Free DVD inside

c't *Digital* **Photography**

The in-depth quarterly for the photo enthusiast

# Flash
## 10 Flashes Tested
plus **Accessories**

# Serial
## Photography
**Tell Your Own Story**

**85mm Zeiss Otus**

**Stills from 4K Video**

**EOS 7D Mark II
vs. Samsung NX1**

## How to Digitize Slides
**Photos better than Scans**

## On the Nature Trail
**with Brian Matiash**

# Foodphotos
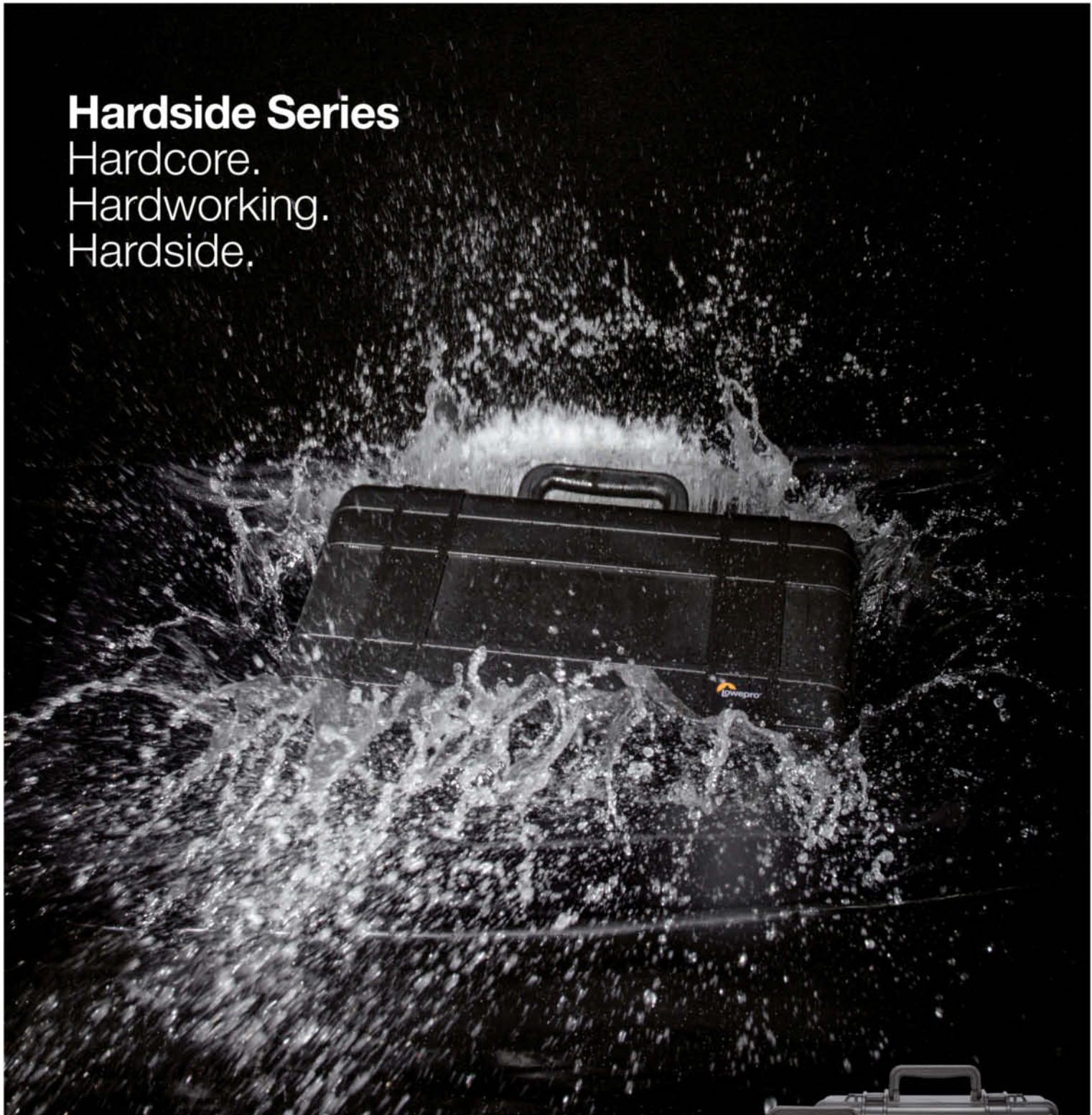## Mouth-watering Workshop (with Recipes)

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**19** (2015) • **$14.99**
**Spring Issue**

$14.99

# Hardside Series
## Hardcore.
## Hardworking.
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The other day I found a photo of a beetroot risotto on my Facebook Timeline that was anything but appetizing. Instead of an exotic, mouth-watering dish, the photo revealed a close-up of a greasy pink mess that instantly conjured up associations with operating theaters. But help is at hand in the form of this issue's food photography workshop with Peter Rees, who is a master of his art and likes to share what he knows. As well as his fantastic photos, he even provided us with recipes to try out for ourselves, which is why his article gets my vote for 'Workshop of the Year'.

Elsewhere, surveys on the habits of photographers have revealed that they have very little interest in shooting moving pictures, even though today's cameras have high-end video capture functionality built in. But now, with the introduction of affordable 4K video technology, all that is about to change. A single 8-megapixel 4K video frame offers better quality than many purpose-built stills cameras, and the temptation to simply shoot video and select the best frame later is sometimes hard to resist. Some regard these developments as the beginning of the end of photography, while others see a golden opportunity to expand their visual horizons. Instead of simply joining in the debate, we decided to look at the facts, and found ourselves in the fascinating world of video compression algorithms, interface throughput rates and hitherto unkown camera functionality. We enjoyed the ride and hope you do too!

*Jürge Ring*

**Food Photography   20**



**Stills From 4K Video    42**

## Portfolio

Robert Goetzfried gives stadiums, roller coasters and movie theaters a unique feeling of beauty and calm by photographing them when there's no-one around.

## Food Photography

More and more people are photographing food for books, blogs and private use. Pro food photographer Peter Rees shows you how to produce really mouth-watering food photos.

## Cover Shoot

We produce our cover photos in-house, and this issue's image was a real challenge. We tell you all about how it was created.

## Stills From 4K Video

4K video capture is now available in affordable digital cameras. We investigate the technology and explain how to extract stills from 4K video.

## Serial Photography

Have you ever wanted to tell a story with your photos? We provide hands-on tips on choosing themes, planning projects and presenting the results.

## Camera and Lens Tests

This issue's tests cover today's top APS-C cameras, the new medium-format contender from Pentax and the latest ultra-high-end Zeiss portrait lens.

## Shoe-Mount Flash Special

We test 10 system flashes, from high-end to cheap and cheerful, and introduce a range of accessories for enhancing your flash results.

## How to Digitize Slides

With scanner technology stagnating, digital cameras are now the tool of choice for digitizing analog archives. We show you how using commercial and home-made gear.

**85mm Zeiss Otus  84**

**Flash Test  88**

## Photoshop/Lightroom Mail Merge

Merging variable text with photos is a complex task. We show you how to use built-in Photoshop tools and Lightroom plug-ins to produce your own serial images.

## Manufacturer Cloud Services

In an attempt to grab market share from the competition, Nikon and Canon now run their own RAW-capable cloud photo sharing services. We check out what's on offer.

## Nature Photography with Brian Matiash

Brian Matiash is one of the most exciting nature photographers working today. He tells us about a perilous photo call and lets us in on some of his imaging secrets.

## About Us

> **DVD Download**
> If your copy of the magazine contains no DVD, navigate to www.ct-digiphoto.com/dvd192015 to download the DVD content for free.

## Free DVD

### Full Version Software: MakeUp Pilot

The perfect add-on for removing unwanted blemishes and adding digital makeup to portrait images.

### Full Version Software: Ashampoo Photo Commander 11

A complete solution for all your image management and processing needs.

### Videos

- Interview with Nature Photographer Paul Nicklen: Mission Polar Ice
- Creating a Romantic Look: Lightroom Tutorial with Wedding Photographer Kate Breuer
- Old Lenses on Modern Cameras, Part 2: Shooting on Location
- Creative Shooting: Improvising with Portrait Expert Bert Stephani
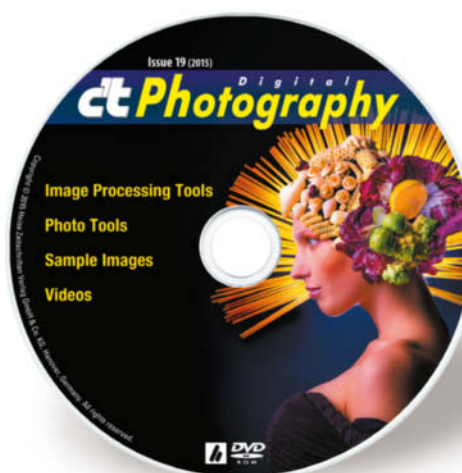
# Readers' Letters

## Collecting Photons

I am reading through my first issue of *c't Digital Photography* and am excited by its content. I really enjoyed your Full-frame Special article in No. 16 and feel that it helped me to understand the pros and cons of the different sensor formats. However, I think that your illustration *'Collecting Photons'* (below) is inaccurate. If I put three dishes of different sizes out in the rain, and it rains one inch, each of the three dishes will have one inch of water in it, not different levels as shown in your illustration. The inch of rain in the large bowl will be a lot more water than the inch of rain in the small bowl. A more accurate picture might look like the one on the right. This is a very rough drawing, but you can see that the larger cup gives you a lot more photons and allows for much higher fidelity in measuring the amount of light.

Joseph C. H. Smith



**Our reader's sketch shows his visualization of how a sensor 'collects' photons**
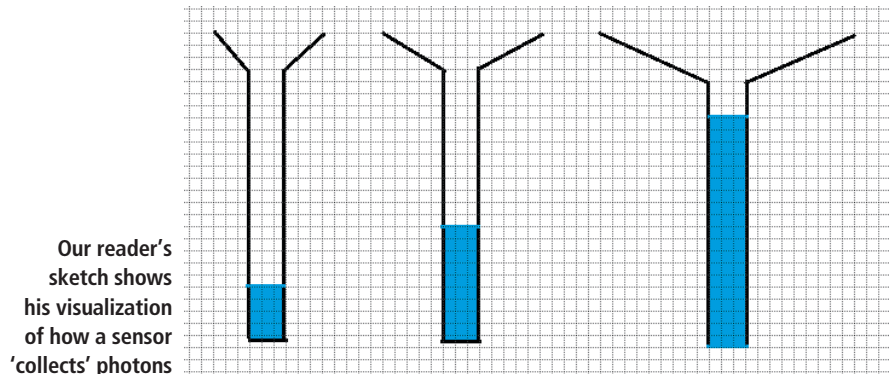
*Thanks very much for your input. In a camera sensor, the size of the individual pixels is the critical factor. The pixels in a full-frame sensor are usually much larger than the ones found in a compact camera's sensor and can consequently capture much more light.*

*Transferring this to our raindrop analogy below, one liter of rain would indeed only cover the 'bottom' of a full-frame pixel, whereas it would cause the compact sensor pixel to 'overflow'. The pixels in your drawing are, in effect, all the same size.*

### Collecting Photons

Each pixel in the Canon EOS 6D's 20-megapixel full-frame sensor has a nominal width of 6.5 μm. The APS-C Sony A3000 has a 20-megapixel sensor too, but with photoreceptors that measure only 4.3 μm. In comparison, the pixels in the sensor built into the Casio EX-ZS30 measure 1.2 μm.

Larger pixels can capture more photons and produce more image data.



1.2 μm          4.3 μm          6.5 μm
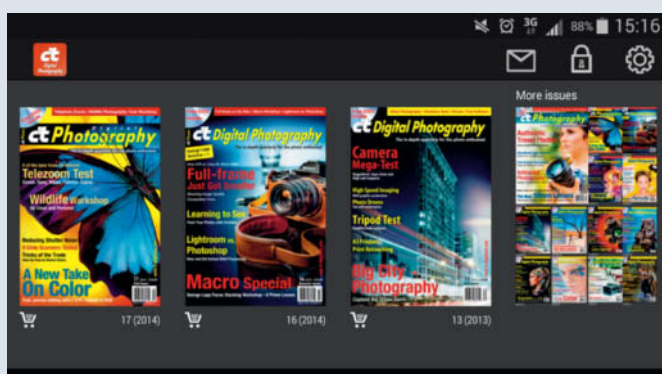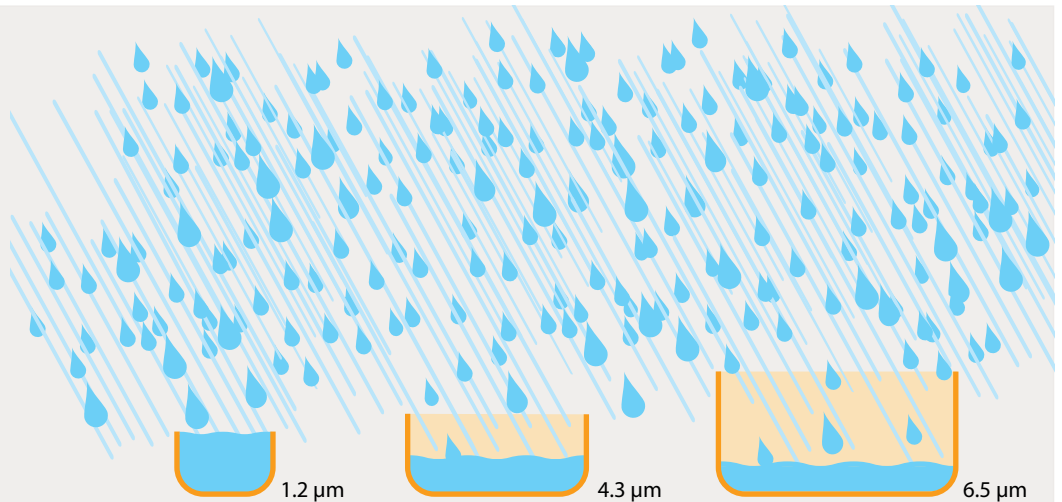
### c't Digital Photography on Android



The **c't** *Digital Photography* app for browsing and reading our top-notch content is now available for Android. The new app includes search, bookmarking and sharing functionality and is virtually identical to the iOS version. You can use your subscriber login details to access all issues, regardless of when your subscription actually began. The app is compatible with Android 4.0 and higher and is available on Google Play.

## Film Scanner Test

I was very interested in your article in No. 17 about slide scanners. The Epson 750 Pro flatbed scanner was tested, but I noticed that you did not test it using the fluid mount system which Epson supplies as an accessory, which I have found gives much better results than just mounting slides or film into the film holders. I have also got better results using the fluid mount system directly on the scanner. I am surprised that your testers did not use this system in their tests.

I have also seen reports using the fluid mount system that gave results much closer to those obtained with the Hasselblad scanner. Recently, I have also seen anti-Newton ring glass inserts for use with this scanner, although I have not had an opportunity to use them yet. I do not hold a brief for Epson but I am disappointed that your tests were not as comprehensive as they might have been, as your magazine is usually very thorough.

Richard Selby

*Thanks for your comments. We didn't test the fluid mount because the wet scanning process is too cumbersome for most of our readers. Today's flatbed scanners unfortunately have fairly limited capabilities with regard to image quality, and we have yet to find any aftermarket accessories that genuinely improve scan quality. Best practice is to buy the best quality film scanner you can find and afford.*

## Tell us what you think:

We are always happy to receive your comments and suggestions in a letter, an e-mail (editor@ct-digiphoto.com) or at www.facebook.com/ct-digiphoto. We reserve the right to abbreviate your input for publication. Our comments are printed in italics.

# DVD Highlights & Contents

## Extreme Nature Photography with Paul Nicklen

**Video:** There are few who know the world's polar regions as well as photographer Paul Nicklen. In this interview, he talks about how his fascinating, other-worldly images are created.



Canadian Paul Nicklen has a unique resumé. He was born and raised in a small Inuit community on Baffin Island in the Canadian Arctic and worked for several years as a marine biologist before deciding to become a photographer.

He spent his initial budget of more than $50,000 on camera gear and travel. In this interview, he talks about how quickly his startup capital disappeared and how he nevertheless managed to get through the difficult early years and establish himself as a professional, producing images that no-one else was able or willing to capture.

The life of polar bears is one of his favorite subjects, and he uses his images of the world's largest land-based predators to raise awareness of the effects of global warming and the melting ice caps. Nicklen's fantastic images are printed regularly in National Geographic.

Although he constantly tests his own physical endurance with long trips to the coldest places on Earth, the fact that millions of people get to see the results of his work keeps him going. The rewards for all his effort are unique images of the animals and landscapes of the Arctic and Antarctic regions. For more images and info, check out *www.paulnicklen.com*. (sea)

## Ashampoo Photo Commander 11.1.9

**Full version software:** A great all-in-one solution for managing and manipulating your digital images.



Ashampoo *Photo Commander* gives you complete control over your image archives. The program, which is included for free on this issue's DVD, offers effective tools for organizing, editing, viewing, converting and publishing your photos. Its smart restoration and optimization tools make it easy to remove scratches, reduce unwanted noise and optimize skin tones. There is also a range of cool instant effects – such as Soft Blend, Motion Blur, Splash, X-Ray, Pixelize, Sepia, Negative and many more besides – that you can apply with a single click or combine using the pixel-precise Effects Pen tool.

To use the software, you have to register during the installation process. You will then receive a license key via e-mail. Once registered, you can upgrade from within the program to the latest full version (currently version 12) for the discount price of $14.99 instead of the normal $49.99. (sea)

## MakeUp Pilot 4.6.1

**Full version software:** MakeUp Pilot is all you need to remove unwanted blemishes from portraits. You can also use it to remove wrinkles and add digital makeup with just a few simple clicks.
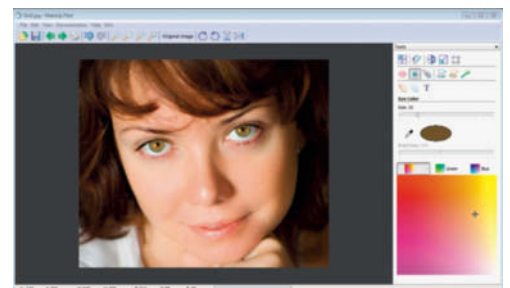


*MakeUp Pilot* is a great alternative to costly mainstream image processing packages for photographers who specialize in digital portrait photography. This issue's DVD includes an unrestricted copy of version 4.6.1 of the software. The user interface is clean and intuitive to use, and includes a set of short video tutorials to help you get started in your own digital beauty parlor.

As well as standard functions such as changing the color of a subject's eyes, you will also find easy-to-use tools for removing skin blemishes, whitening teeth, moving beauty spots, thickening lips and enhancing eyebrows. The wrinkle remover tool is really effective and, although it doesn't work miracles, makes faces look appreciably younger.

The program is perfect for experimenting and enables you to compare your changes with the original image in real time to see if you really have improved things. The digital makeup options include lipstick, rouge, face powder and eyeliner.

To achieve optimal results, you need to have some experience of applying makeup, and *MakeUp Pilot* is a simple way to add the perfect finishing touch to your portrait photos. *c't Digital Photography* readers receive a discount of 50% on the current version at www.colorpilot.com/makeup_upgr.html (offer valid until July 31, 2015). (sea)
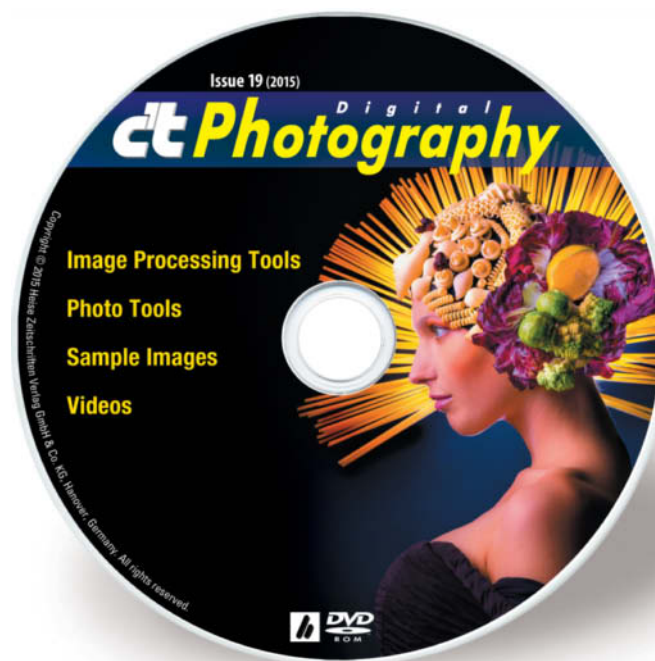
## Image Processing Tools

### Windows

GIMP 2.8.14

GIMP Portable 2.8.14

GREYCs Magic Image Converter (GMIC) 1.6.0.3

Inkscape 0.91

Inkscape Portable 0.48.5

Luminance HDR 2.4.0

MakeUp Pilot 4.6.1 (full version)

Photo Commander 11.1.9 (full version)

PSPI 1.0.7

RawTherapee 4.2.1

RawTherapee 4.2.3

UFRaw 0.19.2

### Mac OS

GIMP 2.8.14

GREYCs Magic Image Converter (GMIC) 1.6.0.3

Inkscape 0.91

Luminance HDR 2.4.0

RawTherapee 3.0.0 32-bit

RawTherapee 4.2.1 64-bit

### Linux

GREYCs Magic Image Converter (GMIC) 1.6.0.3 32-bit

GREYCs Magic Image Converter (GMIC) 1.6.0.3 64-bit

Luminance HDR 2.4.0

PSPI 1.0.5 for Ubuntu

PSPI 1.0.7 for SUSE 10

RawTherapee 2.4.1 for Ubuntu 32-bit

RawTherapee 2.4.1 for Ubuntu 64-bit

## Photo Tools

### Windows

Enblend/Enfuse 4.1.3

EnfuseGUI 2.1.3

ExifTool 9.82

FastStone Image Viewer 5.3

FastStone Image Viewer Portable 5.3

GTKRawGallery 0.9.9

GTKRawGallery Portable 0.9.9

XnView 2.25

XnView Portable 2.25

### Mac OS

EnfuseGUI 2.1.3

ExifTool 9.82

MacPorts 2.3.3

### Linux

Enblend/Enfuse 4.1.3

ExifTool 9.82

GTKRawGallery 0.9.9

## Sample Images

Camera Test Sample Images

Lens Test Sample Images

Photoshop/Lightroom Mail Merge

## Videos

Creating a Romantic Look: Lightroom Tutorial with Kate Breuer

Creative Shooting: Improvising with Bert Stephani

Old Lenses on Modern Cameras, Part 2: Shooting on Location

Paul Nicklen: Mission Polar Ice

Sample 4K Video
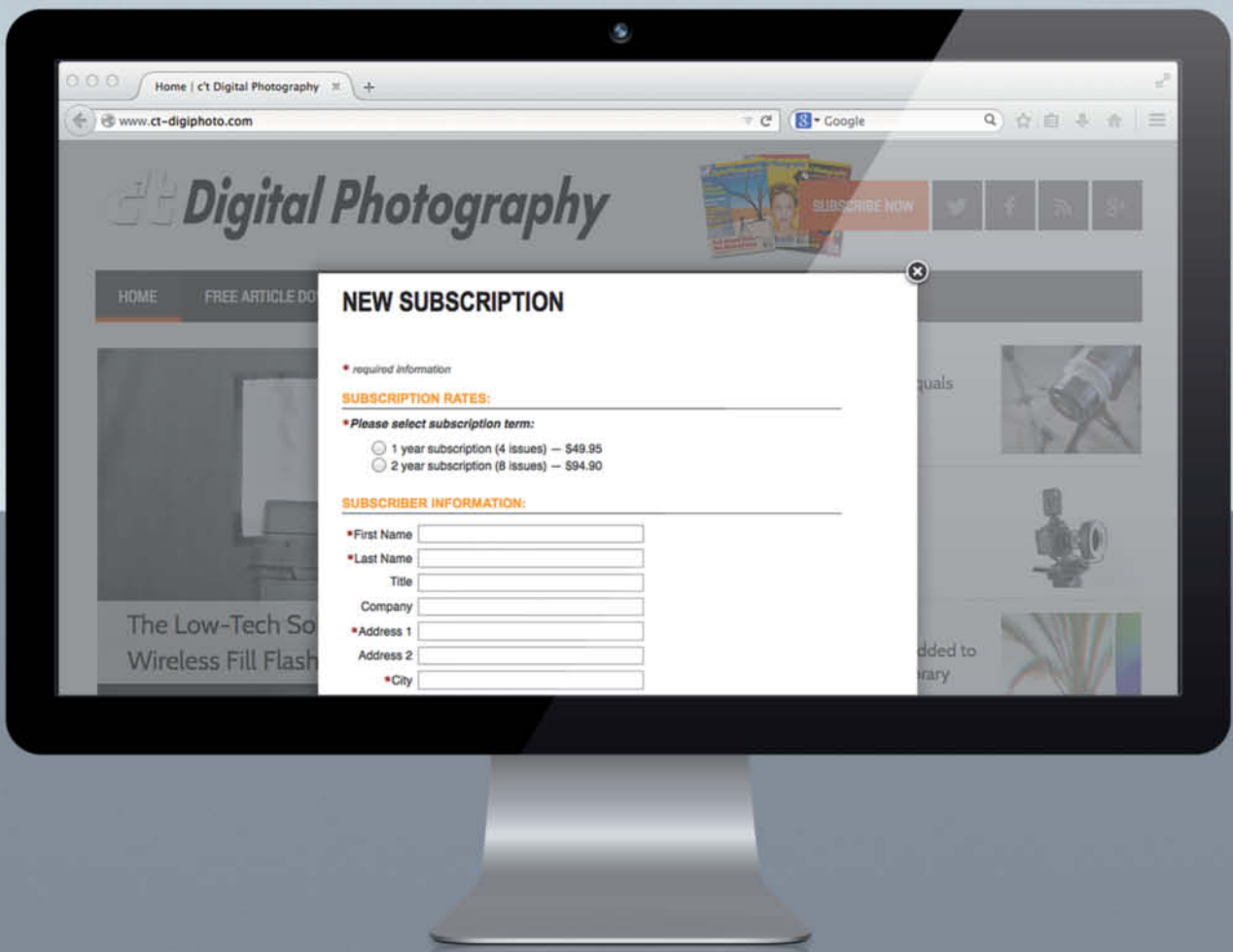
**Howling at the Roller Coaster**

Canon EOS 6D, EF 70-200mm f/4L IS USM |
200 mm | ISO 100 | f4.5 | 1/5 s

## Portfolio
# Robert Goetzfried

**Sports stadiums, movie theaters, swimming pools, bowling alleys – Robert Goetzfried loves to capture photos in places where it's usually loud and hectic. However, he shoots exclusively after hours when these daytime hives of human activity are devoid of people and are transformed into tranquil, atmospheric places.**

There are no people anywhere. Nobody in the water, nobody leaning on the railings and nobody watching from the stands. There is definitely nobody around when Robert Goetzfried presses the shutter button. He sometimes works at night, but always alone and out of hours.

His subjects are sports stadiums, subway tunnels, movie theaters and swimming pools, and the fascinating thing about his images is that most people have never seen these places without the crowds that normally populate them. This unusual situation is one of the Munich-based photographer's main motivations: "It's an amazing feeling to have these locations to myself. If I mention a swimming pool, most people immediately think of screaming children or people swallowing chlorinated water, and movie theaters, too, offer a similar vista full of clamor." Goetzfried uses these assumptions to create contrast between expectation and

reality in the viewer's mind. We tend to perceive places that are normally full of people and noise as especially quiet when there is nothing going on. As well as calm, these images exude emptiness and symmetry, and these are the disruptive factors that make them memorable. They portray familiar places in a new and unfamiliar way.

His photos are full of 'graphical equations' that always produce a satisfying result. His constant search for patterns and symmetry has become something of an occupational malaise. Goetzfried explains: "I like to arrange things in an organized fashion and I think and work in sequences. I'm a bit compulsive, but

I'm still a long way from transforming my visual formulae into mathematical ones."

If you check out Goetzfried's website, you will find a great many photographic sequences, sometimes encompassing 30 or more individual images. His body of work is made up of countless images of museums, tunnels, bus stops, bowling alleys, mountains and cities that he has collected over the years. Each sequence has its own underlying concept, while the individual image are given additional punch by being part of a series.

This approach to photography requires a lot of advance groundwork. Thorough

**Front Royal**

**Canon EOS 6D, TS-E 17 mm f/4L |
17 mm | ISO 160 | f5.0 | 5 s**