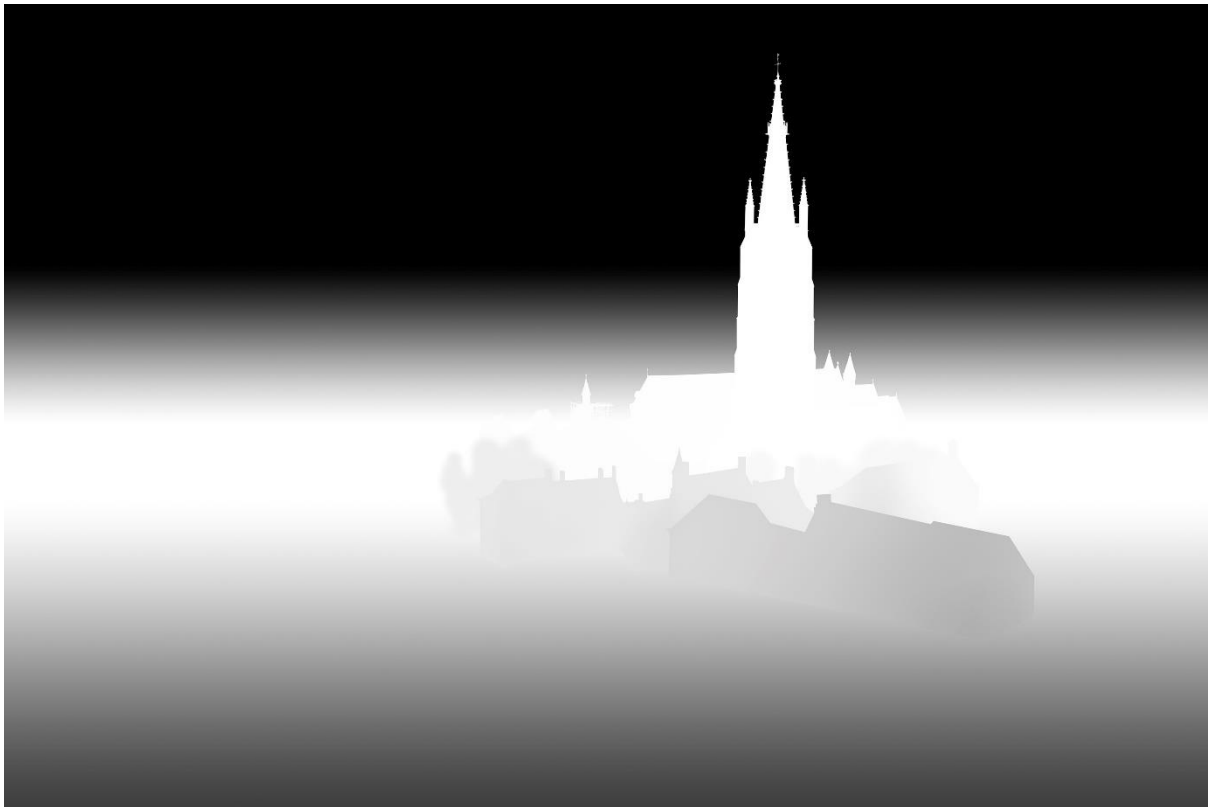
My current favourite lens for the Bokeh Pano technique is an old manual Canon FD 85mm f/1.2 lens. This has an aperture diameter of roughly 71mm (85 divided by 1.2), which is very large considering the its size and weight. This can easily be adapted to a mirrorless cameras, but can also be modified to fit a Canon EOS DSLR. Older lenses are a great option for the technique as they can reduce some of the size, weight & cost. As a bonus older lenses are usually better for infrared, which will also help with faster lenses.

Technique Two

The second technique - **Depth Map Miniatures** - for increasing subject isolation (reducing depth of field) is to add blur artificially, based on a hand-painted map (using masks). In this case the purpose is to make the scene look like a miniature. This might seem like a fake tilt/shift effect, but it's actually more realistic than a real tilt/shift, minus the real bokeh of course. Just like a normal (real or fake) tilt/shift this illusion works best when looking down on your scene, although some elements of this technique make it more forgiving.

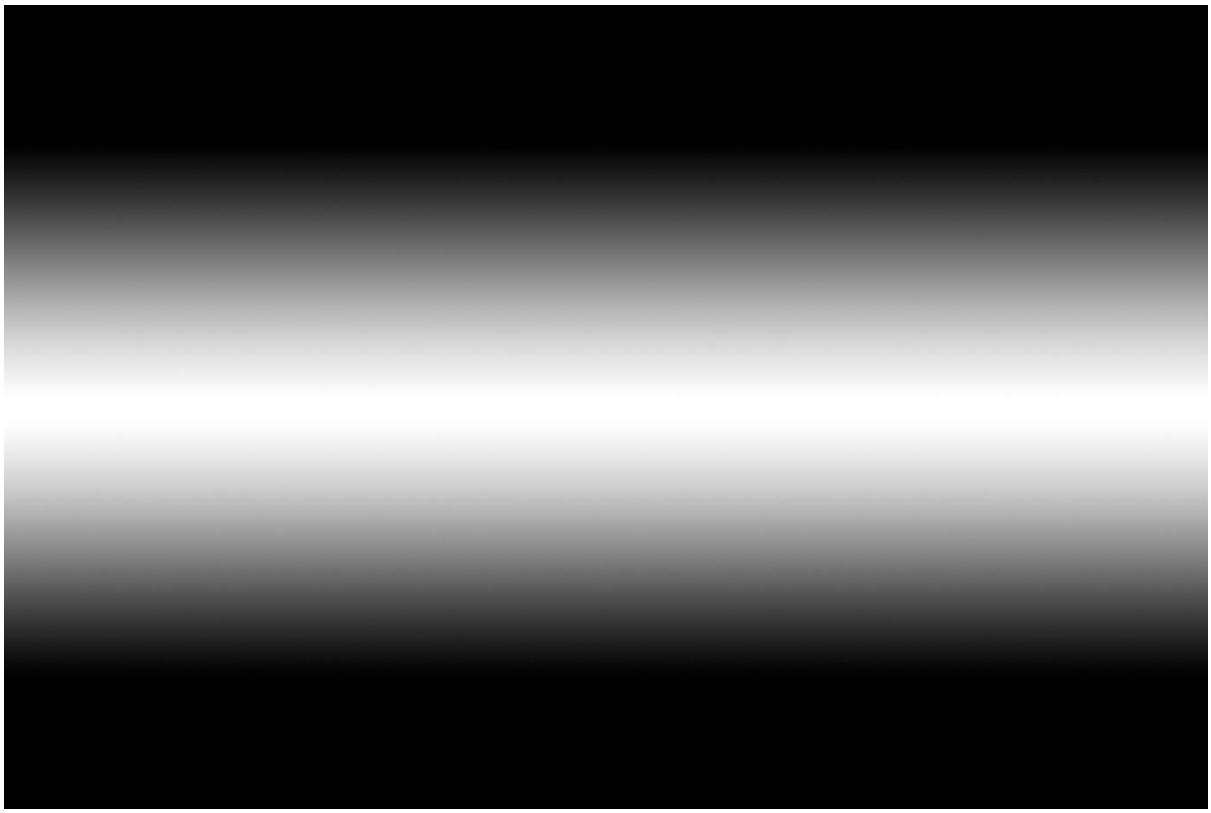
The above image is the original infrared, taken on a Konica 40mm lens & Hoya r25A red filter. Below is the final image, after the ‘False Colour’ and ‘Depth Blur’ techniques have been applied.

Below is the map that was created to apply the depth blur (using masks). Brighter areas are more sharp (in focus) while the darker areas are more blurred (out of focus).



Depth Map - Blur

Below is a simulation of what a tilt/shift lenses blur would look like for a similar scene. Notice the vertical transition (from black to white & white to black) is the same distance across the frame. Perspective foreshortening and subject isolation is not at all possible using a tilt/shift lens:



Tilt/Shift lens – Blur

Below is a simulation of how a tilt/shift lens would have applied blur to the same scene.

Note the blur on the top of the tower, which should be a similar level of sharpness as the base. This issue will occur with any objects that project from the ground plane. The higher it is the more it will break the illusion.

The 'Lens-Blur' filter in Photoshop does a really good job of blurring objects behind something sharp, but not the other way around. In the above example the foreground rocks were masked into a new layer, move it up and blurred independently. This allows you to see through the blurred edge of the foreground object to the background detail. Instead of moving the rocks the background could have been painted underneath the rocks, but this would have taken a little longer(probably using a feature like 'Content-Aware-Fill').

Usually only a few objects need to be carefully masked & painted in your scene to give the effect of shallow depth of field. This masking process can eat a lot of time to reach hyper accuracy. You can reach diminishing returns quickly, so keep in mind the benefits for each action you take and judge if it's worth investing the time it would take. The visual impact of the below example gets most of the way with just the Shard (main building) and the three closest blocks surrounding it.

Looking down on these scenes helps a lot for the miniature illusion. Finding high buildings to shoot the images from is difficult, if at all possible. Although drones are often not allowed in cities the fact that it's now possible to shoot IR from converted drones offers up huge advantage to this technique.