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FIELD TEST

Nikon Z.f

A trip to China with the camera that everybody is talking about



FIRST LOOK

Fujifilm X100VI

Stunning update adds IBIS and a 40MP sensor



Rainbow wings

How Andrew Fusek Peters shot his rare blue tit photos



Plus Joel Meyerowitz tells AP about his creative journey • Saul Leiter on show





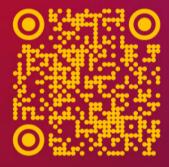


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THIS WEEK'S CONTRIBUTORS



JOSHUA WALLER Online Editor

Photo kit expert Joshua gets his hands on Fujifilm's X100VI to bring you a first look



JOEL MEYEROWITZ

The celebrated photographer is interviewed by AP Acting Features Editor David Clark



NIGEL ATHERTON Editor

AP's editor shares his thoughts after using the full-frame mirrorless Nikon Z f in Shanghai



JAMES ABBOTT

Top pro James looks at in-camera and softwarebased highresolution imaging. Which is better?



DAMIEN DEMOLDER

Former AP editor Damien assesses the Sigma 14mm F1.4 DG DN Art prime lens



ANDREW FUSEK PETERS

How the wildlife pro shot a unique image of refracted light through a blue tit's wings

Welcome



Ask skilled street photographers to name a giant on whose shoulders they stand, and Joel Meyerowitz

will crop up. We're honoured to be running a major interview with this hugely influential photographer, who helped define what we mean by 'street,' while also being an early colour pioneer. Coming back to the present, read Joshua Waller's first impressions of the new Fujifilm X100VI, and editor Nigel Atherton's experience of shooting with the stylish Nikon Z f in Shanghai; plus we explore Super Resolution mode, a great way to get highly detailed images or enhancing existing ones. Meanwhile, Andrew Fusek Peters explains how he got a super-rare image of light refracting through a (not-so-rare) blue tit's wings, and we check out Sigma's new 14mm F1.4 DG DN Art lens. Diverse? You said it. Geoff Harris.



This week's cover shot was taken by AP editor Nigel Atherton. See page 20

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Fujifilm X100VI

Joshua Waller looks at the brand-new Fujifilm X100VI, the successor to the cult-classic X100V, which gains a 40.2MP sensor and, for the first time, in-body image stabilisation



At a glance

£1599

- 40.2MP APS-C X-Trans CMOS 5 HR sensor
- Fixed 35mm equivalent f/2 lens
- In-Body Image Stabilisation – 6 stops
- Hybrid optical / electronic viewfinder
- Two-way tilting touchscreen
- 6.2K 30p, 4K 60p, and 1080 240p video
- Available in silver or black

IBIS

In-body image stabilisation has been added with very little change in size, and only a slight increase in weight.

Viewfinder

The hybrid optical / electronic viewfinder continues to offer a unique shooting experience.

The Fujifilm X100VI, pronounced 'Six', is Fujifilm's latest X100-series camera. The previous X100V is

infamous for a multitude of reasons, notably for combining gorgeous retro styling with modern high-spec digital imaging. It's been featured on numerous videos, gone viral on TikTok, and due to high demand, has been incredibly hard to find. Fujifilm's new X100VI includes several major updates, and importantly, the firm says it has increased manufacturing capacity, which should mean you'll actually be able to buy one! The X100V itself has

Features

been discontinued.

With the same 40.2MP X-Trans 5 sensor and X-Processor 5 as in the excellent Fujifilm X-T5, the X100VI brings a number of new features to the line. These include subject recognition autofocus and tracking, with birds, planes, and automobiles all being detected. There's also human face and

eye detection, but this is in a separate menu setting, which is a shame.

Thanks to that 40MP sensor, you can now use 1.4x and 2.0x digital teleconverter options and still get useful resolution images. The 1.4x teleconverter gives 20MP files and 50mm equivalent view, whilst the 2.0x teleconverter gives 10MP at 70mm equivalent.

The new processor allows for 20% reduced power consumption, however the new in-body image stabilisation (IBIS) system, which gives up to 6 stops of shake reduction, does use some of this power. Overall, this means that battery life is slightly improved at 450 shots vs 420 shots on the X100V. The same NP-126S battery is employed as in many other Fujifilm models, including the previous two generations of X100.

The new IBIS system adds 48g to the weight, which is now 521g with battery and memory card, compared to 473g for the X100V. The camera is also 2mm thicker overall, with a slightly more

Sensor

The camera gets a boost in resolution thanks to the same 40.2MP sensor as used in the X-T5 and X-H2 cameras.

Classic

The X100VI has the same sensor and processor as the X-T5, but with the analogue soul that's the hallmark of the X100 series.





Fujifilm has used the same slimline tilting screen as on the X100V





prominent lens that's 1.5mm longer at the front. The body itself is only 0.5mm thicker.

Other dimensions remain the same. and this means that the camera is still compatible with all the same accessories as before, including cases, straps, and so on. It's also compatible with the existing screw-on wideangle and teleconverters. The camera body has the same level of weather-sealing as the X100V, which means it's still necessary to add a lens adapter or filter kit for complete protection.

There are now 20 film simulations available, with REALA ACE being the latest to join the line-up. You can shoot at 11fps using the mechanical leaf shutter, or up to 20fps with the electronic shutter. The fastest shutter speed is an incredible 1/180,000s when using the electronic shutter.

Like the X-T5, the camera features AI Auto White Balance, which uses Al deep learning to give you improved

colour reproduction. You also get the option of Warm, Auto and Cool auto white balance to suit the mood of the scene, or simply your preferred look.

Rangefinder-like design

Externally, the X100VI uses much the same classic styling and layout as before. It has dials on top for shutter speed, exposure compensation and ISO, along with aperture and manual focus rings around the lens. There's a small joystick on the back to move the focus point and change settings, and a fairly minimal array of other buttons on the back.

You also get the X100 line's unique hybrid viewfinder, which can be switched between electronic and optical views. with the latter giving an experience much like a classic rangefinder camera. Below it is a super-slim and flush-fitting tilting screen, which is great for discreet shooting. This all makes the X100VI an absolute delight to use.

First impressions

The X100VI is, without doubt, a gorgeous and highly desirable machine, and one that remains up there with one of the most beautiful digital cameras ever made. But with the new model, you also get Fujifilm's latest technological advancements.

The X100 series has already reached cult status with the four-year-old X100V, and it's difficult to see how this will change with the X100VI. It's an enjoyable camera to look at, it's an enjoyable camera to hold, and it's an enjoyable camera to shoot photos with.

With Fujifilm's track record of beautiful colour science, via its signature Film Simulation modes, this will be a camera that's capable of delivering the goods, time and time again. If you are looking for a fixed-lens compact, then there's very little to dislike here, and an awful lot to love.

If there's one caveat, it's that the 35mm equivalent f/2 lens isn't the fastest in the world in terms of focusing speed, due to its ultra-slim design. But if you can look beyond this, or don't need the world's fastest autofocus, then you'll be rewarded with something special. If you've been turned cold by cameras that have no soul, then this is one hell of a camera to reignite your love for photography. Look out for our full review in a future issue.

90th anniversary **Limited Edition**

To commemorate To communication Fujifilm's 90th year, there'll also be a Limited Edition version of the X100VI. It'll only be made in silver, and will feature the original Fuji logo embossed on the top plate and the front of the lens cap. Each camera will be individually numbered on the hot shoe, with a limited run of only 1,934 available. They'll come in a special box with an exclusive strap and a soft shutter release button. along with additional commemorative materials, and be priced at £1,934.

Worldwide, the limited

edition will be available from 28 March.

In the UK, it will only be sold direct from The Fujifilm House of Photography in Covent Garden, London, with sales starting from the 6th of April.



The Limited Edition model will feature this special engraving on the top plate

Big prizes in drone contest

The Drone Photo Awards 2024 competition is now open for entries until 1 April. Open to both professional and amateur photographers, there are seven 'single-image' categories to enter, plus Video, and Series – a set of five to nine images on the same theme, edited in the same style, and with a common link. You may enter as many times as you like.

The single-image categories comprise Wedding, Nature, People, Urban, Animals, Abstract, and Sport, with the winner scooping photography equipment worth €50,000 euros (£42,728). All the winning and Highly Commended images will also be featured in an exhibition - entitled 'Above Us Only Sky' - hosted at the stunning San Galgano Abbey in Siena, Italy.

In the single-image categories, entry is free for one image. To enter, and for full information, visit droneawards.photo



A potentially lucrative contest for drone fans



Underwater excellence

ALEX Dawson from Sweden has been named the 2024 Underwater

Photographer of the Year for a powerful image of a diver investigating the skeleton of a whale. His entry, 'Whale Bones', beat 6,500 other entries from photographers around the world.

'The composition invites us to consider our impact on the great creatures of this planet,' said judging chair and eminent underwater photographer Dr Alex Mustard. 'Since the rise of humans, wild animals have declined by 85%. Today, just 4% of mammals are wildlife, the remaining 96% are humans and our livestock.'

Whales were a recurrent theme this year, with Spanish photographer Rafael Fernandez

Caballero winning two categories with a close-up of a grey whale's eye and an action shot of a Bryde's whale engulfing an entire bait ball (both taken in Magdalena Bay, Mexico). Meanwhile US photographer Lisa Stengel was named Up & Coming Underwater Photographer of the Year 2024 for her image of a mahi-mahi catching a sardine, in Mexico. Flying the flag for the UK, where the competition is based, Jenny Stock was named as British Underwater Photographer of the Year 2024 for her image 'Star Attraction,' featuring brittle stars (a close relation of the starfish) and a purple sea urchin.

See underwaterphotographeroftheyear.com for the full list of winners and more about their images.



First AF lens from Laowa - and it's very wide

INNOVATIVE Chinese lens maker Laowa is celebrating its tenth anniversary this year, and has released its first AF lens on 20 February to mark the milestone.

The Laowa AF 10mm f/2.8 Zero-D FF is the widest non-fisheye lens for full-frame cameras. Autofocus is only available for the Nikon Z and Sony FE mounts, however – it's manual focus only for the Canon RF and L mount versions. 'Zero D' in the name stands for Zero Distortion, something which Laowa is claiming even when using the lens wide open. If this is the case, the lens should strongly appeal to landscape photographers, for whom ultra-wideangle lens distortion usually needs fixing at the editing stage. 'This lens is a game-changer in its class, featuring a remarkable ultra-wide angle of view of 130.4°

while maintaining a weight of only 420g,' said the firm. The price is US\$799 and it should be available from UK retailers soon. See bit.ly/newLaowawide. Laowa will be at The Photography Show (16-19 March), hopefully with this new lens to try on the stand.



Laowa's 10mm f/2.8 is the firm's first AF lens



The tripods don't have a central column

Innovative Vanguard tripod range

VANGUARD has announced the Alta Pro 3VRL tripod range, featuring a removable levelling system.

A lockable handle on the base enables you to find 'level' quickly, while the new tripods also feature the Alta Pro 3VRL Platform 30 that allows you to take over 300g off the weight of the tripod, and change to a completely different tripod set-up, without needing to remove and reattach a head.

The base is a 3-section tripod with 30mm diameter legs designed for a stable platform, extending up to 1.8m without using a central column, and delivering a maximum load capacity of up to 25kg.

The range will be available in March, with the carbon fibre model costing £399.99. See www.vanguardworld.co.uk



Seeking a buyer: Erwitt's home in New York

Elliott Erwitt house and studio for sale

HAVE you got nearly \$4 million burning a hole in your pocket? The luxury home and studio of legendary photographer Elliott Erwitt in Long Island, New York, is up for sale.

Erwitt had continued to work in the studio until his death last November, and the place reflects his puckish character – outside are two Japanese police mannequins designed to scare drivers into slowing down. 'Elliott always had quirky things like this in and around his house,' Erwitt's son-in-law Rick Smolan told the New York Post.

For full details see bit.ly/erwitthouse

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ull disclosure: I have a penchant for quirky, cheap toy cameras. I love the low-fi quality and weird anomalies that cheap plastic lenses produce. I was an early adopter of 'Lomography' and have a growing collection of oddball cameras. So I was delighted when the Camp Snap camera appeared on my Instagram feed. Think disposable camera but with a digital sensor instead of a roll of film.

It is a delightfully simple camera that I bought for about \$60 (£47). The Camp Snap is designed for kids on holiday camps with the idea that they can remain 'present' without distraction by screens. So there is no screen. There's very little to the camera, in fact – a shutter release that doubles as the on-off button and a flash setting, which has three options: on, off and auto.

Images can only be viewed after connecting the camera to a computer via a USB-C cable, which doubles as the charging socket. The plastic lens has a field of view equivalent to about 35mm, which is perfect for me as that's more or less the only focal length I use anyway.

Liberated from the cutting edge

To be honest, it's not just kids that could do with remaining photographically 'present', so this camera is perfect for most adults, too. Me included.

I've taken it on a couple of recent international trips and had a great experience. Being free of the shackles of settings, menus, and all the other bells and whistles associated with modern digital cameras was liberating. Being in the moment and embracing looking without being encumbered by technology is a beautiful experience. The toy-ness of the camera makes me behave less preciously about my image-making, too, and this is also a refreshing way to connect with the world photographically.

This mindful way of connecting with the world is important to me, and it's



Ben took this with the Camp Snap. It's not for pixel-peepers, but huge creative fun

gaining popularity.

Let's be clear, however: image quality is predictably poor when up against a serious camera. But the act of looking, seeing, noticing, a sense of composition, design and an appreciation of light, along with storytelling, are all more important factors than the kit when it comes to making images.

The JPEGs are reasonable, perhaps marginally better than you expect. They generally have a lovely lo-fi vibe.

I add a decent dose of grain, preferring the film-esque look to the jpg artefacts and digital noise, particularly noticeable in low-light photos made with the Camp Snap. I've had the good fortune to travel a lot this year and encounter lovely low raking light, rich contrast, long shadows, and an ethereal glow. The Camp Snap performs better in these conditions and produces lovely colours. I also became obsessed with using it to capture my shadow, and it worked a treat. With this camera you need to accept and celebrate its intrinsic rubbishness.

If you have a creative instinct, can embrace happenstance, and feed off the spirit of creative adventures, then the Camp Snap – or similar lo-fi cameras – can be very refreshing.

Regular AP contributor Ben Brain is a fine-art and documentary photographer, author and workshop leader. See www.benedictbrain.com

Do you have something you'd like to get off your chest? Send us your thoughts in around 500 words to the email address on page 3 and win a year's digital subscription to AP.





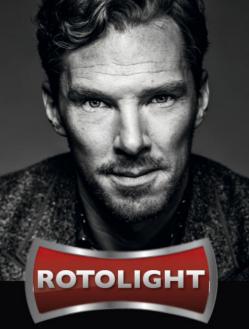




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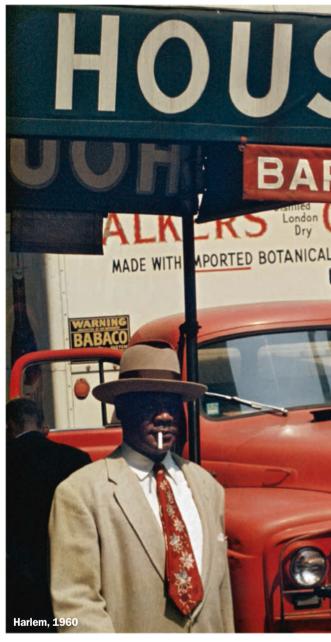
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Saul Leiter: An Unfinished World

Until 2 June at MK Gallery, 900 Midsummer Boulevard, Milton Keynes MK9 3QA. Open Tue-Sun, 10am-5pm.

The largest-ever display of Saul Leiter's work in the UK is essential viewing for admirers of this enigmatic artist, writes **David Clark** This exhibition's title comes from a quote by Saul Leiter himself: 'Photographs are often treated as important moments, but really they are fragments and souvenirs of an unfinished world.' Leiter (1923-2013) spent much of his time capturing those 'fragments and souvenirs' and photographed every day for around 60 years. He worked in the same streets in East Village, Manhattan, but always found something new to capture.

Born in Pittsburgh, at the age of 23 Leiter famously left his family home and the future his Orthodox rabbi father had planned for him and started a new life in New York. He initially aimed to become a painter, but by the late 1940s was experimenting with colour photography. During the 1950s and '60s, mainly due







to financial necessity, he became a fashion photographer for magazines including Harper's Bazaar and Nova.

His real passion was for his own personal work, which he worked on steadily without any real desire for recognition or fame. These painterly photographs capture everyday moments on the streets in an almost abstract, poetic style. He often uses reflections or shoots through misted-up windows and there's a careful and sometimes sparing use of colour. Leiter had his first solo exhibition of black & white work in New York in 1993, but his work remained almost unknown to the public until he was 82 years old, when his first monograph was published.

When he died in 2013, he left a

remarkable collection of still largely unseen work: 15,000 black & white prints, over 40,000 colour slides and more than 4,000 paintings. Although he was increasingly celebrated in the latter years of his life, recognition of his work's significance has continued to grow during the past decade.

This touring exhibition, the largest-ever display of Leiter's work in the UK, includes 171 photographs and over 40 of his paintings. Although Leiter is mainly celebrated for his colour photographs, the images on show give roughly equal weight to his lesser-known black & white work. Seeing this exhibition is highly recommended for anyone interested in this enigmatic and self-effacing artist's unique oeuvre.





The act lofting

The great American photographer Joel Meyerowitz talks to **David Clark** about his creative journey from black & white street photography to large-format colour work oel Meyerowitz is strongly associated with locations including Cape Cod in Massachusetts, rural Tuscany and the busy streets of New York, where he has created some of the most memorable work of his 60-year career. So it seems strange to be interviewing him on a freezing cold January day in a residential area of north London, where he now lives and works. 'Well, here I am,' says Joel at the door of his studio, as if also slightly surprised to find himself there.

Although a few months from his 86th birthday, Joel is remarkably youthful for his age; he's in very good shape both physically and mentally, and speaks as eloquently as ever. His compact, bright, white-walled studio, which he shares with his partner and fellow artist Maggie Barrett, is filled with neatly arranged books and prints, as well as assorted objects that have featured in his still-life work.

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Joel lived in New York for the majority of his adult life, then Siena, Italy for a decade before moving to London last year. Siena proved a fruitful ground for his photography and led to books of landscape and still-life subjects. He moved to London partly because Maggie was involved in a serious accident over a year ago and the city offers high-quality medical care, but also so he can be close to the social and cultural life.

'I really enjoy myself here,' he says. 'I've been productive since we arrived and have printed most of the work for two exhibitions. And there's a sense of community and a quality of life in London that feels good to me, compared to New York which feels more pressurised now.

'I like photographing here, although I don't have a project that's ongoing right now because other things are, in a way, of deeper interest to me personally. But I like being out on the street here. Street Above: Covered Car, Redwoods, California, 1964 life is good when you're in the centre of a city.'

Shooting in black & white - and colour

Joel started out his lifetime's creative journey in photography in 1962. He was famously inspired to start using a camera by watching Robert Frank at work on an advertising shoot. He quickly established himself as one of the leading street photographers of his generation and he often worked directly alongside friends and contemporaries including Tony Ray-Jones and Garry Winogrand.

At the time, black & white was considered the only type of photography for serious artistic photographers, while colour was used for commercial work, glossy magazines or amateur snapshots. There was a great antipathy in the art world towards using colour; as the great American photojournalist Walker Evans said, 'Colour tends to corrupt photography...colour

photography is vulgar.' Although Joel worked in black & white, he also used colour extensively from the beginning and is now seen as one of its leading exponents for artistic photography in the period.

This street work forms the main part of Joel's exhibition at Tate Modern, A Question of Color. This section consists of pairs of images of the same scene, shot on colour and black & white 35mm film, and invites us to compare the images. Sometimes the two images are very similar, and other times they're quite different. They have come about because when Joel was working on the streets, he would take two cameras - mainly Leicas - one loaded with black & white negative film and the other loaded with Kodachrome colour transparency film.

He says he shot two versions of a situation to prove his point – long since accepted now, but radical at the time – that colour is the

best way of capturing and interpreting the abundant variety of the world around us. 'Working in colour requires a larger sensibility,' he says. 'It meant I could play photography on a richer scale [giving] a more intimate, personal understanding of what time and life and light mean, rather than in the reductive, narrow scheme of black & white.

'And that's what I think those pictures at the Tate Modern offer the viewer. You look at them side by side and you can see the bones of the picture in black & white. But when you see the same thing next to it in colour, and you see the nuances and the way light bounces around and comes up off a wall and flashes back, you can start to look into it dimensionally and emotionally, I think in ways that are expansive, they're symphonic, rather than like playing a solo instrument.'

It's interesting to view the pairs of pictures side-by-side in the exhibition; as well as comparing the colour and black & white rendition of a scene, one can also look at how he made pictures of the same situation from different angles and how it developed over a short time period.

'What I appreciate most is the challenge it poses to the viewer and the engagement [it provokes]. The Tate says people spend more time in that room than just about any other room in that wing of the gallery.'

Colour work

Although photo-historians previously credited William Eggleston, Stephen Shore and Joel with striking out a new direction in photography by their use of colour in the 1970s, the exhibition shows that Joel was using colour much earlier. In fact, it was he who initially spurred Eggleston on to take up colour photography.

'In 1968, Eggleston came up to New York to meet the New York photographers and to show his work,' Joel remembers. 'He came to my house one night and showed me 50 8x10in black & white prints and I showed him 300 colour slides in a carousel projector. I enlarged them on the wall so the pictures were two feet across.

'He left at 3.30 in the morning, saying, "I'm shooting colour from now on, you've converted me." But at that time, you couldn't easily





Jeu de Paume, Paris, France, 1967

make colour prints that were high-quality, because you had to go from the slide to an inter-negative to a print. And the inter-negative lost depth in the shadows, and tone in the highlights were kind of muddy.'

At the time, the only way to make a really high-quality colour print was by using the dye transfer process, which was complicated and expensive. Joel continues, 'In the late '60s, dye transfers cost \$300 to make one print and when I was working in the '60s I was earning

\$50 a week. So \$300 was like a month's rent. It was impossible. But Eggleston was a rich kid, so could afford it and was able to make these prints.' Eggleston's first major exhibition of dye transfer prints, held at New York's Museum of Modern Art in 1976, is often seen as a turning-point in the acceptance of colour photography as an artistic medium.

Joel's use of Kodachrome also had the effect of changing the kind of images he wanted to shoot. 'I

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wanted to get everything sharp, because Kodachrome was sharp, so I saw that to make the depth I needed, I would have to double my normal shooting distance. I saw I'd have to give up shooting "the incident" so that I could get everything in the frame and make what I called a "field photograph".

'That changed my perception of what was interesting on the street. I needed to see multiple actions and connections going on at once, so it was really much more engaged and

London, England,

inter-related, rather than an object or an incident being the single thing. So I found myself making a more difficult kind of picture.'

One example of this kind of image is West 46th Street, Manhattan (shown on page 21), a New York street scene that captures a range of people and buildings in one frame. There's no one single subject; the subject is everything in the picture.

However, this change in approach meant Joel also needed to change the format in which he was shooting. He says, 'The print quality [of the 35mm pictures] wasn't good enough, but I knew if I worked with an 8x10in negative I would have everything and I could print it, because the labs could print bigger negatives at large scale.' So in 1976, Joel bought a 1938 Deardorff 8x10in view camera, which was made of mahogany and brass with a leather bellows.

He spent the summer of that year in Cape Cod on the Massachusetts coast, making detailed, meditative colour images that captured the location's atmosphere and quality of light. The result was *Cape Light*, a popular and influential book that went on to sell over 150,000 copies and launch a completely new phase in Joel's career. This led on to many other projects in the following years, selections from which are included in the Tate Modern exhibition.

They include his Empire State series (1978), a collection of New York urban landscapes, taken in different locations but which all include the iconic Empire State Building; and Aftermath, a monumental series of detailed images created in the sheer devastation of Ground Zero in the weeks and months following the 11 September 2001 attacks on the World Trade Center.

Today and tomorrow

As well as the Tate Modern exhibition, Joel also currently has another exhibition in London, at the Huxley-Parlour gallery. Titled 'Dialogues', it also presents his work in pairs, but this time there's a different relationship between the images. 'Sometimes you see two pictures near each other and they have a kind of conversation,' says Joel. There's something that makes you want to put them together in a book or hang them together on the wall.

'So I thought, why don't we do a set of pairs of pictures that are in dialogue with each other? Some pictures just relate to other pictures – it might be scale change, it might be colour relationships, it might be a space that has similarities in it. What I really would like to do is to engage the viewer in the act of looking.'

Joel has also published two books during the past year: A Question of Color (Thames & Hudson, 2023), which shows a wider range of his colour/black & white street







photographs of the 1960s and '70s than the Tate Modern display, and *The Pleasure of Seeing* (Damiani, 2023) in which he discusses his life in photography. 'I'd like to write an autobiography, but when am I going to find the time to do that?' he asks. 'So that was a

good way of doing it.'

Joel is currently less interested in developing new projects than revisiting old ones that didn't receive exposure at the time they were made. 'I'm more interested in revisiting the unseen works and doing the books that were not

Above; California, 1964

published back in the '70s because there was no market at the time,' he says. 'I have more than 20 years of work, six or seven different big bodies of work, and I owe it to myself to bring them to the public now. I want to engage with myself in a way that I think is justified.'



He is at an age when most people have long since slowed down or have stopped working. What keeps him inspired and gives him his

zest for life?

'I see a lot of people younger than me who are schlumping around and life is over,' he says. 'I'm an optimist. I have been my entire life. I think humanity is capable of extraordinary optimism and poetry and grace – I see that, and I see the humour in it. And I think it's the humour and absurdity, mixed with the grace and the beauty, that keeps me engaged.'

A Question of Color is on show at the Tate Modern, South Bank, London SE1 9TG until 3 November. The book of the same title is published by Thames & Hudson, price £20. A separate exhibition, Joel Meyerowitz: Dialogues, is on show at Huxley-Parlour, 3-5 Swallow Street, London W1B 4DE until 2 March.



Above: New York City, 1966

Left: New York City, West 46th Street, 1976. This is one of Joel's 'field photographs', showing 'multiple actions and connections going on at once'



Born in 1938 into a working-class Jewish community in The Bronx, New York, Joel started his professional life as an art director at a small design agency before taking up street photography in 1962. He later moved on to large-format photography using a 1938 Deardorff view camera and published *Cape Light* (1976). Since then, he has produced dozens of books, including *St Louis and the Arch* (1980), *Tuscany: Inside the Light* (2003), *Aftermath: The World Trade Center Archive* (2006) and *Cezanne's Objects* (2017). He has twice been a Guggenheim Fellow, and received the RPS Centenary Medal in 2012 for his lifetime's achievement in the art of photography. **www.joelmeyerowitz.com**



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A week in Shanghai with the Nikon Z f

Nigel Atherton spent a few days in China shooting with the Nikon Zf, and shares his impressions

he late 1970s and early 1980s were a golden age for photography. A new wave of smaller, more refined and more affordable 35mm SLRs had appeared, led by Olympus, whose TV ads made household names of Bailev. Donovan and Lichfield. Photography was cool. AP's highest ever readership peaked in 1980, just a few short years before computers, gaming and satellite TV gave photography more competition for the public's attention.

Of all the cameras from that era, none has maintained the mystique and desirability of the tank-like Nikon FM and its successors. Those iconic models have come to define what a classic 35mm SLR should look like. They represent the zenith of 35mm camera design to many people but not, it seems, to Nikon's design team who turned their back on this styling in the 1990s – a low point for Nikon

camera design. I feel.

I have owned a succession of Nikon cameras since my first one in 1985 (film SLR, DSLR and mirrorless) and all have been excellent, but none has quite had the same aesthetic appeal. In recent years Nikon has belatedly come to understand the depth of affection for those classics. In 2013 it launched the Df, based on the D610, which looked like a super-sized FM. In 2021 the mirrorless Z fc nailed the looks, styling and dimensions of the FM series almost perfectly, but being based on the company's entry-level, APS-C format Z 50, it never really stood a chance of walking in the FM's shoes. So when Nikon launched the fullframe mirrorless Z f late last year the internet went nuts. Finally here was a camera worthy of the mantle. A proper Nikon.

A trip to Shanghai

When I had the opportunity to spend a few days in Shanghai in

December, I knew instantly which camera to take. The Z f came supplied with the similarly retrostyled Z 40mm f/2 SE but I opted to take a couple of extra lenses to cover all bases. I chose Nikon's Z 24-120mm f/4 S as my go-to walkabout lens. I consider this to be the company's best travel zoom - wide enough, and telephoto enough, to cover 90% of my needs without being too big and heavy. Almost as an afterthought I added the 26mm f/2.8 pancake, Nikon's smallest, lightest full-frame lens, for discreet street shots.

Taking the Z f out of its box it felt surprisingly heavy and sure enough, my kitchen scales told me that it is indeed heavier than my Z 6, but only by 50g (713g vs 665g). But the weight difference feels a lot greater than that, purely because, unlike the Z 6, it doesn't have a handgrip, so it's like the difference between holding a brick one-handed versus holding a dumbbell of the



For under £40 this completely transforms the Z f's handling and solves the problem at a stroke.

It might be tempting to think of the Zf as a re-skinned Z6II but although that's the closest model to the Z f in terms of price and specs, the Z f has a few new features borrowed from the Z 8 that make it more like a Z 6III, including the Expeed 7 processor and next-generation subject detection AF.

If I'm honest I don't really care about what's on the inside as long as it focuses quickly and painlessly on what I want it to. Which in Shanghai was mostly going to be either buildings



(hardly challenging) or people. Of which there are rather a lot.

Street shooting

Shanghai is the world's biggest city, with a population of around 25 million. Divided vertically in half by the Huangpu River, on the west side is old Shanghai, where imperial temples and gardens from various dynasties mix with

colonial-era Shanghai from its 19th century occupation by the British and French. On the east, modern Shanghai – a forest of glass skyscrapers, several of which rank among the world's tallest buildings. Remarkably Pudong (as this side of the river is called) was mostly farmland and warehouses till about 30 years ago. The transformation

is just astonishing.

My hotel was on the older west side. Just a five-minute stroll away was People's Square, home to a large public park fringed by museums, theatres and municipal buildings, as well as a major interchange on Shanghai's extensive metro network, so it was my first stop after checking in. I expected to

see public art celebrating communism, and old people doing Tai Chi, and I wasn't disappointed on either count.

Shanghai is a great place for street photography because there is so much going on. The problem I found was that as a Westerner with a big camera I stuck out like a sore thumb, and attracted a lot of





attention, especially when I had the 24-120mm lens mounted. Although the Chinese are famously photography-mad and there were social media influencers everywhere. I noticed relatively few actual cameras.

I found I was less obtrusive when I fitted the 26mm pancake lens, so that became my first choice in crowded places and proved very useful. I could lift the camera to the eye, shoot and lower it again in a couple seconds or, even more discreetly, shoot from the hip hoping that the AF would do its thing, and I was rarely let down. In order to be even more discreet, I custom-set the red video record button to turn on the silent shutter when maximum stealth was required.

Flippy screen

Shooting from the hip though was not as discreet with the Z f as it could have been, because of Nikon's decision to make the LCD screen a vari-angle type rather than a tilting one. This might be great for vloggers and video shooters who film themselves,

but not so much for street photography because it sticks out from the side of the camera and signposts what you're doing to anyone in the vicinity. I confess I find these fully articulating screens a bit awkward for stills shooting and much prefer the screen to stay on the optical axis. The Z 6II tilting screen isn't ideal either because it only tilts up or down, so it's useless for vertical shooting.

For me, the best implementation is the two-way tilt screen Nikon fitted to the Z 8 which tilts up or down below the viewfinder, whether the camera is held horizontally or vertically. Fujifilm also used this type of screen on the cheaper X-T5, so I don't see it as a cost issue. Perhaps Nikon wants to attract the vlogger audience to the Z f, though I'm not sure why the firm would want to choose a camera styled to look like a 1970s analogue stills camera. On the other hand, the Z f is a perfectly capable video camera, as long as you don't want to shoot slo-mo in 4K.



From People's Square I headed down Nanjing Road, Shanghai's answer to Oxford Street, which is filled with flagship stores by global brands like Nike, Zara, Cartier and Apple. Western fast-food brands like McDonald's and Haagen Dazs rub shoulders with Chinese street food vendors selling squid tentacles on sticks and meat-based products of unknown origin.

If you head eastward, you arrive at The Bund, a pedestrianised stretch of the west bank of the

river lined by Shanghai's grandest and most impressive colonial buildings, many of which are now luxury hotels. If you time your arrival just right you are greeted with a jaw-dropping spectacle on the far side of the river. Pudong, as the area east of the Huangpo is known, is impressive enough in daylight but at night it is like a Blade Runner-esque vision of the future. The skyscrapers come alive with LED lights and advertising displays that cover their entirety.



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IN THE FIELD



Ditch the tripod

A walk along the Bund at night is one of the highlights of any visit to Shanghai, equalled only by a night cruise along the river. Although I had taken a tripod with me to Shanghai. I didn't use it. Shanghai is a crowded city and also a very heavily policed one. You can barely walk 100 metres in any direction in the city centre without passing a policeman, often standing in a raised sentry box. I wasn't entirely sure of the rules and decided to avoid any potential hassle by trusting the supposedly new and improved in-body image stabilisation (IBIS).

The Z f boasts a new and unique feature whereby it uses the camera's focus point to determine from where to base its rotational correction, rather than always pivoting from the centre. I don't know how much difference this makes in real terms, but I do know I was able to get pin-sharp handheld shots at 1/8th sec and I'm sure I could have gone lower if I had wanted to push it. It was also encouraging that the camera's AF did not falter even in semi-darkness, locking onto its

subject in dimly lit street scenes without breaking a sweat.

My only criticism of the AF is the strange lack of a joystick control on the back, which I really missed when trying to direct the focus towards an off-centre figure in a crowded scene. The Z 6II has one, and the Z 8 has one, so I really don't know why the Z f doesn't. Instead, you have to use the d-pad, which works fine but as a left-eye shooter it requires my thumb to have to fight my nose for possession of that particular space. You can alternatively use the rear touchscreen to focus but I find that even more awkward. Besides, a joystick just feels better to use.

Shanghai is a city that just cries out to be viewed from a high vantage point, and fortunately many of the city's skyscrapers offer observation platforms. The most distinctive and instantly recognisable of these (though by no means the tallest) is the retro futurist Oriental Pearl TV Tower. Shanghai's most iconic structure comprises a string of connected spheres of different sizes, the largest two housing most of the

visitor attractions. The Pearl has both indoor and outdoor observation decks, the latter with a glass floor, so it was the one I decided that I had to shoot from.

I timed my arrival to just before sunset. The problem with most observation decks is that you have to shoot through glass. Fortunately the outdoor deck has a gap between the top of the glass and the overhanging ceiling which was just about reachable, and was wide enough to poke my 24-120mm lens though. Thank heavens for the vari-angle LCD screen. The view over the river

was west-facing so I was shooting directly into the sun, but with the lens hood attached flare was only an issue in a small number of shots, and in any case I'm pretty relaxed about flare in contre-jour photos.

Retro or modern?

The Z f offers the user a choice between the traditional film-era method of shooting and the modern DSLR method. For traditional shooters there's a shutter speed dial and an ISO dial, but of course Nikon's lenses lack manual aperture





rings, so you still need to use the front thumbwheel to adjust the f stop. Alternatively, if you have any of Nikon's S-series lenses you can assign the customisable control ring to be an aperture ring, as I did with the 24-140mm f/4 S. You don't get click stops, but personally I didn't find that a problem. If you don't have S-series lenses all is not lost, because you can, if you really want to, assign the focusing ring to be an aperture ring. But then you can't use it for focusing.

The shutter speed is of course stepped in whole-stop increments from 1/8000sec down to 4 secs, plus B, T and X, and a green setting called '1/3rd step'. This position passes control of the shutter speeds to the rear thumbwheel (or the front one if you choose to set it up that way) which then makes the Z f handle iust like a modern DSLR or mirrorless camera, where both

aperture and shutter speed are input using front and rear thumbwheels. The top-plate dials mean there's no room for a big LCD display but there's a tiny one that just displays the aperture. It feels a bit like an afterthought, but I can see why it's there.

Much as I had been hankering after those traditional top dials, in practice it became apparent that 20 years of shooting DSLRstyle has given me a muscle memory for those front and rear wheels. I found myself instinctively using those and completely forgetting about the top-plate controls. I found it a hard habit to shake though I'm sure in time, with extended use. I would soon overcome it. But the fact remains that my affection for the old ways is based more on nostalgia than practicality.

Front and rear wheels are quicker to use, and you have the benefit of third-stop increments.

It's great that the Z f gives users a choice of shooting styles, but if vou find vourself alternating between the top-plate dials and the thumbwheels it's easy to get vourself in a muddle. On more than one occasion I found myself trying to adjust the shutter speed with my thumb and finding the setting stubbornly refusing to move, before realising that I'd forgotten to set the shutter speed dial on the top to the '1/3 stop' position.

One very annoying Nikonism is that to switch between auto and manual ISO you have to go into the camera's menu, scroll down to the ISO and then go into the sub-menu. I don't know why Nikon couldn't have just put an A position on the ISO dial. Also, the Auto ISO only goes down as far as whatever the top-plate ISO dial is set to. Undoubtably these are foibles that one would soon get used to.

Mono magic

One feature of the Z f that excited me was the dedicated B&W position on the collar around the shutter dial. Nikon offers a choice of B&W profiles, including a flat one and a punchier one. Obviously if you shoot in raw+JPEG you also get a colour raw file so you can change your mind later.

The Z f offers dual card slots. but strangely Nikon went for SD and Micro SD slots. As someone who cursed having to shell out an arm and a leg for the pricey CFexpress cards for the Z 6 it was irritating that I couldn't just use those in the Z f. But if I was starting from scratch I'd be relieved that I could save the expense. For fast-burst shooters or video work the Micro SD card is a dubious choice, but for me as mostly a stills shooter who hardly ever takes the drive mode off the 'Single Shot' setting I don't care at all.

The only annoyance is that to get the Micro SD card out, you have to remove the battery first. It's probably best to use that card just for emergency back-up and leave it in there, but for some reason I decided to shoot raw files to the SD and JPEGs to the micro SD, with the aim of backing up the JPEGs daily to my Dropbox.

Taking out the Micro SD card was the only time I ever needed to remove the battery, thanks to in-camera USB charging. Although I took a spare battery, I never needed to use it because the one in the camera never ran out. But that's perhaps because I'm not a spray-and-pray merchant. I can't face having to spend hours going through two dozen subtly different versions of every shot.

Conclusion

The Z f is not without its quirks and foibles but it's a camera that just begs to be picked up and used. It's as engaging to use as it is beautiful to look at. Performance-wise it outdoes the



Z 6II in every way. Not only is it the best Nikon you can buy for less than the Z 8 (which is double the price), it may well be the best full-frame mirrorless camera at its price point of any brand. It's certainly the most engaging to use, once you fit the Smallrig grip. The pixel count may be on the low side for some users but personally I have no desperate need for any more than 24MP.

But there is an elephant in the room: the Fujifilm X-T5. Fujifilm cornered the retro mirrorless market years ago, and the latest evolution, the X-T5, is a stunning camera. In terms of size and weight, it's a much closer match to the FM2 than the Z f is, and it

feels a lot better in the hand, thanks to a more ergonomic handgrip and rear thumb rest. (The Z f is actually closer in size and weight to the pro Nikon F3).

The X-T5 is also cheaper, and Fujifilm has an entire range of superb, small AF lenses with aperture rings designed to go with it. On the other hand, the Z f works pretty seamlessly with millions of older manual Nikon lenses with manual aperture rings if you're happy to use those via mount adapters. What's more, the Z f will give you the best and most sophisticated manual focusing experience of any camera, by turning the camera's subject, face and eye recognition

functions into focusing aids.

The Z f also offers outstanding. pro-level build quality, a more state-of-the-art AF system, and of course a full-frame sensor, which matters to some people. The X-T5 squeezes 40MP onto its APS-C sensor while the Z f has only 24MP on a full-frame one. So the X-T5 wins on resolution, but on the other hand, the Z f delivers superior dynamic range and high ISO performance. But does either really matter? Not to most people. I long ago stopped worrying about image quality. Both cameras (and indeed almost any modern mirrorless camera you can buy today) deliver much better image quality than most of

us will ever need.

Fujifilm has owned the retro market for a decade but, in the Z f, the X system now has a formidable adversary. It's the Nikon that many people have been waiting for and on the whole it doesn't disappoint. For my needs I'd happily choose a Z f over the much higher spec Z 8 and put the money saved towards extra glass. I only have one question: where's the silver version?

To watch our video review of the

Nikon Z f on AP's YouTube channel, simply point your phone's camera at this QR code



The Z f offers quick access to B&W mode via the collar around the shutter dial Nikon Z f, 40mm f/2, 1/250sec at f/8, ISO 200

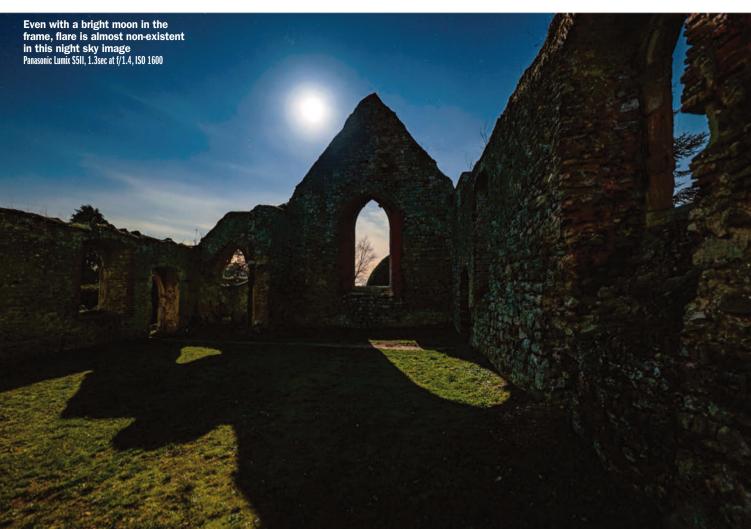




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Sigma 14mm F1.4 DG DN Art

Sigma combines super-wide, super-fast and superfeatured to offer night-sky enthusiasts lower ISO settings and plenty of control, says **Damien Demolder**

f you want a 14mm lens for vour full-frame mirrorless camera, with autofocus and a maximum aperture of f/1.4, the Sigma 14mm F1.4 DG DN Art is the only game in town. No one else makes anything quite like it, with the closest alternative being the Sony FE 14mm F1.8 GM. Yet despite its large aperture, it's not wildly

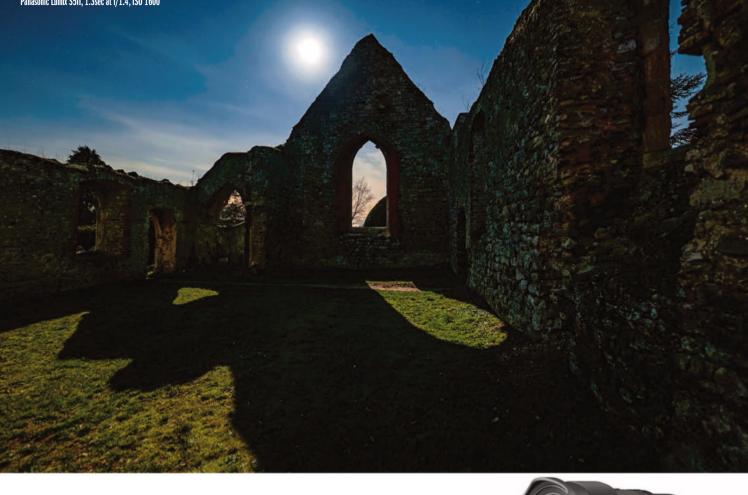
expensive: it costs £1,400, compared to £1,300 for the Sony f/1.8 lens.

There are a couple of reasons other brands don't make a lens this wide with such a fast maximum aperture. Firstly, they are hard to make well. Secondly, with the sort of depth-of-field you get with a 14mm lens, f/2.8 has usually been seen as a large

enough opening. Sigma though is aiming this ultra-wideangle optic at night-sky shooters who need to carefully balance their shutter speeds with their ISO settings, so a super-fast maximum aperture makes life very much easier. Indeed, the firm has gone to quite some lengths with its other features to keep the astrophotography crowd happy.

Features

With its 114.2-degree angle of view, this lens offers an extremely wide view, which makes it ideal for recording small spaces and open landscapes, as well as vast expanses of the night sky. It's distinctly large and heavy when compared to other 14mm lenses, at 15cm long and 1,170g. However, Sigma is very proud that this is almost exactly the same size and weight as its previous 14mm f/1.8 that was designed for DSLRs. This new model lets in two-thirds of a stop





more light, so maintaining the same dimensions has been quite an achievement. That the lens has been specifically designed for mirrorless bodies helps, of course, as the distance to the sensor is shorter.

Sigma has used an optical design containing 19 elements in 15 groups, including four aspheric elements, three made from FLD glass and one from SLD glass to help tackle chromatic aberrations. The aspheric lenses are important here, as we need

30

the edges of the frame to be as sharp and detailed as the centre. In astrophotography, we often need to look at subjects that aren't in the middle of the frame.

Now we have excellent software for fixing basic problems with optics, Sigma has taken the decision to leave the final correction of geometric distortion and vignetting to the in-camera firmware and software profiles. This allows it to concentrate on the things software can't fix, such as the resolution of detail and

chromatic separation. Software can fix colour fringing, of course, but it inevitably leaves images much less detailed.

For astrophotography, we need lenses that perform at their best when focused to infinity, and which can resolve tiny dots of light without blurring their edges and making them appear smaller. Sigma says it has concentrated on minimising flare and ghosting, so we only get to see the light that comes directly from the objects, not reflections from inside the lens. This is especially important when we have bright objects in, or just outside, the frame, such as the moon or street lights.

We have an iris with a total of 11 rounded blades which closes down to f/16. You are never going to use this lens for macro, but it does focus very close. Sigma says the closest focus distance is 30cm, but perhaps it is being modest. I found close focus more like 24cm from the sensor, and less than 10cm from the front element.

Rear filters

Fitting filters to ultra-wideangle lenses is an age-old problem, as

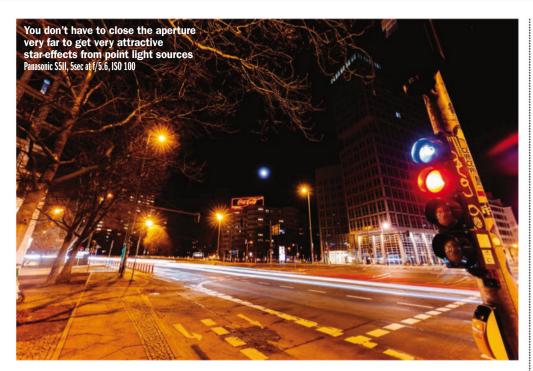
bulbous front elements make screw-in filters impossible. The issue is often solved with mounting systems that envelop the hood and the front of the lens, but these are usually very bulky and require large filters. Having a filter slot at the rear of a lens isn't a new idea, but is one not employed all that often, so it's very nice to see one here. It means we can use very small filters instead of massive sheets of glass, and as they are protected from stray light, they create no additional flare.

The downside, perhaps, is that our choices are significantly reduced as fewer manufacturers make rear filters, and those that do don't produce a huge selection. So for the most part we will be looking for NDs and astro filters. The filters used are the same GP-11 models as used by the Sigma 14-24mm F2.8 DG DN. If you can't find the filter you need, Sigma provides a template in the box that you can use to cut your own gels to fit.

These filters clip neatly into a frame over the rear element, so the lens needs to come off the camera for them to be fitted.

This means filters are less





convenient to change, and filters that need rotation, such as polarisers, can't be used.

Build and handling

In terms of design and controls, things are pretty standard for Sigma Art lenses these days. There's a manual focus ring at the front, with an aperture ring behind that's marked in third-stop intervals. We have the option to de-click the aperture and a lock to keep the aperture ring in either Auto or manual. There's also a switch to deactivate the manual focus ring, an AF/MF switch, and a customisable function button.

The lens also comes with a very solid tripod collar that can be removed, and which loosens so the lens can rotate. When the collar is removed we can fit a supplied protective ring to cover the fittings, and the foot comes with Arca-Swiss moulding as well as a regular 1/4in thread with anti-rotation pin holes.

On the front there's a monster lens cap, that locks very nicely to the hood and which won't come off easily by accident. It is so thick because it houses handy storage places for two GP-11 filters.

One nice addition is the provision Sigma has made for attaching a warming belt to the front of the lens. It isn't a

dramatic design feature, but your belt will nuzzle up neatly to the step at the rear of the hood, so the warmth will remain in the lens rather than in the plastic hood. It just makes things a bit easier, and will be appreciated by astrophotographers working on cold nights who want to prevent condensation forming on the front element. It can be disappointing to complete an extremely long exposure only to find your front element was misted up for some of it.

Autofocus

Inevitably, the autofocus in this lens is extremely quick. Focal lengths like this have such extensive depth of field, even at f/1.4, that the focus module never has all that far to travel. Even so, it whizzes rapidly from the closest focus point to the infinity position.

Performance

Probably one of the most remarkable things about the optical performance of this lens is the way distortion is handled. Without the profile corrections there is some bending at the edges of the frame, but it is nowhere near what I was expecting. With the profile on, all of that bending goes away.

As the software corrections only need to be quite moderate, we don't lose detail and shape in objects close to the corners of the frame. So while Sigma is happy to say that it relies on software to correct barrelling so it can concentrate on other areas, it has also done a lot of work in the optical design to ensure what barrelling exists is only moderate. Thus, we get straight edges as well as masses of detail right across the frame. It really is though, one of those lenses you need to work hard to keep level.

Sigma claims to have optimised the lens for infinity focus, which makes sense for astrophotography. But that doesn't seem to have come at the cost of what the lens can do at regular, and even close focus distances. I found I could shoot wide open at any distance and rely on a very detailed image being recorded.

I'm extremely happy with the wide-open resolution, though as you'd expect it improves slightly as we stop down. There's no surprise that best sharpness comes at f/5.6, and that it tails off a little bit beyond f/11. But all the way through the range you'll get excellent results. Shape and sharpness are really well preserved right into the corners, so the tiny dots of stars appear as dots instead of ovals or lines.

Verdict

THIS 14mm F1.4 DG DN is another outstanding Art lens from Sigma. It might be a bit specialist, but if you are into astro and landscape photography you will be delighted. While it is aimed at the infinity focusers, it is well enough corrected to use for interiors too, and small-space subjects that need straight edges. Of course, if you are going to stop it down to f/5.6 you will miss some of the excitement of the lens, so make sure you use it wide open as well to make the most of that extraordinary f/1.4 aperture.

Yes, it is quite big, but the size enables the optical quality. I suspect that most users will fit the lens to a tripod for the majority of the time it will be in action. Even with natural subjects, we need to be careful to keep the lens dead level to avoid exaggerated distortions.

That the company has been thoughtful enough to include a moulding for a lens heating belt is a great thing, and an aspect astro workers will appreciate on cold nights. The rear filter holder is equally useful for NDs and anti-light-pollution glasses, but the best thing is the optical quality. It's an all-round excellent bit of kit, that I've loved using.

Data file

Price: £1,399.99 Filter diameter: Rear filters Lens elements: 19 **Groups: 15** Diaphragm blades: 11 Aperture: f/1.4 - f/16

Min focus: 30cm Diameter: 101.4mm **Length:** 149.9mm **Weight:** 1,170g Mounts: Sony E, L Included accessories: Caps, case, tripod mount, filter template





Professor Newman on...

Motive force

Professor Robert Newman explains the various types of autofocus motors commonly used by lenses

ver the past few years, the variety of focus motor systems, all with impressive and sometimes even poetic branding, has burgeoned. So, if you have difficulties differentiating between a Silky-Smooth Voice coil Motor and a Rapid eXtra-silent stepping Drive and you'd like to know how they work, then this article should be of interest to you.

The first three autofocus SLRs, the Pentax ME-F(1981), the Nikon F3AF (1983), and the Canon T80 (1985), all had focus motors built into the lens. This made the lenses bulky and unwieldy, and none of them caught on. Alone amongst the manufacturers. Canon persisted with the in-lens motor. The design problems here are to do with torque. Driving torque is how much twisting force a motor can apply, while holding torque is how much force can be applied to a stationary motor without it moving.

A conventional electric motor has low torque relative to its size. The usual solution to this is a gearbox, which converts from high speed/low torque to low speed/high torque. It was in part the gearbox that had made previous AF lenses so bulky.

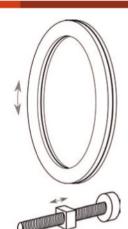
In the lenses for the 1987 Canon EOS 650, this was solved using two technologies. The first was 'Arc-Form Drive' (AFD), simply a cleverly packaged gearbox, which could fit within a cylindrical lens. Canon's more consequential advance was the ultrasonic motor (USM). This was a different form of motor with the required high torque/low speed characteristics. A ring of a piezoelectric material (that changes shape when

subjected to an electric charge) is sandwiched between two metal rings. By providing a high frequency modulated charge, the piezo ring can be made to flex into a wavy shape. This can be made to move around the ring, moving the relative position of the outer metal rings, and therefore turning the focus scroll.

The ultrasonic motor was adopted by every manufacturer, using brand names such as 'Hyper-Sonic Motor' and 'Silent Wave Motor'. Sometimes it is packaged as a small discrete motor, similar in form to a normal electric motor, which drives the scroll via a small gear. Typically the focus scroll is attached via a differential gear working against the manual focus ring, allowing manual focus whilst the AF is still operational, made possible by the high holding torque of the ultrasonic motor.

In digital cameras, there is no real possibility of operating the camera without a battery. So manual focus can be achieved using 'focus by wire', whereby the focus ring is simply a rotary encoder which signals the AF to change focus. This has allowed much simpler focus mechanisms, using two kinds of motor.

A stepping motor is a conventional electric motor, but designed to rotate one step at a time, on command from a microprocessor. Using toothed magnetic poles inside the motor, these steps can be made very small, typically 2 degrees of rotation per step. A stepping motor can drive a conventional focus scroll directly, they are very inexpensive to manufacture, and the drive electronics are cheap



The ring-type ultrasonic motor (top) provides a direct drive to rotate the focus scroll of a conventionally designed lens. The stepping motor (centre) and voice-coil motor (bottom) provide linear motion to change the position of an internal focusing group.

and simple. Hence they have become the default motor type in modern AF lenses.

At the top end of the lens market, voice-coil motors have become the favoured solution, providing very fast and quiet focusing. As the name suggests, these are derived form the electromagnetic voice coil that drives a loudspeaker. They provide a linear drive that can act very quickly indeed. Their use requires a particular design for the lens, with internal focusing using groups of lenses, which need not move far to provide the full range of focus. Also, the drive electronics are quite complex, which is why they are a premium solution, even though the voice coil itself is inexpensive.



Bob Newman is currently Professor of Computer Science at the University of Wolverhampton. He has been working with the design and development of high-technology equipment for 35 years and two of high products have won innovation awards. Bob is also a camera nut and a keen amateur photographer

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In-camera pixel shift vs

Let the battle between in-camera and software-based high-resolution imaging commence. **James Abbott** investigates two approaches that promise to quadruple image resolution

he ability to capture ultra-high-resolution images for producing extra-large prints or to increase the resolution of lower-resolution cameras – those around the 20-30MP mark – is an enticing prospect for photographers. And with more and more cameras offering in-body image stabilisation (IBIS), a related feature known generally as pixel shift, where a series of images are taken in quick succession as the sensor shifts position, can be used to create ultra-high-resolution raw files.

Pixel shift is a feature that camera manufacturers naturally use as a selling point and on paper, it sounds amazing. But like many multiple exposure-based techniques, it's certainly not without its downsides: huge file sizes, the necessity to keep the camera locked solid on a heavy tripod, the need for a powerful computer, hefty storage requirements and the potential for ghosting of moving elements in a scene. But what you ultimately have to ask yourself is, are these and the many images that need

to be captured worth the result in some cases?

To put this into perspective, pixel shift typically quadruples the raw file size a camera is capable of capturing. But some implementations go further – the Canon EOS R5 can even produce 400MP images. Some cameras, such as OM System/Olympus and Panasonic, create the larger raw file or JPEG incamera. But most will capture between four and 16 shots that are then merged in the relevant camera manufacturer's software to create a new raw or JPEG file with eye-wateringly large dimensions and storage requirements.

Alternatively, Adobe Camera Raw and Lightroom offer a feature called Super Resolution which also quadruples image dimensions. This works with raw files from almost any camera, except mobile phones, and creates a new DNG file. This allows you to continue to enjoy the processing benefits of capturing raw files, albeit with a larger image file that's interpolated purely in software, rather than by using multiple native-size raw files merged together.



Which cameras have pixel shift?

Without creating a full list of all of the cameras that offer pixel shift functionality, we'll instead cover the camera manufacturers where some of their camera models provide this feature. The main requirement is that the camera offers IBIS, and each manufacturer has its own name for the feature. Typically, the pixel count is increased four times, which coincidentally matches the image size increase offered by Adobe's Super resolution.

- Canon IBIS High Resolution
- Fujifilm Pixel Shift Multi Shot
- Hasselblad Multi-Shot
- OM System/Olympus High Res Mode/High Res Shot
- Panasonic Lumix High Resolution Mode
- Pentax Pixel Shift Resolution System
- Sony Pixel Shift Multi Shooting

HOW TO SHOOT PIXEL SHIFT IMAGES



1 Set up on a tripod

Although some cameras offer a handheld pixel shift mode, shooting with the camera firmly attached to a tripod will always provide the best results. That said, with cameras that do offer a handheld mode, you can still get better results than single-shot mode and it's much more convenient than using a tripod.



2 Attach filters as required

Shooting in pixel shift modes is the same as shooting normally, so if you use filters these can be attached as normal before you begin shooting and set exposure. Filters are essential with high-contrast landscapes, because shooting bracketed exposures for HDR would introduce even more movement.



3 Shoot in pixel shift mode

Set your camera to program, aperture priority, shutter priority or manual mode and use the settings you would normally. Switch on pixel shift within the camera menu and set the delay between shots to the shortest duration for natural light or one second or more if using flash for recycling the flash.

Adobe's Super Resolution



Pixel-shift is a camera feature full of promise and is most effective for capturing static subjects in a controlled environment, rather than scenes with moving elements that can result in a visual stutter or ghosting effect, as seen in the clouds and water here. Minor ghosting can sometimes be fixed during the merge of multiple exposures, but it's rarely guaranteed

4 Merge your files

If you're using a camera that doesn't combine pixel shift images in-camera, you'll have to load your image files into the manufacturer's software and follow the process to merge all the raw files into a new larger raw file, that can then be edited as normal in software such as Lightroom.

HOW TO USE ADOBE SUPER RESOLUTION



1 Select and edit

Select the raw file that you would like to interpolate using Super Resolution and process it as usual. You can do this after applying Super Resolution, but having a 'finished' image beforehand can be useful to be sure you want to increase its size. Plus, all adjustments are carried over to the new DNG.



2 Apply Super Resolution

Right-click on the image thumbnail and select Enhance from the menu. When the dialogue opens, make sure that Super Resolution is checked – you can't also apply Denoise. Left mouse click on the image window to see the before if you want to. All you need to do now is hit OK and a new DNG will be created.

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Technique increase image resolution





Capturing moving and static subjects

Subjects with movement are notoriously tricky for pixel shift but static subjects are more suited to the feature

Getting things right in-camera capture is often the best way to shoot because it provides the best possible raw file for editing, as opposed to crossing your fingers and hoping that you can fix problems in post. So, with this in mind, the idea of using pixel shift as an in-camera method of capture logically suggests that it will

provide the best results.

To compare the results between native resolution, Adobe Super Resolution, pixel shift images processed using the camera manufacturer's software, and pixel shift images processed using a convoluted manual Photoshop technique, I shot with a Sony Alpha A7R V. This camera captures 16

images in quick succession which have to be merged together in Sony's Imaging Edge software to create a new high-resolution raw file. This takes the file dimensions from the native size of 9504x6336 pixels (121MB raw files) to a whopping 19008x12672, 1.82GB file.

We'll discuss the results of all the approaches in a moment, but this file size is obviously excessive. In contrast when using Adobe Super Resolution, which also increases the image file size from this camera to 19008x12672, the resulting DNG file that's created is a much more palatable





229MB. My computer is powerful, but it did struggle when combining 16 raw files in Imaging Edge and using a manual merging technique in Photoshop.

Moving subject results

Looking at the results of a seascape with a rough sea, the Imaging Edge software has done a fantastic job of making the rough sea look natural. To be honest, this is easy for the software to deal with because this area of the image lacks detail, but with an image with finer moving detail such as foliage, there would be a

visual stutter/ghosting present. In terms of sharpness, this is the least sharp version of the image with a haziness present in brighter detail areas.

The images taken were shot at blue hour, and blue is the noisiest RBG channel, so grain is present in all images except for the version merged manually in Photoshop. This is because noise is irregular so this method smoothed out during the merge. Movement is simply blended, so it's not as effective as Imaging Edge, but it works with the water here because it looks like a longer exposure than it was; but for movement of

finer details, it would inevitably produce an inferior blend. The overall result is slightly sharper than that from Imaging Edge.

The version that's arguably the best is the one created by applying Super Resolution to a standard raw file, because this provides the sharpest result. More artefacts are visible in some areas though due to the noisiness of the blue channel. But the fact that you can apply Super Resolution to any raw file and only have to shoot one exposure is much better than having to shoot 16 121MB raw files and then create a 1.82GB raw file on your computer.

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Technique increase image resolution



Working with static subjects

To get the most effective results when using pixel shift, it's best to shoot inanimate objects in a controlled environment, so indoors or in a photo studio. Here, there's little chance that the tripod and camera will be moved even slightly by the wind, and the subject itself is completely still. This does, of course, severely limit the application of the feature.

If you shoot still life or product photography in a controlled environment, then pixel shift undoubtedly works well, but it still requires a lot of processing unless you're using an OM System/ Olympus or Panasonic Lumix camera with the feature. These cameras produce a higher-resolution raw file in-camera, which results in a much more efficient workflow. But successfully capturing movement in

the scene often remains a challenge.

Which is the best overall?

In a controlled environment where no movement is present and shooting a snowdrop flower head with a macro lens, the results from all three methods of interpolation are extremely close. The version created with Imaging Edge is ever so slightly softer than the other two, with



the Super Resolution coming in second and the Photoshop method producing only a marginally sharper result.

The difference between the three is minuscule, almost imperceptible, so with that in mind and the fact that Super Resolution was the second sharpest of the three in this situation, it's safe to say that Super Resolution is the most effective and economical way to increase image

resolution based on the two different types of subjects. Ultimately though, all three produce great results for static subjects, and it's only when pixel peeping and, ultimately, splitting hairs that you can just about see a difference in this situation.

The conclusion that Super Resolution is the best method of the three came as a surprise because it's 100% software-based and doesn't combine existing pixels – it

multiplies what's already there. But it's reassuring that this interpolation method is available to everyone regardless of the camera they shoot with, as long as they have an Adobe Photography Plan subscription. Plus, the fact you only need one raw file for this method saves a huge amount of time shooting and editing, saves storage and doesn't require an incredibly powerful computer, is fantastic.

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Photo Insight

Rainbow Wings

by Andrew Fusek Peters

While photographing birds in early morning sunlight, Andrew noticed a beautiful 'rainbow' effect as the light refracted through their wings. He tells **Geoff Harris** how he did it

ird and wildlife photography is massively popular, so how do you make bird images in particular stand out? Regular AP contributor Andrew Fusek Peters has managed it, but anyone looking for shortcuts or easy fixes will be disappointed.

For Andrew it comes down to sheer hard work, putting in the required time to perfect his craft and being prepared to get up at all hours to ensure the best lighting conditions. It's also about having the best possible equipment, which for Andrew means using the OM System OM-1 Mark II high-end mirrorless camera, with its Pro Capture mode.

When you press the shutter button halfway, the OM-1 Mark II begins buffering a running series of photos. Andrew used this feature to great effect recently, when he managed to capture early morning light reflected through a blue tit's wings, creating a beautiful rainbow effect which he describes as 'ultra rare'.

'I have been shooting garden birds in winter at home for seven years now – I sit in the kitchen, with seeds hidden in branches and other set-ups, always putting the well-being of the bird first,' recounts Andrew from his home in the Shropshire countryside.

'My interest is capturing birds fighting, and in flight. One morning a couple of months ago, just after dawn, I was photographing a 'boring' blue tit – I say boring as I wanted a greenfinch or one of

the rarer birds! – and as its wings spread out, I captured this wonderful light reflected through them.

'With Pro Capture on the OM-1 Mark II, I was able to shoot at 50 frames per second with full AF, and buffered about 70 photos on that morning. This feature is implemented particularly well on the Mark II, and my hit rate is now much higher than it was with other cameras. The newly developed AF made a huge difference in such low-light settings and it's the main reason the image is perfectly in focus.'

Unique effect

Andrew was blown away by the rainbow/ stained glass effect on the blue tit's wings, and soon realised he had a unique capture. He continues, 'You can only hope to capture this effect for a few minutes when the sun is at a particular angle. There's a guy who's done this with hummingbirds, and somebody else in Wales who's done it with garden birds, but I can't find anyone else in the world who's done it with blue tits.'

For this particular image, Andrew shot using an Olympus 300mm f/4 lens with the aperture wide open and a shutter speed of 1/2500sec and ISO 500.

And there's more, as Andrew explains. 'I have about 40 images showing this effect so far, and am building a portfolio with other subjects. They will appear in the final chapter of my new book on garden wildlife, which follows *Butterfly Safari*, my



most recent publication, which was released in May. This chapter is still a work in progress, and I hope to get two birds fighting with the rainbow effect... I've got close but it's not quite good enough.'

Once Andrew's press agency began sharing the blue tit image, it quickly appeared in the daily papers as well as on the home page of the BBC website at the



end of December – quite an achievement for a bird photography story in the Christmas period. 'I love the fact that blue tits are common birds and nobody has quite photographed them like this before,' Andrew concludes.

The huge media interest in the blue tit image was a good way to round off the year for Andrew, as 2023 brought mixed

fortunes – in the summer, he lost the tip of his finger in a freak (and very painful) accident involving a tripod.

However, the finger has healed well and the injury hasn't affected his photography. He says, 'If anything, it has made me focus more clearly on the projects I'm doing, and never again carrying a tripod with my fingers between the tripod's legs!'

Andrew Fusek Peters



Andrew is a wildlife and landscape photographer who specialises in images of birds and butterflies. His work has been published in magazines including *BBC Wildlife* and *Wild Planet*. To find out more, visit **www.fusekphotos.com**

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Technique software masterclass

Create web banners, letterheads and more

In the second of our series on Affinity Publisher, **Rod Lawton** shows you how you can adapt the business card design we created first time around into a whole range of stationery items

n the first instalment of this series on Affinity Publisher, we created a basic but effective business card design, explaining along the way how to add graphics and text frames to your Publisher documents and how to resize and export your work for use at a print bureau.

But business cards are only one kind of business stationery, of course. There are other items you might need like letterheads and compliments slips. And, if you have a website, you'll need a custom graphic for your website banner too.

Almost all website designs, themes and

templates use a horizontal header at the top, so can you adapt your paper-based branding for this too?

Indeed you can. The obvious difference is that here you will be working with pixels not points, but Affinity Publisher is perfectly happy with either.

The key to all this is the File>Document Setup panel, where you can change the size and orientation of your documents and also make the swap from printed documents to pixel-based graphics for on-screen use.

Does all this mean a whole lot of extra

design work? Not necessarily! We've started by opening up the business card design we made last time, and we can re-use the contents in all our new stationery.

This is one of the first rules of publishing – never do the same work twice! But re-using graphics and text frames doesn't just save time – it also ensures consistency. And that's the second rule of publishing – be consistent in your graphics, your fonts, your design elements and your colour palettes. It's all part of your brand and it's how people will recognise you.

For more, see bit.ly/serifpubap

Top tip

How to use guides

Guides are a very handy feature of Affinity Publisher. Use the View>Show Rulers menu command to make sure you can see rulers above and to the left of your document. Next, drag the origin point from the top left corner where these rulers meet and drag it to the top left corner of your document – it should snap into position. This makes sure that the

rulers are at zero at the top left corner of the document. Now you can drag guides off the vertical and horizontal rulers to position them over your document. They appear as a pale blue line and their precise position is shown in numbers as you drag. This enables you to divide up sheets very precisely, it gives you a visual layout guide and guides also 'snap' objects precisely into alignment.



STEP BY STEP IN AFFINITY PUBLISHER



1 Make a letterhead

We can use the File>Save As command to save a new version of our business card design, then change the document size to A4 dimensions in the File> Document Setup panel. All the elements in the business card are still there, and it's pretty simple to move these around so that the logo is top left with contact information, the work offered is top right and the address at the bottom.



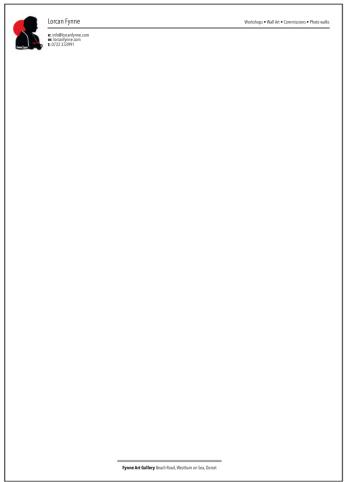
2 Now a compliments slip

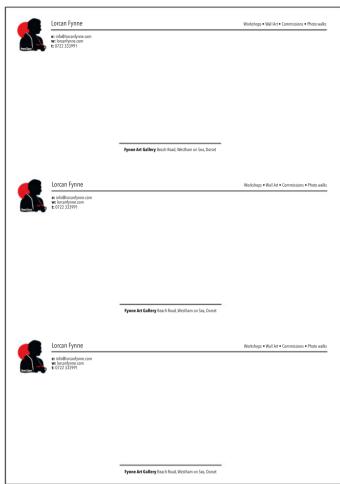
These are typically the same width as a regular letter but about a third of the height. We can start from a copy of our letterhead design and use horizontal guides at 99mm and 198mm (see the box) to split our A4 page into three. Now, duplicate the objects in our letterhead design and drag them into position to make three horizontal compliments slips, that we can cut apart later.



3 Swap from points to pixels

Let's go back to our business card design and save another copy. In the Document Setup panel's Document tab we swap the document units from millimetres to pixels. In the Dimensions tab, let's set our header dimensions to 1920x192 pixels. Back in our document we need to rearrange our items to fit – we don't really need the postal address and the work undertaken, so those can go.

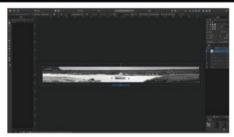




Starting from the basic business card design we made in part 1, we can create a whole range of business stationery and graphics







4 Adding a photo

Our banner looks a little empty, so we'll add a photo. To do this, we create a Picture Frame Rectangle the same size as the header itself, then use the File>Place command to locate an image file on our computer. The frame displays a gadget for positioning the photo to work best with that very wide crop – you may need to try a few different images to find one that works for this wide shape.



5 Layers and masks

Our photo covers up the letterhead, but we can drag down below the text layers in the Layers palette. Just like those in Affinity Photo, the layers in Affinity Publisher can have layer masks, and we can create a new layer mask for the photo layer and use the gradient tool to create a graduated fade that makes the text visible. Now we need the File>Export command to save our header for use.



6 Finally an email signature

We'll make one more thing from our business card – an email signature. Here, we took our web header graphic, removed the photo and narrowed it down to 640 pixels wide. This moved the logo and text off to the left of the document area, so we just dragged them back into position. Then we use the File> Export menu to save a JPEG image we can use within our email program.

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LETTER OF THE WEEK

Absurdly good

As an impoverished amateur, I went wild a decade ago and bought a six-year-old Canon EOS 7D for just over £300. Years later, sweating, I moved to the dark side and bought a used Nikon D800 for £800. By buying used carefully, moving from camera to camera has cost me little.

I can sympathise with Chris Quest, having been penniless, but a year ago my mum died, leaving me loads-amoney. A Leica M11 was easily affordable but, being a bargain hunter, I got an ex-display model from Red Dot and saved a grand. I love the camera but rarely manage to focus successfully on moving subjects! Not great for professionals. A Nikonshooting friend recently asked me to be second shooter at a wedding. I would never risk recording someone

else's special day with anything other than a reliable old workhorse and brought a D800E recently purchased, unbelievably, for £90!

The latest AP issue, featuring 'Best cameras under £500', enthusiastically called it 'an absurdly good deal'. Forget Leica rangefinders, it has never been more economical to buy a ridiculously good secondhand top-of-the-range DSLR (and become a serious, professional photographer, if you wish) with the thinnest of wallets!

Ross Sampson

Wow, you certainly got a cracking deal on the D800E, Ross. Regarding the M11, it is indeed difficult to focus on a moving subject using a manualfocus rangefinder, but it's great that you love the camera. As we said in the reply to the previous letter, we cover a wide range of cameras in AP.

known as demosaicing. This means both the stock 02 and its Monochrom variant use 47.3MP sensors and output 47.3MP images.

Do not disturb

After reading your recent article on macro, I thought I would share my methods of obtaining close-up photos of wildlife without disturbing them or their habitats.

I use the Sony Alpha A1 and initially used the 200-600mm lens but the purchase of the 1.4x teleconverter made all the difference. This combination allows me to get a much bigger image of the subject; and if not, the 50MP sensor allows cropping in if required.

With this set-up I can photograph from further away which results in eve-level contact with the subject, rather than looking down. I'm usually two to three metres away too, so the subject isn't disturbed. My hit rate is higher and often an insect, for example, doesn't even fly away because I am there.

John Gibbs

It's clearly working, John, as other readers can see from the image that you've kindly shared (shown below).

SANSUNG A Samsung 256GB PRO Ultimate SDXC memory card. The PRO Ultimate card offers read speeds of up to

200MB/s and write speeds of up to 130MB/s. Plus 6 proof technology: Water, Temperature, X-Ray, Magnet, Drop, Wearout & Shock, Limited 10-year warranty. Visit www.samsung.com/uk/memory-storage-devices/

SAMSUNG 蹙, 旦 A2 √30

Stumped by sensors

I dream of owning a Leica Q2 Monochrom but, being a pensioner, that isn't going to happen any time soon. However, there is something that is confusing me about the camera. Both the Q2 and its Monochrom sibling are advertised as having a 47.3MP sensor but surely they can't both be the same? Given that the Q2 has, presumably, got a Baver colour filter which means that four photosites are used for each pixel but the

Monochrom does not have a filter, does that not mean each photosite provides one pixel, so the camera actually has almost 200MP?

Bill Winward

Technical editor Andy Westlake replies: Bill, let me clarify this for you. That's not how colour sensors work - they don't combine four photosites to create a single output pixel, Instead, full-colour information is determined for every single pixel location via a process





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Our favourite photos posted by readers on our social media channels this week

AP picture of the week

Sunday Stroll at the Queen's **House** by Charles Chohra

Nikon D7500, Sigma 10-20mm, 1/10sec at f/3.5,

'The Queen's House is a former royal residence in Greenwich built in the 1600's. This picture was shot whilst lying on the ground using an ultra-wideangle lens - capturing a moment in time with a fellow visitor having a Sunday afternoon wander down the Queen's House staircase.'

Instagram: @cityboy_photography

#appicoftheweek

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Dorset House by Andy Nelson

Canon EOS R5, Canon 24-70mm f/2.8L IS USM, 1/100sec at f/5, ISO 125

'Dorset House in Marylebone is a photogenic Art Deco wonder. I always enjoy standing here on my commute and waiting for a nice moment. The weather on that day was perfect and the traditional London black cab makes the photo a personal favourite.'

Instagram: @nelosphotos

www.amateurphotographer.com 49

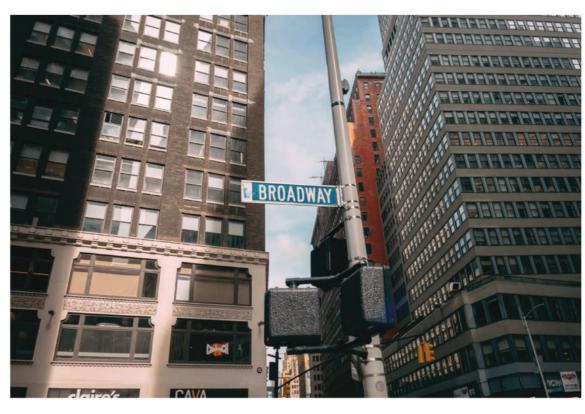


Chasing Broadwayby James Hooper

Canon EOS RP, Sigma 17-50mm F2.8 EX DC OS HSM, 1/100sec at f/6.3, ISO 100

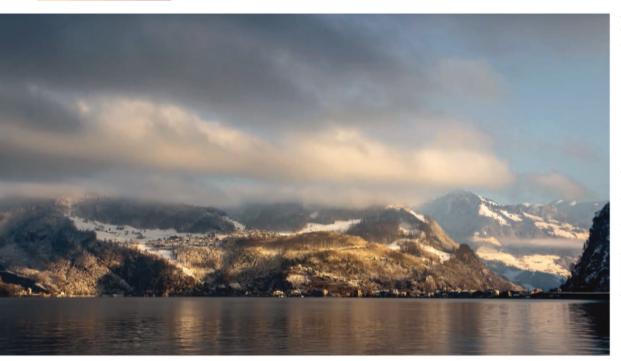
'New York City was always a dream location, mainly for the pizza! I found it a challenging place to photograph as it's been done so many times. I wanted to find a unique perspective that still encapsulated New York City, and Broadway for me was a definite highlight of the trip.'

Instagram: @jimhooper.jpg





We also liked...



Morning Glow by Ian Carter

Canon EOS 80D, Canon EF 18-135mm, 1/125sec at f/10, ISO 100

'This view, looking out over to the small town of Stansstad, is only a few minutes from where my daughter lives. Whilst I had not intended to go out with my camera that morning, starting to see the sun begin to emerge from the early morning clouds changed my mind.'

X: @ianpcarter

Want to see your pictures here? Simply share them with our Flickr, Instagram, Twitter, or Facebook communities using the hashtag #appicoftheweek. Or alternatively, you can email your best photograph to us at ap.ed@kelsey.co.uk. See page 3 for how to find us.

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Reader Portfolio

Spotlight on readers' excellent images and how they captured them



Sue Gwynne, Cambridgeshire



About Sue

Sue is a medical photographer at Addenbrookes Hospital in Cambridge. You can see

more of her work at her website, sigeventphotography.mypixieset.com

How did you get into photography? I started when my children were young.

Favourite subjects

People – hence my enjoyment of events. I love capturing a split second of someone lost in their passion.

What do you love about photography?

The challenge of capturing special moments: connections, moments of utter joy and eye contact.

Favourite photographers

Annie Leibovitz, Todd Owyoung.

Favourite photo books

I tend to browse through magazines more. My current subscription is *National Geographic*.

First camera

Minolta X300.

Current kit

Nikon D500 and a Nikon D810.

Favourite lens

I use my Sigma 70-200mm f/2.8 a lot – it's great for capturing people at

events, as you don't have to be too close. I love to shoot through crowds to get the natural feel of the moment. I also use a Sigma 18-36mm f/1.8 for wider scenes.

Favourite accessory

The BlackRapid double harness, which allows me to move freely with two cameras and lenses.

Dream purchase

Probably the D850.

Favourite tips

Look for something that motivates you. If you like walking, then landscape may be the answer. If you love music, then festivals? Also, get off auto and play with the settings (children learn through play – so do photographers).

Where do you find inspiration?

I like to place pieces of paper in a bowl with words on them like 'texture', 'movement', 'mono' and so on. My husband and I sometimes dip in, take out the cameras and follow the subject on the paper.

Tell us about your pictures

I'm hoping to become established as a music/event photographer outside of my day job (which I love and am lucky to be able to do both). The freedom of movement, people's expressions and their emotions are all things I like to capture at an event. Sweeping Stare

1 A dancer from the
Pig Dyke Molly group
mid 'swing' of broom
as part of the dance.
I managed to
position myself for
when I hoped the
movement would
happen.
Nikon D810, 70

Nikon D810, 70-200mm, 1/125sec at f/2.8, ISO 1000



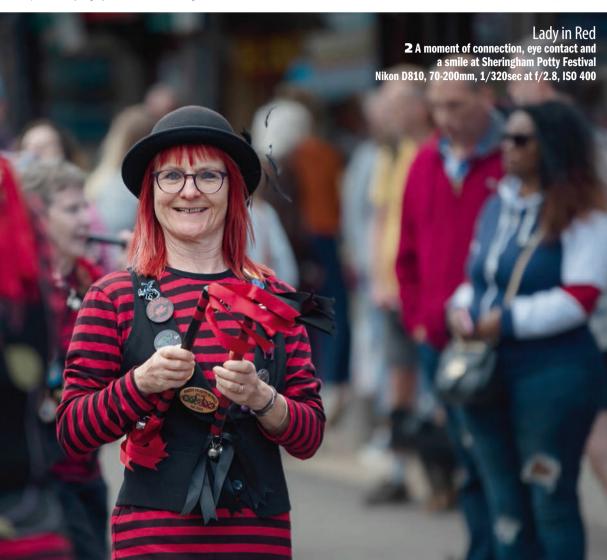


Reader Portfolio winners receive a one-year subscription to a **Gold Portfolio Series website** worth £300. UK domain name included.

Amazing Internet designs, builds and hosts amazing websites for creative people and companies. It has specialised in creating websites for photographers since 1999 and has services to suit all budgets. Whether you need a simple template-based site for £60 per year or a fully bespoke site, they've got you covered. www.amazinginternet.com

Submit your images

See page 3 for details of how to submit. You could see your photos here in a future issue! Please note: the prize is subject to change.



Taken by Surprise

3 At the end of the dance, all dancers rush off into the crowd. This one decided to run straight at me for a little fun. Taken at the East Anglia Traditional Music Day in Stowmarket. Nikon D500, 18-36mm, 1/500sec at f/5. ISO 1600

Caressing the Musical Moment

4 Taken at Warwick Folk Festival – it was under cover and pretty dark. Never be worried about upping the ISO! Nikon D810, 70-200mm, 1/200sec at f/2.8. ISO 3200

Dancing for Joy 5 Dancing is such a joy and capturing moments like this is a real pleasure. Nikon D810, 70-200mm, 1/1250sec at f/ 3.5, ISO 250









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NATIONAL DEADLINE: MAY 1ST 2024

AP is running this EISA contest in conjunction with Photocrowd. To enter your portfolio, go to bit.ly/maestrosport AP will choose the top 3 and publish them in a June or July issue. The winner will

National Maestro winners will also be published on Facebook at the end of June 2024 for the EISA Public's Choice competition. Prize for the winner: €1000.

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2024

Sports and Games

receive a one-year digital subscription to AP and go forward to the International round.

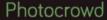
INTERNATIONAL JUDGING: JUNE 2024

The winning entries from all 16 participating EISA countries will be judged together at the Association's General Meeting in June 2024. The International results will be celebrated at the EISA Awards Gala in Sept 2024 and revealed, online, alongside the EISA product Awards on 15 August 2024.

Don't forget to visit **bit.ly/eisa-maestro** for tips on creating a successful portfolio. The winning International photos will be published in the Sept/Oct issues of all 16 EISA photo magazines/websites. For details, terms & conditions, see www.eisa.eu/maestro

Check out Photocrowd and take part in some great photo contests, including APOY24. It's a great way to get your best work seen and appreciated.

www.photocrowd.com



Buying Guide

101 cameras listed & rated

Our comprehensive listing of key camera specifications

Cameras

Cameras come in three types: DSLRs with optical viewfinders, mirrorless models with electronic viewing, and compact cameras with non-interchangeable lenses



Handgrip
DSLRs traditionally
have relatively large
handgrips, while many
mirrorless models have
much smaller grips
to keep the size down.
However, some can
accept accessory grips
to improve handling
with larger lenses.

Lens mount

Each camera brand uses its own lens mount, and mirrorless cameras use different lenses to DSLRs even from the same brand. However, mirrorless models can often use DSLR lenses via a mount adapter.

Controls

Entry-level cameras tend to have simple, easy-to-understand controls, while more expensive models add lots of buttons and dials to give quick access to settings.

Viewfinder

The biggest difference between DSLRs and mirrorless cameras is that the latter use electronic, rather than optical viewfinders. Some advanced compact cameras also have built-in electronic viewfinders to complement their rear LCD screens.

Compact cameras

These range from small, pocketable models to large bridge-type cameras with long zoom lenses and SLR-style designs. In this guide, we're only including those with relatively large sensors for high image quality, raw format recording and manual controls.





ALMOST all serious photographers prefer to use cameras with interchangeable lenses, as this gives the greatest degree of creative flexibility. At one time, this meant digital single-lens-reflex (DSLR) cameras, but these have now been joined by mirrorless cameras that use electronic viewfinders. The latest models are true alternatives to DSLRs, offering the same image quality and creative options. Camera

manufacturers offer a range of options, from simple, relatively inexpensive beginner-friendly designs, to sophisticated professional models. In the middle of the range you'll find enthusiast cameras with more-advanced control layouts. Meanwhile the term 'compact' refers to cameras with built-in lenses, regardless of their size. Many offer excellent image quality and full manual control.

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Mirror	le	SS	cameras	SEN SOR SIZE	RESOLUTION (MP)	LENS MOUNT	MAX ISO	VIDEO	MIC IN PUT	AF POINTS	BURSTMODE (FPS)	BUILT-IN WI-FI	FLASH	SCREEN SIZE (IN)	ARTICULATED LCD	TOUCHSCREEN	BATTERY LIFE (SHOTS)	WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (G)
NAME & MODEL	RRP	SCORE	SUMMARY								SHOO	TING		SCI	REEN				DIME	ISIONS	3
Canon EOS M50 Mark II	£699	4★	Likeable, easy-to-use entry-level APS-C model with viewfinder	APS-C	24.2	Canon M	51,200	3840		143	10 -			3			250	116.3	88.1	58.7	38
Canon EOS RP	£1400	4★	Compact and affordable but over-simplified full-frame camera	FF	26.2	Canon RF	102,400	3840		4779	5 .			3			250	132.5	85	70	48
Canon EOS R3	£5880	5★	High-speed, pro-spec flagship model that's packed full of clever technology	FF	24.1	Canon RF	204,800	6000	٠.	4779	30 -			3.2			860	150	142.6	87.2	101
Canon EOS R5	£4200	4.5★	Remarkable 45MP powerhouse capable of internal 8K video recording	FF	45	Canon RF	102,400	4096	٠	5940	12 -			3.2			320	135.8	97.5	88	73
Canon EOS R6 Mark II	£2780	5★	Updated model gains 24MP sensor and AI subject-recognition AF	FF	24.2	Canon RF	204,800	3840	٠.	4897	12 -			3			450	138.4	98.4	88.4	67
Canon EOS R7	£1350	4.5★	Fast APS-C RF-mount model with sophisticated autofocus from the EOS R3	APS-C	32.5	Canon RF	51,200	3840	٠	651	15 -			3	·		770	132	90.4	91.7	53
Canon EOS R8	£1700	4.5★	Lightweight full-frame camera that offers great image quality and autofocus	FF	24.2	Canon RF	204,800	3840	٠,	4897	6			3			220	132.5	86.1	70	46
Canon EOS R10	£900	4★	Compact, lightweight yet highly specified RF-mount APS-C mirrorless model	APS-C	24.2	Canon RF	51,200	3840		651	15 -		٠	3			430	122.5	87.8	83.4	42
Canon EOS R50	£790	4★	Small entry-level APS-C model with subject detection autofocus	APS-C	24.2	Canon RF	51,200	3840		651	12 -			3			310	116.3	85.5	68.8	37
Canon EOS R100	£670	3★	Entry-level APS-C model that's designed to be a simple family camera	APS-C	24.2	Canon RF	25,600	3840		143	6.5			3			340	116.3	85,5	68.8	35
Fujifilm X-H2	£1899	5★	High-resolution pro flagship model with same design as X-H2S	APS-C	40	Fujifilm X	51,200	7680		425	15 -			3			540	136.3	92.9	84.6	66
Fujifilm X-H2S	£2499	5★	Extremely impressive pro-spec high-speed flagship model	APS-C	26.1	Fujifilm X	51,200	6240		425	40 -			3	ī		580	136.3	92.9	84.6	66
Fujifilm X-S10	£949	5★	Fine SLR-styled model with in-body image stabilisation and large handgrip	APS-C	26.1	Fujifilm X	51,200	3840		425	20 -			3			325	126	85.1	65.4	41
Fujifilm X-S20	£1249	5★	Excellent 26MP still/video hybrid camera that includes 6.2K video recording	APS-C	26.1	Fujifilm X	51,200	6240		425	20 -			3			750	127.7	85.1	65.4	49
Fujifilm X-T30 II	£769	5★	Superb mid-range model that's a joy to use and gives lovely output	APS-C	26.1	Fujifilm X	51,200	4096		425	8 -			3			390	118.4	82.8	46.8	37
Fujifilm X-T5	£1699	5★	Retro-styled enthusiast model with 40MP sensor and subject-detection AF	APS-C	40.2	Fujifilm X	51,200	4096		425	15 -			3			580	129.5	91	63.8	55
Leica SL2	£5300	4★	Sports 47.3MP full-frame sensor, in-body stabilisation and 5K video	FF	47.3	Leica L	50,000	5120		225	20 -			3.2			370	147	107	83	91
Leica SL2-S	£3975	4★	More affordable 24MP version of the SL2 with pro video features	FF	24.6	Leica L	100,000	4096		225	25 -			3.2			510	146	107	83	9;
Nikon Z 5	£1719	4★	Simplified version of the Z 6, comes with compact 24-50mm f/4-6.3 zoom	FF	24.3	Nikon Z	102,400	3840		273	4.5			3.2			470	134	100.5	69.5	6
Nikon Z 611	£1999	4.5★	Second-generation full-frame mirrorless model with useful updates	FF	24.5	Nikon Z	204,800	3840		273	14 -			3.2			410	134	100.5	69.5	70
Nikon Z 711	£2999	4.5★	Gains dual card slots, faster shooting, 4K 6Op video and vertical grip option	FF	45.7	Nikon Z	102,400	3840		493	10 -			3.2			420	134	100.5	69.5	70
Nikon Z 8	£3999	5★	Sensational all-rounder with all the Z 9's features in a smaller body	FF	45.7	Nikon Z	102,400	7680		493	20 -			3.2			340	144	118.5	83	91
Nikon Z 9	£5299	5★	Stunning high-speed, high-resolution flagship with pro build and connectivity	FF	45.7	Nikon Z	102,400	7680		493	20 -			3.2			700	149	149.5	90.5	13
Nikon Z f	£2299	4.5★	Lovely retro-styled full-frame mirrorless with all the latest technology	FF	24.5		204,800			273	14 -			3.2			380	144	103	49	7:
Nikon Z 30	£699	4★	Designed for vloggers, with articulated screen but no viewfinder	DX	20.9	Nikon Z	204,800	3840		209				3			330		73.5	59.5	41
Nikon Z 50	£849	5★	Well-specified APS-C mirrorless model boasts excellent handling	DX	20.9		204,800				11 .			3.2				126.5		60	4!
Nikon Z fc	£899	4★	Lovely-looking retro-styled model with fully articulated touchscreen	DX	20.9		204,800				11 .	T		3		П			93.5	43.5	
Olympus OM-D E-M10 IV	£699	4.5★		4/3	20.2		25,600							3				121.7		49	38
OM System OM-1	£2000		Excellent flagship model includes 120fps shooting and subject-detection AF	4/3	20.4		102,400				120 -	Т		3					91.6		
OM System OM-1 Mark II						,	102,400				120 .										
DIM SASIGIII DIM-T MIGIK II	£2200	5★	Updated with larger buffer, improved AF, and extra computational features	4/3	20.4	MIC4/3	102,400	4096		1003	.20			3	•		020	134.8	91.6	72.7	5!

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Mirror	le	SS	cameras	SENSOR SIZE	RESOLUTION (MP)	LENS MOUNT	MAX ISO	VIDEO	MICINPUT	AF POINTS	BURSTMODE (FPS) Vieweimder	BUILT-IN WI-FI	FLASH	SCREEN SIZE (IN)	ARTICULATED LCD	TOUCHSCREEN	BATTERY LIFE (SHOTS)	WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (G)
NAME & MODEL	RRP	SCORE	SUMMARY			9					SHOO	TING		SCI	REEN	ı			DIME	NSIONS	
Panasonic Lumix G9	£1499	4.5★	High-speed, rugged photo-centric flagship camera with in-body IS	4/3	20.3	Mic4/3	25,600	3840	٠	225	9 .			3		٠	890	136.9	97.3	91.6	658
Panasonic Lumix G911	£1699	5★	High-end Micro Four Thirds model with phase-detection autofocus	4/3	25.2	Mic4/3	25,600	5760	٠	779	14 ·			3		٠	390	134.3	102.3	90.1	658
Panasonic Lumix G100	£590	4★	Small SLR-shaped camera specifically designed for vloggers	4/3	20.3	Mic4/3	25,600	3840		49	10 ·			3			270	115.6	82.5	54.2	345
Panasonic Lumix GH5 II	£1499	4.5★	Video-focused high-end model with in-body stabilisation and 4K video	4/3	20.2	Mic4/3	25,600	4096		225	12 ·			3	٠	٠	410	138.5	98.1	87.4	727
Panasonic Lumix GH6	£1999	5★	Impressive high-end video model with new 25MP sensor and 5.7K recording	4/3	25.2	Mic4/3	25,600	5728			14 ·			3			330	138.4	100.3	99.6	823
Panasonic Lumix S1	£2199	4.5★	24MP full-frame mirrorless with exceptional viewfinder	FF	24.2	Leica L	204,800	3840		225	9 .			3.2			380	148.9	110	96.7	899
Panasonic Lumix S1H	£3600		Specialist full-frame mirrorless model designed for pro-level video	FF	24.2	Leica L	204,800	4096		225	9 .			3.2			380	151	114.2	110.4	1164
Panasonic Lumix S5	£1800	4.5★	Compact-bodied, enthusiast-focused model designed for both stills and video	FF	24.2	Leica L	204,800	3840		225	7 .			3	٠	٠	440	132.6	97.1	81.9	714
Panasonic Lumix S5II	£2000	4.5★	Compact model with phase detect autofocus and unlimited video recording	FF	24.2	Leica L	204,800	5952		779	9.			3			370	134.3	102.3	90.1	740
Panasonic Lumix S5IIX	£2300	5★	Video-specialist version of the S5II boasts higher-quality recording options	FF	24.2	Leica L	204,800	5952		779	9 .			3	·	٠	370	134.3	102.3	90.1	740
Sigma fp	£1999	4★	Smallest full-frame mirrorless, but compromised features and handling	FF	24.6	Leica L	102,400	3840		49	18			3.2			280	112.6	69.9	45.3	422
Sigma fp L	£1999	4★	High-resolution version of the fp with 61MP full-frame sensor	FF	61.0	Leica L	102,400	3840		49	10			3.2		·	240	112.6	69.9	45.3	427
Sony Alpha 6100	£830		Entry-level APS-C model with Sony's latest AF technology and 4K video	APS-C	24.2	Sony E	51,200	3840		425	11 .			3			380	120	66.9	59.4	396
Sony Alpha 6400	£1000	4★	Extraordinary new autofocus system, but in an outdated body design	APS-C	24.2	Sony E	102,400	3840		425	11 ·		·	3		·	360	120	66.9	49.9	403
Sony Alpha 6600	£1450	4★	In-body stabilistion and impressive autofocus, but frustrating body design	APS-C	24.2	Sony E	102,400	3840		425	11 .			3			720	120	66.9	59	503
Sony Alpha 6700	£1450	4.5★	Boasts a 26MP sensor in a much-improved body compared to the A6600	APS-C	26	Sony E	102,400	3840		759	11 ·			3		٠	570	122	69	75.1	493
Sony Alpha 1	£6500	5★	Flagship model with an unprecedented combination of resolution and speed	FF	50.1	Sony E	102,400	7680		759	30 .			3			530	128.9	96.9	80.8	737
Sony Alpha 7 II	£1498	5★	The full-frame Alpha 7 II includes in-body image stabilisation	FF	24.3	Sony E	25,600	1080		117	5 .			3	٠		350	126.9	95.7	59.7	556
Sony Alpha 7 III	£1999	5★	Fine camera with 10fps shooting and 4K video recording	FF	24.2	Sony E	204,800	3840		693	10 .			3			610	126.9	95.6	73.7	650
Sony Alpha 7 IV	£2400	5★	Excellent all-rounder with 33MP sensor and fully articulated screen	FF	33.0	Sony E	204,800	3840		759	10 ·			3	·	٠	610	131	96.4	79.8	658
Sony Alpha 7C	£1900	3.5★	Compact full-frame design let down by poor handling and tiny EVF	FF	24.2	Sony E	204,800	3840		693	10 ·			3			680	124	71.1	59.7	509
Sony Alpha 7C II	£2100	4★	Much-improved compact model, but still compromised in certain respects	FF	33.0	Sony E	204,800	3840		759	10 ·			3			530	124	71.1	63.4	525
Sony Alpha 7CR	£3200	4★	High-resolution twin of the A7C II, with a 60MP sensor	FF	61.0	Sony E	102,400	3840		693	8 .			3			490	124	71.1	63.4	525
Sony Alpha 7R III	£3200	5★	Impressive image quality and handling, but starting to look a little dated	FF	42.4	Sony E	102,400	3840		399	10 ·			3			650	126.9	95.6	73.7	657
Sony Alpha 7R IV	£3500	5★	Superb high-resolution, full-frame mirrorless with new 61MP sensor	FF	61.0	Sony E	102,400	3840		567	10 ·			3			670	128.9	96.4	77.5	665
Sony Alpha 7R V	£4000	5★	61MP model gains subject detection, 8K video and 4-way articulated screen	FF	61.0	Sony E	102,400	7680		693	10 ·			3.2	٠		530	131.3	96.9	82.4	723
Sony Alpha 7S III	£3800	4.5★	Huge update gains fully articulated screen and new touch interface	FF	12.1	Sony E	409,600	3840		759	10 -			3			600	128.9	96.9	80.8	600
Sony Alpha 9 II	£4800		A9 gains professional connectivity options and an improved body design	FF	24.2	Sony E	204,800	3840	٠	693	20 -			3	٠	٠	500	128.9	96.4	77.5	678
Sony Alpha A9 III	£6100	4.5★	World's first global shutter brings breathtaking speed – but at a price	FF	24.6	Sony E	51,200	3840		759 1	.20 •			3.2			400	136.1	96.9	82.9	702
Sony ZV-E1	£2350		Small full-frame vlogging camera, with articulated screen but no viewfinder	FF	12.1	Sony E	204,800	3840		759	10			3			570	121	71.9	54.3	483
Sony ZV-E10	£680	4★	Designed for vlogging, with high-end microphone and fully articulated screen	APS-C	24.2	Sony E	51,200	3840		425	11			3			440	113	64.2	44.7	343

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DSLR o	ca	m	eras	SENSOR SIZE	RESOLUTION (MP)	LENS MOUNT	MAX ISO	VIDEO	MIC INPUT	AF POINTS	BURST MODE (FPS)	VF COVERAGE (%)	BUILI-IN WI-FI	SCREEN SIZE (IN)	ARTICULATED LCD	TOUCHSCREEN	BATTERY LIFE (SHOTS)	WIDTH (MA)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (G)
NAME & MODEL	RRP	SCORE	SUMMARY						8		SH	OOTIN	G	s	CRE	EN			DIME	ISION	5
Canon EOS 2000D	£469	3★	Minor update to EOS 1300D gains 24.1MP sensor	APS-C	24.1	Canon EF	12,800	1080		9	3	95		. 3			500	129	101.3	77.6	475
Canon EOS 250D	£530	4★	Very compact entry-level DSLR with fully articulated screen and 4K video	APS-C	24.1	Canon EF	51,200	3840		9	5	95		. 3			1070	122.4	92.6	69.8	449
Canon EOS 850D	£820	4★	Fully featured upper entry-level DSLR includes 4K video recording	APS-C	24.1	Canon EF	51,200	3840		45	7	95		. 3			800	131	102.6	76.2	515
Canon EOS 90D	£1210	4★	Mid-range DSLR boasts 32.5MP sensor, 10fps shooting and 4K video	APS-C	32.5	Canon EF	51,200	3840		45	10	100		. 3			1300	140.7	104.8	76.8	701
Canon EOS 6D Mark II	£1999	4.5★	Includes 26.2MP full-frame sensor and fully articulated screen	FF	26.2	Canon EF	102,400	1080		45	6.5	98		3			1,200	144	110.5	74.8	765
Canon EOS 5D Mark IV	£3599	4.5★	Hugely accomplished workhorse model, but pricey	FF	30.4	Canon EF	102,400	3840		61	77	100		3.	2		900	151	116	76	890
Canon EOS-1D X Mark III	£6499		Super-fast pro model for sports and action photographers	FF	20.1	Canon EF	819,200	5496		191	16	100		3.	2		2,850	158	167.6	82.6	1440
Nikon D780	£2199	5★	Superb all-rounder blends the best of DSLR and mirrorless technology	FX	24.5	Nikon F	204,800	3840		51	7	100		3.	2 .		2,060	143.5	115.5	76	840
Nikon D850	£3499	5★	High speed and superb image quality make this the best DSLR yet	FX	45.7	Nikon F	102,400	3840		153	7	100		3.	2 .		1,840	146	124	78.5	1005
Nikon D6	£6299		Latest pro-level high-speed sports camera boasts high-tech AF system	FX	20.8	Nikon F	3,280,000	3840	٠	105	14	100		3.	2		3,580	160	163	92	1450
Pentax K-70	£600	4.5★	Solid performer with fully articulated screen and in-body stabilisation	APS-C	24.2	Pentax K	102,400	1080		11	6	100		. 3			410	125.5	93	74	688
Pentax KF	£849		Refresh of the K-70, with additional Custom Image colour modes	APS-C	24.2	Pentax K	102,400	1080		11	6	100		. 3			460	125.5	93	74	684
Pentax K-3 III	£1899	4★	Highly specified but pricey APS-C DSLR that boasts a large viewfinder	APS-C	25.7	Pentax K	1,600,000	3840		101	12	100		3.	2		800	134.5	103.5	73.5	820
Pentax K-3 III Monochrome	£2249	4★	Specialist version of the K-3 III that only shoots in black & white	APS-C	25.7	Pentax K	1,600,000	3840		101	12	100		3.	2		800	134.5	103.5	73.5	820
Pentax K-1 II	£1799	4.5★	Well-featured full-frame DSLR that's excellent value for money	FF	36	Pentax K	819,200	1080		33	4.4	100		3.	2 .		670	136.5	110	85.5	1010

We've tried our hardest to ensure that the information in this guide is as complete and accurate as possible. However, some errors will inevitably have crept in along the way: if you spot one, please let us know by emailing ap.ed@kelsey.co.uk. Unfortunately we don't have space to list every single product on the market, so we don't include the most expensive speciality items. **Before making a purchase we advise you to check prices, along with any crucial specifications or requirements, with either a reputable retailer or the manufacturer's website.**

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	Compa	ac	t c	cameras	SENSOR SIZE	RESOLUTION (MP)	LENS RANGE (imm equiv)	MAXISO	VIDEO	MICINPUT	BURSTMODE (FPS)	VIEWFINDER Built-in Wi-Fi	FLASH	SCREEN SIZE (IN)	ARTICULATED LCD	TOUCHSCREEN	BATTERY LIFE (SHOTS)	WIDTH (MM)	HEIGHT (MM)	D EPTH (MM)	WEIGHT (G)
	NAME & MODEL	RRP	SCORE	SUMMARY							SH	00TIN	IG	SC	REEN	1			DIME	VSIONS	,
	Canon G1 X Mark III	£1149	5★	Rewrites the rule book by fitting an APS-C sensor in a compact body	APS-C	24.2	24-72	25,600	1080		9	. .		3in		٠	200	115	77.9	51.4	399
	Canon G5 X Mark II	£849	4★	Handles well and gives great image quality, but sluggish AF in low light	1in	20.2	24-120	25,600	3840		30			3in	٠	٠	230	110.9	60.9	46	340
	Canon G7 X Mark II	£549	4.5★	Pocketable body that handles well, with really useful zoom range	1in	20.1	24-100	12,800	1080		8			3in			265	105.5	60.9	42	319
	Canon G7 X Mark III	£699	4★	Lovely pocket camera that includes 4K video and YouTube live streaming	1in	20.1	24-100	25,600	3840		30			3in	٠	٠	265	105.5	60.9	41.4	304
	Canon G9 X Mark II	£449	4★	Slim, stylish, pocketable camera gives great image quality	1in	20.2	28-84	12,800	1080		8.2			3in			235	98	57.9	30.8	206
	Canon V10	£429	3.5★	Unusual camera designed for vlogging, but has some significant limitations	1in	15.2	19	12,800	3840		na			2in	٠	٠	290	63.8	90.0	34.3	211
EW	Fujifilm X100VI	£1599		Classically styled camera gains 40MP sensor and image stabilisation	APS-C	40.2	35	51,200	6240		20	. .		3in			450	128	74.8	55.3	521
	Leica V-Lux 5	£1049		Customised, re-badged version of the Panasonic FZ1000 II	1in	20.1	25-400	25,000	3840		12			3in	٠	٠	440	136.7	97.2	131.5	812
	Leica Q2 Monochrom	£4995	5★	Variant of the Q2 with a modified sensor that only shoots in black & white	FF	47.3	28	100,000	4096		20			3in			350	130	80	91.9	734
	Leica Q3	£5300	5★	Lovely top-end compact with 60MP full-frame sensor and 28mm f/1.7 lens	FF	60.3	28	100,000	8192		15			3in			350	130	80.3	92.6	743
	Panasonic FZ1000 II	£700	4★	Updates FZ1000 with higher-resolution, touch-sensitive screen	1in	20.1	25-400	25,600	3840		12	. .		3in			440	136.2	97.2	131.5	810
	Panasonic FZ2000	£600	4.5★	Sophisticated bridge camera with strong focus on 4K video	1in	20.1	24-480	25,600	3840		12			3in			350	137.6	101.9	134.7	966
	Panasonic LX15	£370	4.5★	Likeable advanced compact with ultra-fast f/1.4-2.8 zoom lens	1in	20.1	24-72	25,600	3840		10			3in			260	105.5	60	42	310
	Panasonic TZ200	£500	4.5★	Huge zoom range for a pocket camera, but telephoto images lack detail	1in	20.1	24-360	25,600	3840		10			3in			370	111.2	66.4	45.2	340
	Ricoh GR III	£799	4★	Slimline, lightweight advanced compact with in-body image stabilisation	APS-C	24.2	28	102,400	1920		4			3in			200	109.4	61.9	33.2	257
	Ricoh GR IIIx	£899	4★	Variant of the GR III with new 40mm-equivalent f/2.8 lens	APS-C	24.2	40	102,400	1920		4			3in			200	109.4	61.9	35.2	262
	Sony RX10 IV	£1800	5★	Update to RX10 III with vastly improved shooting speed and autofocus	1in	20.1	24-600	12,800	3840		24			3in			400	132.5	94	144	1095
	Sony RX100 III	£810	5★	Features fast f/1.8-2.8 zoom lens and pop-up electronic viewfinder	1in	20.1	24-70	12,800	1920		10			3in			320	101.6	58.1	41	290
	Sony RX100 V	£900	4.5★	Includes super-fast 24fps shooting and slow-motion video up to 960fps	1in	20.1	24-70	12,800	3840		24	. .		3in			220	101.6	58.1	41	299
	Sony RX100 VII	£1200	4.5★	Gains Sony's latest Al-based autofocus tech, including real-time eye AF	1in	20.1	24-200	12,800	3840		20			3in			260	101.6	58.1	42.8	302
	Sony ZV-1	£700	4★	Designed for vloggers, with high-spec mic and fully articulated screen	1in	20.1	25-70	12,800	3840		24			3in			260	105.5	60	43.5	294
	Sony ZV-1 Mark II	£870	4.5★	Updated vlog camera gains ultra-wideangle zoom and touchscreen interface	1in	20.1	18-50	12,800	3840		24			3in		٠	290	105.5	60	46.7	292
	Sony ZV-1F	£550		Simplified version of the ZV-1 with fixed 20mm equivalent prime lens	1in	20.1	20	12,800	3840		16			3in			360	105.5	60	46.4	256

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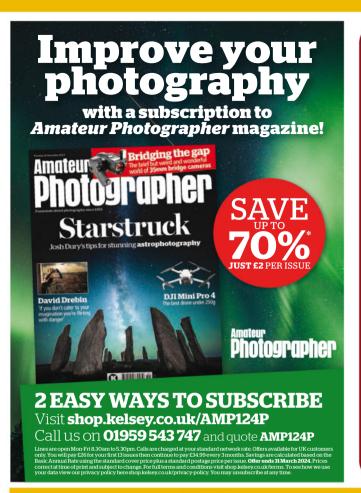
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Inal Analysis Peter Dench considers... Everett 4 by 1----

Everett, 4, by James Mollison

hat was vour bedroom like as a child? Did your parents oppose the tack, tape and drawing pin or were you able to express yourself from floor to ceiling and across the ceiling? I didn't have many posters on my wall through choice, fearful of being judged by bedroom visitors.

A few made it through the strict selection process. Sting (Gordon Sumner), frontman, songwriter and bassist for new wave band the Police, and David Gower. the elegant, left-handed blond-curly-locked opening batsman for the England cricket team. I'd lie in bed reciting the lyrics of Roxanne, Every Breath You Take, Message in a Bottle and visualise Gower's caressed top-handed cover drives.

Awkward encounter

In the mid-noughties I was photographing on assignment for Tatler magazine and found myself in the lavatory at the urinal next to Sting. 'If only David Gower was here,' I said in a more highly pitched voice than I'd intended. Before I could explain, my childhood poster boy had hastily (in my view) washed his hands and rejoined the party.

You can learn a lot from a bedroom. This one belongs to four-year-

old Everett. What you probably can't learn from looking at this photo is that Everett is an only child who lives with his parents in a detached house in Livonia, Michigan, USA, a tight-knit community and neighbourhood originally developed for white motor industry workers from Detroit who wanted to move out of the city. For many years Livonia was known as one of the whitest cities in the USA. Everett's mother has since publicly denounced the neighbourhood's shameful intention.

Every detail

What you can learn from this photograph is that Everett is obsessed with the Marvel comics superhero, the friendly neighbourhood Spider-Man. The figurines, albums, drawings, comics, pyjamas, curtains, masks and water bottle are evenly and expertly lit by photographer James Mollison. With great power comes great responsibility and Mollison has captured every detail of the primary-coloured web slingers in 1/15sec at f/18, ISO 200 on his Phase One Digital Camera and Schneider Kreuznach LS 40-80mm f/4.0-5.6 lens.

Everett's bedroom is one of 73 from 33



countries in five continents photographed in the book Where Children Sleep Vol 2, published by Hoxton Mini Press 2023 (Vol 1 was published by Chris Boot in 2010). A portrait of each child accompanies their bedroom and an interview conducted by Mollison. 'Everett dreams about Spider-

Man fighting Venom, his arch enemy. When Everett grows up, he would like to work at Marvel creating superheroes or, alternatively, become a firefighter,' he writes.

A child's bedroom is a precious and private place. Mollison's access has delivered a picture that delivers a punch. The image contributes to

a powerful and diverse portrait of societies across the globe. As we age and cohabit, the vision we had as children dilutes. Perhaps we should unwrap the Blu Tack and proudly remind ourselves, in at least one corner of the bedroom, of those lucid childhood dreams.

See more at jamesmollison.com.



Peter Dench is a photographer, writer, curator and presenter based in London. He is one of the co-curators of Photo North and has been exhibited dozens of times. He has published a number of books including The Dench Dozen: Great Britons of Photography Vol 1; Dench Does Dallas; The British Abroad; A&E: Alcohol & England and England Uncensored. Visit peterdench.com

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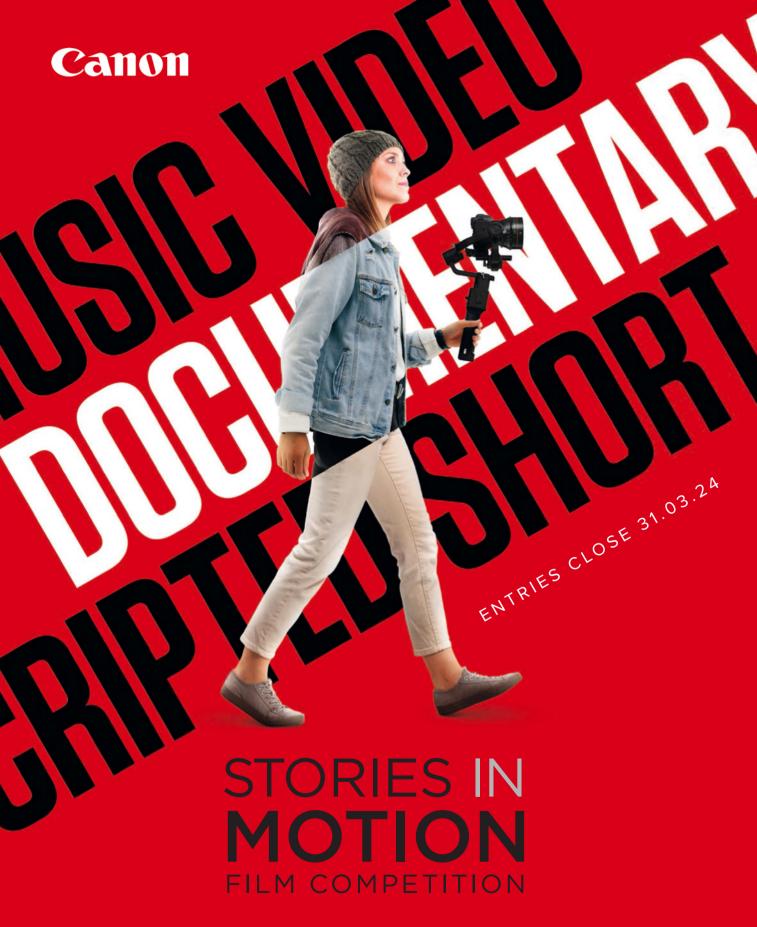
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