

ZEN

**PHOTOART**

[www.zen-photoart.com](http://www.zen-photoart.com)

CARSTEN BURMEISTER



I'm from Hamburg, Germany, now living in Sydney, Australia, and I've been a photographer for 45 years. After my education during the late 1960s, I spent two years in Amsterdam, Holland, and much of that time in the Rijksmuseum, studying the paintings of Dutch and Flemish masters. It is there I got the inspiration for my style of photography - light is used to maximum effect, composition is all-important and attention to detail reigns. With the arrival of digital photography and Photoshop, I was given the tools to finish my pictures to my liking and thus can fulfil my vision of evocative PHOTOART. What is the hallmark of PHOTOART, as opposed to straight photography? In my PHOTOART I strive not only to record my environment, but I also wish to express an artistic vision that is defined by meticulous attention to detail ... detail I most often enhance with extensive retouching; the following course sheds light on my techniques.



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# ZEN PHOTOART

## A Course in DSLR Photography and Retouching

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## 1 ... the Camera, the Kit

All cameras function with the same principle: A lens captures light, it passes first through an aperture, then through a shutter onto the capture device, which in the old days was film, but now-a-days is a CCD or C-mos sensor (simply: The digital chip). These are the different camera types:

- Phone Camera
- Compact
- Hybrid Camera
- Microsystem, also called 3<sup>rd</sup> Generation Camera
- DSLR

Compact and phone cameras don't need an introduction, they are the simplest way of taking pictures. Phone cameras don't give the user many choices, other than that you can use funky apps with them; and there is something fascinating about phone cameras - simply because they are the only camera you are certain to have with you at all times. And that's a big deal. You know what the best camera is? The one you have with you when you want to take a shot.

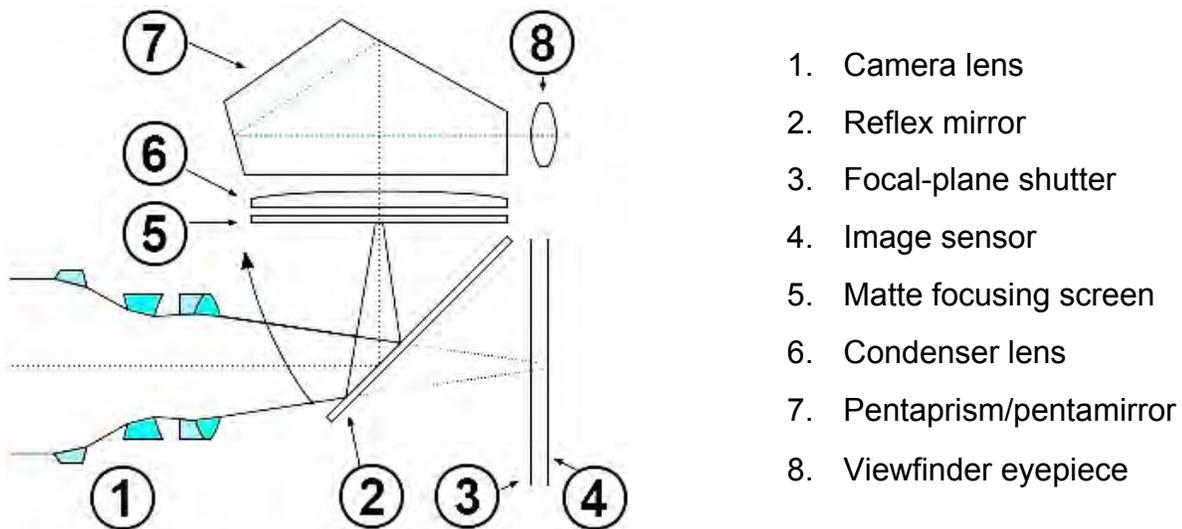
One feature of most compacts - and this is mainly why I don't like them - is that base-models don't have a viewfinder; another reason to dislike them is: They possibly have shutter-lag (... where you press the shutter button, and the camera shoots with a delay).

Good compacts are the Canon G series (I declare my interest here: As regards digital cameras Canon is all I know; indeed, I don't know much of the other digital camera-makes at all. In the old days I used different makes, but with digital I've stuck to Canon.)

Hybrid cameras bridge the gap between compacts and DSLRs. They have an electronic viewfinder and a zoom lens; but they may still have shutter-lag. A new category is the Microsystem, or 3<sup>rd</sup> Generation camera, a DSL without the R; a digital single lens camera, where the lenses are interchangeable ... but they don't have the mirror & prism i.e. they are not a reflex camera; yet, they are likely to have a viewfinder, though it will be electronic. Canon just upgraded their EOS M series to M3; an interesting development.

SLRs & DSLRs (digital single lens reflex cameras) are the tools of the trade. First of all, they allow you to see the picture exactly the way it is *before* you take it and even before the digital sensor gets to it; that's the reflex function, where the mirror and prism allow you to look through the lens.

To me this is the crux of the matter: Looking through the lens allows full immersion into the scene you are observing. Furthermore, it allows you to see the light in your shot; more about *'the light'* later on ... much more! The feature of the SLR function is a chief tenet of ZEN PHOTOART. I am unapologetic about holding up the flag for SLR photography, though I am fully aware there is a strong trend toward Microsystems, which are mooted by many to give SLR a run for supremacy.



There are three disadvantages of DSLRs: They're expensive, big and heavy ... which is exactly why Microsystem cameras are becoming so popular. But they likely have 'full-frame' sensors, 24x36mm (then again, 3<sup>rd</sup> Gen cameras will no doubt soon catch up); anyway ... I strongly advocate you aspire to a full-frame camera.

It was only in 2002 that the first full-frame sensor DSLR camera came out, the original Canon EOS 1Ds; it had 11mp. At the time the trade-press was unanimous: *"Film is dead!"* And now the Canon EOS 5Ds has 50 mega pixels; talk about superiority over film.

So it's DSLRs we'll be talking about when we're talking about cameras. But what are the differences there ... which are the 'best' DSLR cameras? When considering the purchase of a camera, you will quickly learn that the old cliché is true: You get what you pay for. Now, I can't really advise you which camera to get, I mentioned before I'm a Canon man, I don't know other digital cameras; I haven't used Nikon, Panasonic, Leica, Olympus or Pentax (for my 'Camera-History' go to my website: [zen-photoart/lets-get-technical.aspx](http://zen-photoart/lets-get-technical.aspx)).

As I say on page 40/41: All cameras these days are good, you can't go wrong, as long as you choose a quality camera ... importantly, find the camera you like to handle, just get a feel for it and go from there; and do one other thing: Inquire which camera-makes have the best after-sales service. But understand that the ranges of cameras are similar with each make (except Leica, which are in a price-range of their own.)

In Australia you have cheap entry-level DSLRs for about \$500. If there are five categories and at the top you have the professional camera - from Canon it's the EOS 1 Dx - then cameras double in price at every step: They'll cost approx. \$500 - \$1,000 - \$2,000 - \$4,000 - \$8,000 ... so, choose your tool!



three Canon APS-C format DSLRs costing in Australia between \$500 and \$2,500  
(for the 7D with 15-85mm f/3.5-5.6)

As to determining the quality of a camera, here's a rule of thumb for the Canon range: The top of the line pro-camera is the EOS 1. The lowest quality camera has a 4 digit name, i.e. EOS 1xxxD; next is a 3 digit name: EOS xxxD, then EOS xxD. 1 digit names, i.e. EOS 5D etc are quality equipment. In the low to mid range you won't get a full-frame DSLR, but what you get is megapixels (mp). Even the cheap ones offer 15 to 25mp. And the top of the range? 18mp! Go figure. So the mp count is quite irrelevant these days. The quality of the pixels and the processor as well as the software ... that's where it's at.

And you may or may not get a lens within that price ... if a cheap camera comes with a lens, you can bet it is one with plastic lens-components. Are those lenses any good? You can answer that question yourself. I reckon a good lens costs from \$1,000 ... that's for a lens with quality glass.



the Canon full-frame cameras, EOS 5D (on the left with 24-70mm f/2.8, in the middle with 24-105mm f/4) and the EOS 1Dx; they cost in Australia between \$4,000 and \$10,000 (for the Dx with the 50mm f/1.2)

These two premier DSLR cameras are full-frame ... and that does come at a price. But - from where I stand - it is a worthwhile investment. With kits like these you're not only ready to blow your pictures up to wall-size, but you can crop into the frame ... which could save you having to buy a long lens.

At this point I'll make mention of an unpleasant aspect of digital camera technology ... one that I yet have to come to terms with. Technology moves so fast - and in such giant steps - that the gear is out-dated quicker than you can get used to your new camera. Gone are the days when photographers worked all their life with their one favourite camera ... like Richard Avedon with his two Rollei twin-lens cameras, and Ralph Gibson with his Leica M; I've had five digital cameras in fourteen years ... about to get my sixth.

Anyway, the good news is that camera prices are coming down, just like the prices of computers. For my first full-frame DSLR I paid \$16,999 + \$2,999 for the 24-70mm lens! You get it for half that now. And a top of the line Apple PowerBook G4 was close to \$4,000 (yes, you Americans ... gasp in disbelief!@#\$\$%^&). These days you can work with a \$1,500 computer very satisfactorily.

But let me put equipment prices into perspective ... how much does a good car cost? If you're serious about your photography, buy a 2nd-hand car and get a decent DSLR kit; or - as they say - sell the kids!

So, what comprises a good kit? I'll give four examples here ... for the up-starting but still quality-conscious amateur, up to that dedicated photographer who may want to go Pro. In any case, you need a good camera, a quality lens or two, tripod, flash, computer and a version of Photoshop; for this book to be useful, you need gear similar to what I list here:

<b>Canon EOS 7D</b> (APS-C format) with	
EF-S 15-85mm f3.5-5.6 IS USM	\$2,500
Apple MacBook Pro 13"	\$1,500
Photoshop Elements	\$125
Contingency	\$375
<b>Total</b>	<b>\$4,500</b>

<b>Canon EOS 5D</b> (full frame) with	
EF 24-105mm f/4L IS USM	\$4,750
EF 50mm f/1.4 USM	\$600
Apple MacBook Pro 15"	\$2,000
Photoshop Elements	\$125
Contingency	\$525
<b>Total</b>	<b>\$8,000</b>

<b>Canon EOS 5D</b> (full frame) with	
EF 24-70mm f/2.8L USM	\$5,850
EF 70-300mm f/4.5-5.6 DO IS USM	\$1,750
EF 50mm f/1.4 USM	\$600
CANON 430EX Speedlight flash	\$400
Manfrotto tripod 055 w. ball head	\$650
Apple MacBook Pro 15"	\$2,000
Photoshop	\$1,000
Contingency	\$750
<b>Total</b>	<b>\$13,000</b>

<b>Canon EOS 1Dx</b> (Pro camera) with	
EF 24-70mm f/2.8L USM	\$10,000
EF 70-200mm f/2.8L IS USM	\$2,900
EF Extender 2x	\$550
EF 16-35mm f/2.8L USM	\$1,900
EF 50mm f/1.2L USM	\$1,950
CANON 600EX Speedlight flash	\$800
Manfrotto tripod 055 w. ball head	\$650
Apple MacBook Pro 15" Retina	\$4,400
Photoshop	\$1,000
Contingency	\$850
<b>Total</b>	<b>\$25,000</b>

The costs I list are *approximate* only ... don't take my list to the photo store and expect it to be accurate. I just want to make clear to you that you have to expect to fork out more than just for the camera if you want to take PHOTOART seriously. The contingencies I mention won't get you far either ... to begin with, you'll need CF cards and a camera bag; and when I costed the Mac-Book Pro with the Retina display, I reckoned you may want to add memory, a Time Machine disk, Apple Care ... perhaps even a second monitor.

When we come to lighting, I advise to use the flash off-camera (p. 33); the naked front-on flash is not a nice light for portraits. Our friends at Manfrotto have thought about this and they have just the right bracket (MF233) ...



shot with my iPhone

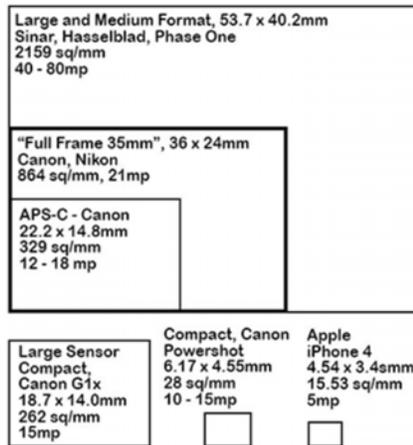
... and you may want to bring the lighting issue to its logical conclusion: Soften your light. There are dozens of diffusion gadgets ... I use a Glanz softbox. A lighting fashion these days is to shoot even outdoor portraits with a flash light and a softbox. Then you can under-expose the ambient light by a stop or two and you get an interesting picture, where your subject matter literally is 'high-lighted'.

What I show you here is the most in-expensive set up I can think of (apart from simply putting a diffusor over the flash-light) ... you can spend thousands of dollars on battery-run location flash packs, stands and soft boxes. The off-camera flash cable, Manfrotto bracket and Glanz softbox (or similar) should not put you back more than \$350 ... but it will improve your portrait immensely, both indoors and outdoors.

You can see where all this is going: Add 10% or 20% to the costing samples, and you may still not be close to what you'll end up spending! (Would you like a printer?)

## 2 ... Megapixels, Sensor Size & Image Quality

The quality of the full-frame chip is the cinch, as well as the pixel count of the sensor and the processing power of the camera. The sensor size is important in many ways: One may think, the larger, the better and that is not too wrong ... not least because you can enlarge and crop the picture freely.



The largest sensors are in large format (Sinar) or medium format (Hasselblad, Phase One) cameras. Those sensors are more than twice as large as the "full-frame 35mm" ones, but they cost a fortune. Popular sizes in the non-pro DSLRs are the APS-C type sensors. They have their own set of lenses, where the conversion factor is x1.6 ... so the 15-85mm standard zoom converts to 24-135mm in the old 35mm (24x36mm) film format.

In the diagram you can see why you can't expect too much quality from the compact or phone cameras, the sensors are too small and manufacturers can't really fit too many pixels into the space - though now you get 8, 12 even 40mp phone cameras. Wow! The issue here is that the pixels themselves are tiny and their quality is inferior ... though this may be a moot point for dedicated iPhonographers! But wait, there's more: Go to my blogs 519 and 515 for insight into stunning new developments.

The rule is: It's not the pixel-count that determines quality, above all it's the size and quality of the pixel. For instance, if you print your photo to a certain size and you shot it with an APS-C sensor of 18mp, the picture quality may be inferior to the one from the same size sensor with just 12mp. So let's be clear: The more mega pixels (millions on pixels) on the sensor, the better ... however, even more important is the quality of the pixels and the size of the sensor. It is very interesting to see that Canon have - in their new flagship camera, the Canon EOS 1 Dx - reduced the pixel count to 18mp, from 21mp in my Canon EOS 1 Ds Mk III. Their rationale is: It's the quality of the pixels - as well as indeed the camera's software - that counts, above all other considerations.

Here is an example of a picture with a small pixel count of 6mp, but very high quality pixels, since they come from a large format 24x36mm chip.



Sinar with Sinar-back 6mp, 80mm f/5.6 Rodenstock lens, shot at f/16

### 3 ... File Formats

All cameras - as far as I know - can convert pictures to the jpeg format. PNG, JPEG, and GIF formats are most often used to display images on the Internet, whereas the JPEG format is also used in PDF files.

JPEG, or jpg, produces relatively small files - but they are not loss-less. For day-to-day use, the compression does not noticeably impact image quality, especially if the pictures are not being printed and are only used to display on the computer (on internet websites etc) but - importantly - JPEG files suffer generational degradation when they are repeatedly edited; jpg files are the industry norm for e-mailing photos.

Some digital cameras can save TIFF format files - or tif: tagged image file - for loss-less storage, though this is not a much-used workflow. The tif image format is not widely supported by web browsers ... so for the web eventually the image will need to be converted to jpg or gif.

TIFF files are perfect for printing, so where TIFF come into their own, is that they can handle device-specific color spaces, such as the CMYK defined by a particular set of printing press inks ... hence tif is the preferred file if you go to offset print (magazines).

Since they are not compressed, tif files are large (for more on RGB / CMYK see also p. 46 ... Pixels).

RAW is an option available on most DSLR cameras ... even some compacts, hybrids and most microsystem cameras. These formats have loss-less compression. Raw formats are not standardized and differ among camera manufacturers. Nevertheless, RAW is the industry standard. In jpeg mode the camera reduces the information received from the sensor - for instance, it records a limited amount of blue tones to represent the sky.

In RAW mode the camera records all the information from the camera's sensor, thus RAW is the preferred option for serious digital photographers. You may decide to shoot just jpeg for a photo you don't expect to edit later, but if you plan to photoshop your pictures, you really must use RAW ... more about RAW in the Photoshop section.

## 4 ... Types of Lenses

The job of the lens is to collect light and project the image that the light forms onto the camera's sensor. There's a variety of ways to categorise lenses, and we're talking about SLR lenses here: Fixed focal vs zoom; fast vs slow; wide angle, normal and tele and special lenses: Macro, tilt/shift, fish-eye.



Sinar with DCB II 4mp digital back, Rodenstock 50mm f/4.0

In the old days fixed focal (or prime) lenses were sharper than zoom lenses; now-a-days that is not necessarily the case anymore; zoom lenses - especially quality ones (read: Expensive ones) - are often performing just as well; though you can expect some barrel distortion at wide angle and pin-cushion distortion at the tele end ... which you then are able to correct with Photoshop easily. So the biggest drawbacks are that they are slow (only the expensive ones are f/2.8, the standard zoom lenses are f/3.5, f/4, f/4.5 to f/6.5) and bulky (but not if you think about that they replace a few prime lenses).

However, the 'speed' of the lens these days is not such a big deal anymore, for three reasons: ISO is variable with digital, incredibly it goes to 32,000 ISO and even higher in some cameras ... then you can shoot in virtual darkness with any lens! The software is dealing with noise (i.e. 'grain', normally the result of high ISO) very effectively; and many lenses now have IS - Image Stabilization, which prevents the blurry shots of old, when we were forced to shoot with relatively long exposure times (see also p. 18).

In the olden days this was the scenario: When you have a f/2.0 lens as opposed to a f/2.8 lens, you can shoot at 1/30<sup>th</sup> of a second instead of 1/15<sup>th</sup>, which - since we didn't have an image stabilizer - could be the difference between a sharp picture or a blurry one; but ... as mentioned before, now-a-days you can simply dial up the ISO.

There are two considerations left why in principle you're better off with a 'fast' lens than a 'slow' one. The wide open aperture of your fast lens gives you that shallow depth of field that often is desirable. For portraits this is one reason why fast portrait lenses (i.e. lenses with a medium to long focal length and a large aperture) are the preferred choice.

In my sample shot of Saskia on the next page, I'm faking that shallow depth of field look: The picture is taken with a wide angle (check the distortion in her arm and the huge magazine in the foreground); but I wanted that shot to match the others in the series, which are taken with my 50mm f/1.4 wide open (see the picture of Michael on p.14) ... you can see how far some photographers will go in order to achieve the look of a shot taken with a wide open lens!

The other advantage of a 'fast' lens is that in low available light (at night or indoors) your viewfinder image is brighter; admittedly not a great argument in view of the advancing microsystem / 3<sup>rd</sup> Generation cameras, where a digital viewfinder will sufficiently brighten the image you're looking at.

Mind you, I personally don't like those viewfinders, just like I don't very much like to use the monitor of the camera as a viewfinder ... sorry, I'll keep getting back to why I consider 'looking through the lens' such a great advantage; this *is* an issue of importance to me: The fast lens, and the superior 'feel' of looking through it as I compose my photograph; which of course goes back to the gist of the SLR debate.



Prime lenses most often are the 'fastest', they have a large to very large aperture. Leica have their Noctilux with  $f/1.0$ , Canon have their 50mm & 85mm  $f/1.2$  lenses. However, most are  $f/1.4$ ,  $f/2.0$ ,  $f/2.8$  or  $f/4$ .

Here's a bit of trivia: The f-stop scale is  $f/1.0$ ,  $f/1.4$ ,  $f/2.0$ ,  $f/2.8$ ,  $f/4.0$ ,  $f/5.6$  - can you guess the next f-stop? Yep,  $f/8$ , then  $f/11$ ,  $f/16$ ,  $f/22$ ,  $f/32$ ,  $f/45$  etc. (the smallest  $f/$  stop I have ever used was  $f/90$ ) So the f-number jumps one value and then doubles.

Canon EF 24-70mm  $f/2.8$  shot at 24mm  
How come the background is soft?  
It should be sharp with a wide angle?  
I cheated and dropped a soft background into the picture.

But the light allowed into the camera halves or doubles with every f-stop; i.e. from  $f/2.0$  to  $f/2.8$  half as much light enters through the lens and from  $f/8$  to  $f/5.6$  twice as much (more about aperture and f/stops on p. 21).

One more point I'll make about 'fast' lenses and shallow depth of field. When you go to the movies you'll see that most portrait shots (close ups) have a blurred background, to the extreme, sometimes. This is because movie cameras have very long zoom lenses and the close ups are likely shot with the longest zoom setting, with the aperture close to wide open. It is often not easy to come up with a similar feel in a still shot (a photograph).

When you're working professionally, that's often demanded of you, that shallow, movie-kind-of depth of field feel. Get that wide open portrait lens ready! Such as the  $f/2.8$ , either the ubiquitous 200mm, or the 300m (there's even a 400mm  $f/2.8$  ... and a 200mm  $f/2.0$ ).

Wide angle lenses are a must-have for interiors, landscapes and general architecture ... the fact is, 'you get a lot into the picture'! With a wide angle objects in the foreground are big, the objects in the background are small, and the depth of field is large ... without having to stop down very much.

Wide angles are 'normally' not used for portraits; they are considered 'unflattering' (your subject can end up with a big nose!); nevertheless, they can be great for 'effect' portraits ... I like my super, super wide angle - the fish-eye - for some portraits (see also p. 25).



Canon EF 15mm f/2.8 Fish Eye

Also, it is easier to get a sharp wide angle shot - because camera-shake is not as evident - whereas with those long lenses you may have to concentrate on getting a sharp picture (you must hold the camera really, really still; how to get sharp pictures see also p. 28). Wide angle lenses range from 14, via 16 or 18mm, 20mm, 24mm, 28mm to 35mm. Canon now have a 11-24mm zoom lens; awesome! Normal lenses are 50mm and they are the fastest lenses available. I used to shoot with the f/1.4, but I now use the f/1.2L.



The normal lens is the most versatile prime lens of all (way back in Germany, my teacher - jokingly - used to say: You know why it's called the 50? Because you take 50% of your shots with that focal length).

Here is another aspect to the normal lens: It forces you to compose your picture more carefully and more thoughtfully (zooms are too easy!) Normal lenses often are also the cheapest prime lenses.

Anyway ... I like my 50mm wide-open for portraits; the f/1.4 is a great lens.

Canon EF 50mm f/1.4 USM

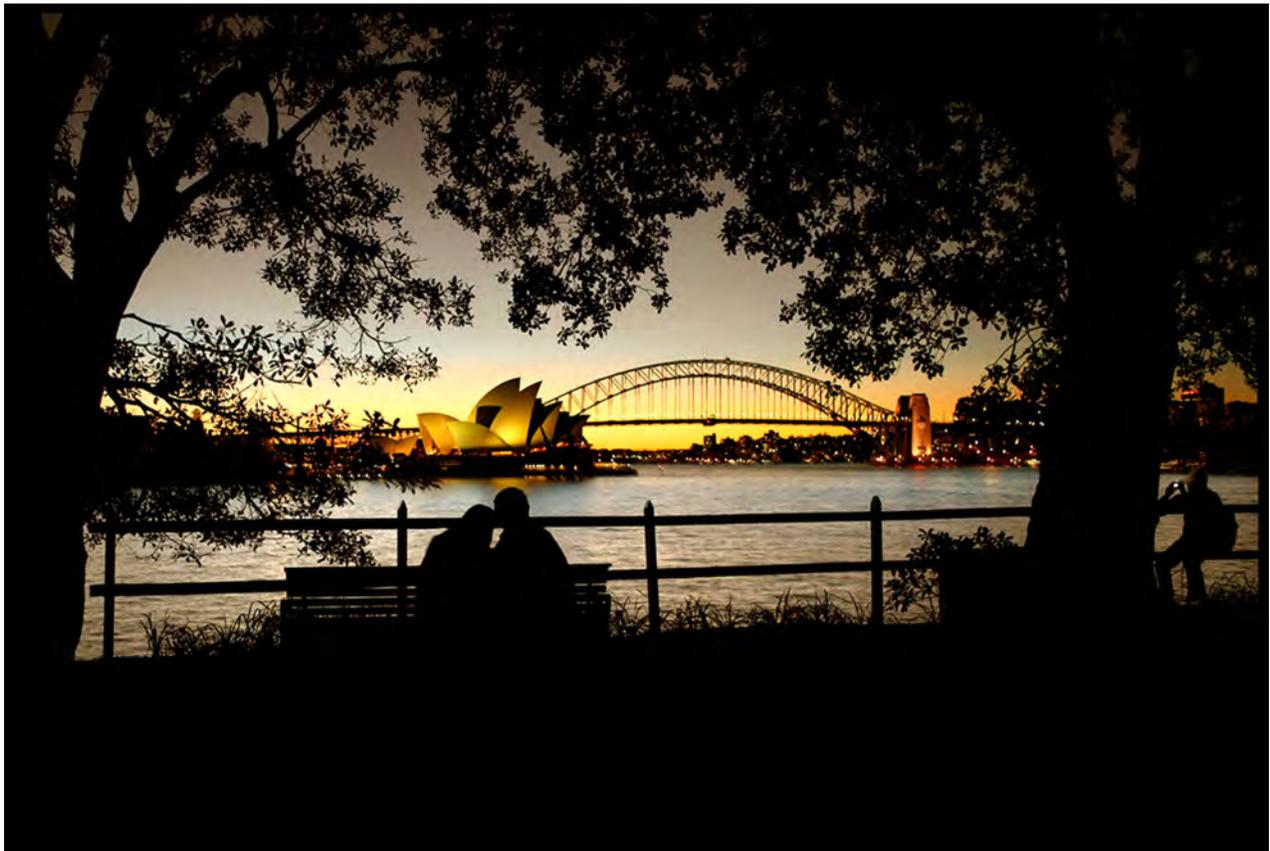
However, a typical portrait lens is 85mm or 135mm ... or even longer. As I said before, the great advantage with all long lenses is that you can blur the background even more easily than with a wide open normal lens.

For portrait work I'd say the 70-200mm zoom probably is a perfect lens, and if you can afford the f/2.8 version, you'll get those great shots where the person is so well defined against a soft background.

Other uses for long lenses are landscape and architecture details, and of course wildlife & sports photography; not to mention the infamous paparazzi photography ... where portraits of princesses with bare breasts can be taken from a kilometre away!

There is a rule of thumb to work out what focal length a wide angle, normal or portrait lens should be for a certain format (more trivia ...). A strong wide angle is equivalent to the short side of the format, i.e. for the 35mm format of 24x36mm it's the 24mm lens (or shorter), while a moderate wide angle equals the long side, i.e. the 35mm lens.

The normal lens is roughly equivalent to the diagonal of the format, the 50mm lens (the diagonal actually measures less than 50mm, at 42mm) and portrait lenses start at 2x the diagonal, a more accurate 85mm.



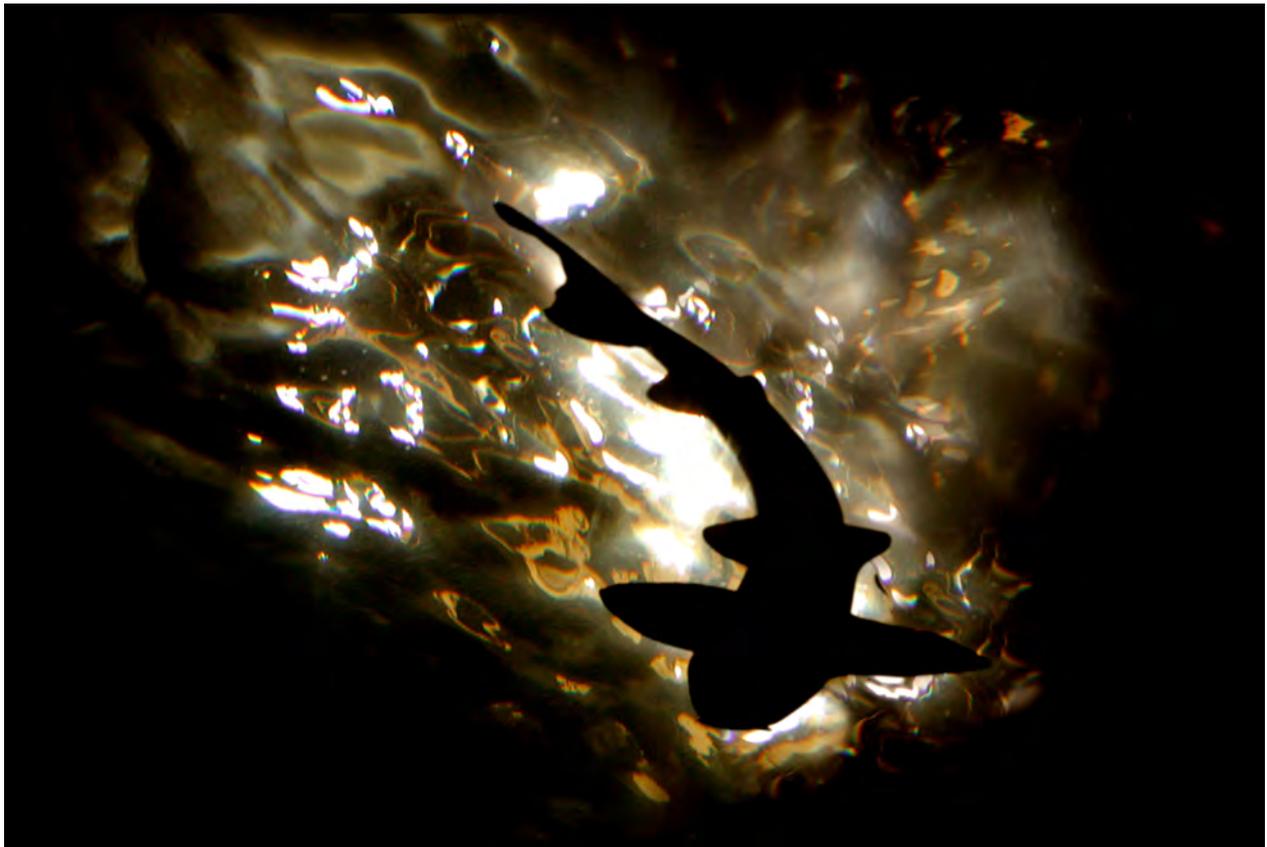
Canon EF 24-70mm f/2.8L USM

By this rule, the APS-C format's normal lens is about 22 to 25mm. Anyway, all this leaves us with the conundrum: Which lens is right for me? This always is a personal choice, of course, but there is one aspect to consider: You should buy the best lens you can afford.

You could be tempted to buy a combo of two zoom lenses - an attractive combination could be the 18-55mm plus the 55-250mm for the APS-C camera format; it would seem here you're covered for all situations.

But you may have bought two lenses of average quality. And think about how much you really need that very long focal length. Myself, I don't use the long lens very much at all. In fact, I use the normal lens a lot (for that shallow depth of field look) and beyond that I use the short to medium zoom most of the time (a great combo is 24-70mm + 85mm).

Personally, I think a good 'normal'-range zoom lens (like the EF-S 15-85mm [24-135mm, converted to full-frame] ... or rather for the full-frame camera, either the 24-70mm f/2.8 or the 24-105mm f/4.0 lens) and a prime normal lens are a preferred choice.



Canon EF 24-70mm f/2.8L USM

Before zoom lenses were popular - 35 years or so ago - I worked for many years with just the 35mm f/1.4 and 85mm f/1.4 lenses; but remember, in those days lens speed was a big issue ... now-a-days 'speed' is taken care of with variable ISO. In any case, choose one or two good quality lenses and probably stay away from 'super-zooms', those 18-200mm ones, as tempting as they may be. The rule here is, 'shoot wide and crop', which you can do with a good quality lens and a full-frame camera with a large pixel count.