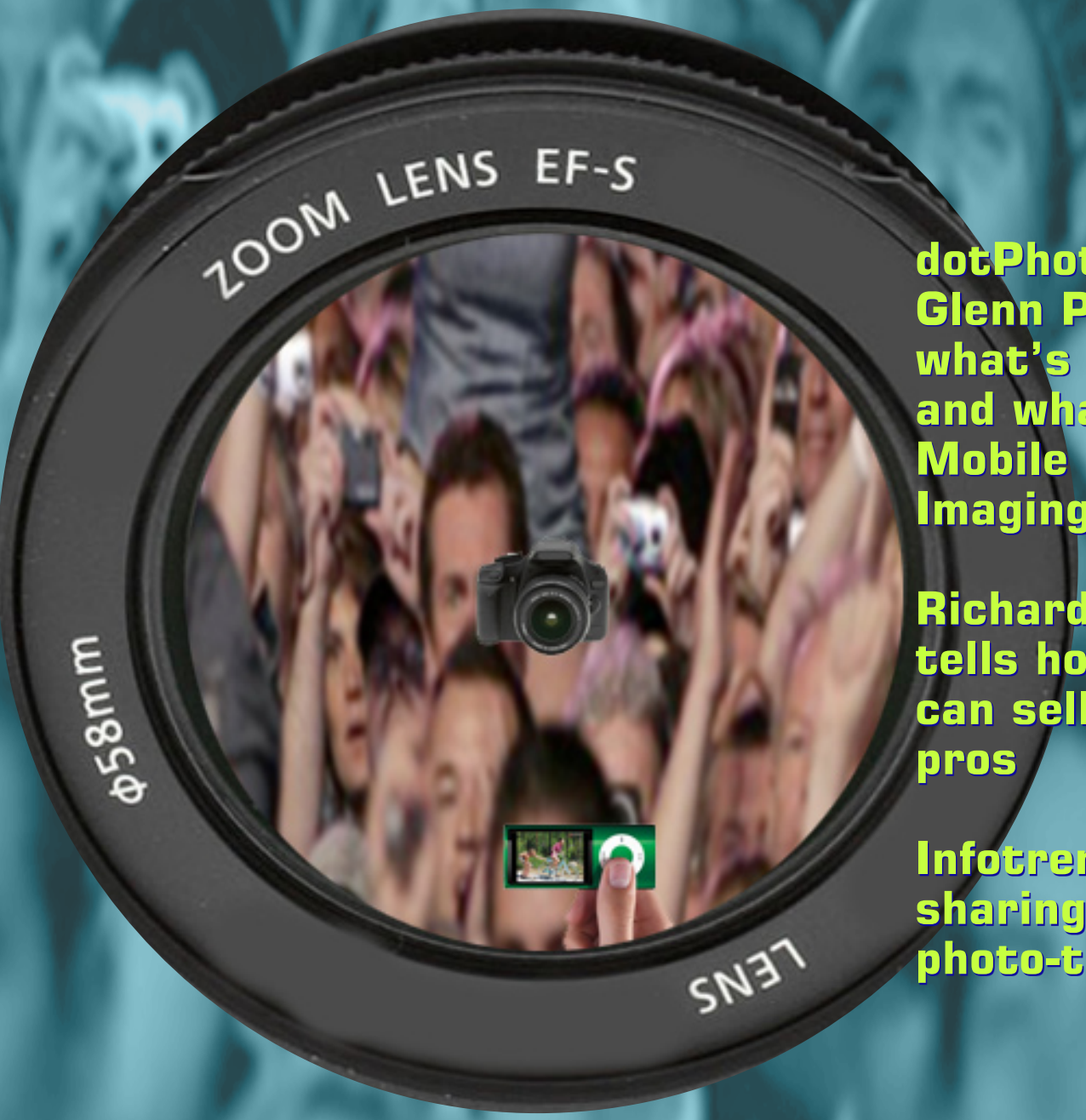
The 6sight Report

THE FUTURE OF IMAGING Volume 18, Issue 08 • Sept.- October 2009
Formerly The Future Image Report www.6sight.com

Social Photography
Monetizing Amateur Pictures
Internet and Mobile Imaging



dotPhoto co-founder Glenn Paul explains what's worked, and what hasn't, in Mobile and Internet Imaging

Richard Weisgrau tells how amateurs can sell shots like pros

Infotrends finds sharing boosts photo-taking

3D Imaging Innovators to Present Latest Technology

Two top 3D innovators from the movie industry will present their visions of the future of 3D at the upcoming **6Sight Future of Imaging Conference**.

Lenny Lipton, a pioneer of the electronic stereoscopic display industry and the founder of **StereoGraphics**, will look at the state of the art of 3D technology. "I will present a background overview of 3D that is partly technical and partly historical," says Lipton. "This will help attendees get up to speed on product and system development for stereo 3D consumer photographic applications." Lipton is widely considered the father of the electronic stereoscopic display industry, having earned 35 patents in the field.

Rick Dean, vice president, technology development, at Lucasfilm spin-out **THX Ltd**., will discuss commercial 3D content development and its influence on the emergence of 3D-capable televisions in the home in "Hollywood and Your Television." Dean says "Movie makers have always wished to tell stories using the best tools they have at their disposal. My presentation will address the many evolutions of moving image technology. The latest is 3D, and it adds another way to deliver the immersive experience."

Dean guides the strategic development of new technologies and THX certification programs. Dean is also a board member of **3D@Home Consortium**, an international industry group ensuring the best possible viewing experience as 3D technology and content matures for home entertainment and gaming.

The 6Sight Conference is Nov. 10-12, in Monterey, Calif.

FUJIFILM 3D ARRIVES IN US

Fujifilm's FinePix REAL 3D system presents "a totally new experience in both still pictures and movies," the company says – and is now available in the United States. The $600 W1 camera captures 3D still photographs and movies. It has 2 lenses and 2 sensors, the output of which is blended into a single image for both still photos and video.

Fujifilm will demonstrate its 3D system at the 6Sight conference next month.

Inside this issue:

Social Networks and Photo Sharing

Social Sites' Users Share More Pictures

By Paul Worthington

Nearly three-quarters of regular social network users engage in photo sharing, according to the new InfoTrends study on social networks and photo-related activities. InfoTrends believes these users represent more than 50 million potential customers for photofinishers and other photo service providers.

Less than a third of respondents realized their photos are stored at reduced resolution, the research firm reports; more than 20 percent consider social networking sites to be safe storage for their important photos. "This is an opportunity for online services storing high-resolution photos to educate the market and make those photos more easily accessible on social networking sites to view and output," InfoTrends says.

For the 2009 Social Networks and Photo Sharing Study, InfoTrends received responses from 1,810 qualified participants in March 2009.

For more on this study, we spoke with Alan Bullock, InfoTrends' associate director of Internet Imaging Trends Service.

Alan Bullock, InfoTrends' associate director of Internet Imaging Trends Service.

We've been hearing for a year or more that Facebook has more photos stored online than any other site, including the biggest photo sites. Were there any other clues to make you look into this area? What first drove you to look at this?

InfoTrends has surveyed consumers about a variety of their photographic habits during the past several years. One of the surveys we run every year is for online photo service users. And traditionally, that's been the big sites like Shutterfly, Kodak Gallery, and Snapfish. But more and more, as we ask people what sites they're using for sharing and viewing people's pictures, we've been seeing MySpace and Facebook at the top of the list.

So we decided to take a closer look at people's photo sharing habits on social networks, and also a more general look at their use of social networks – some of the reasons they use them and how important the photo activities are to their overall social networking experience.

What did you hope to find out? Were there certain things you were looking for?

We wanted to find out how important photo activities are to people as they use social networks; whether people would be inclined to change social networks, just because of a different or better photo experience in social networks; and their interest in making prints and other photo output products, such as gifts and merchandise, from photos they either stored themselves or had access to from their friends in social networks.

Before we get more to the results, let's talk a little personally: How are you using these networks yourself? I've been on Facebook during the last six months or so and have shared maybe a dozen photos; and I probably got more feedback regarding those dozen photos on Facebook than I have on all the other photos I have uploaded to other sites in the last dozen years. So it certainly is a great way to use photos as part of a conversation and to make sure your images are seen the next day by immediate friends and family. I think it's a great solution for sharing images with the people who matter to you. Have you been using it?

I've been on Facebook for a year and a half or more now. I signed up clinically, I'd say, to explore how photo sharing works on there because I'd heard so much about it. While I've shared some photos there, I haven't been a prolific photo sharer. I'm kind of peering over the walls, listening in as my wife uses it and my kids use it – and it's definitely a great way to keep in touch.

I share your observation; even in my limited use of it for photo sharing my own pictures, I've gotten more feedback there than I have through any other means of photo sharing during the last several years.

As you started to find out how other people were using

Facebook and social networks for pictures, who did you poll? What type of people, how many people, and how did you reach them?

We typically conduct our surveys on the web, and we contract with a list provider to supply us with a list of people who have registered with them as people who are willing to take surveys online. And we don't get too granular in our specifics of what kind of people we're looking for, except we try to make sure that the population is generally balanced by age and gender so it typically reflects the overall U.S. population.

We typically survey adult consumers between the ages of 18 and 79, but for this study, we dipped a little bit lower and specifically asked for 200 teens between the ages of 13 and 17. We wound up with a total population for this survey of about 1,800 respondents, generally spread age- and gender-wise to match the demographics of the U.S. population, with the exception of the additional 200 teen users.

It certainly makes sense, in this case, for teens to be polled. Did you note a very distinctive usage difference in those age groups? Were these teens sharing significantly more photos than the adults you polled?

Yes, we definitely saw some differences there. Younger users, unsurprisingly, are quite heavy social network users in general. I will point out the number of older adult users – middle-age and up – is growing on social networks. I've seen some statistics indicating the 35-and-older segment is growing rapidly.

As far as photo sharing goes, it follows a similar pattern, although the older folks are definitely using it to share photos as well.

How many of the people polled were engaging in photo sharing?

We found almost three-fourths of people using a social networking site on a regular basis are sharing pictures there.

We asked: Other than a profile picture, do you share pictures on social networking sites? And nearly 75 percent said yes.

Was that overall figure in line with the expectations you had before you conducted the survey?

Pretty much – I wouldn't have been surprised if it was a little bit higher, actually.

Reading your report, one thing I found surprising was some of the other issues that arose – specifically the belief some of these users had in regards to image storage. What can you tell us about that?

This was a preface to questions we asked about user interest in ordering prints and photo merchandise from photos on social networks. As people in the industry, we pay attention to things like resolution, file size, and so on. I think most of us realize pictures stored on social networks like Facebook and MySpace are downsized rather severely – which is reasonable because they're storing billions and billions of photos, and they would have disc farms stretching up and down the coast of California if they didn't try to save space where possible.

"We think sharing electronically, whether via social networks or other means, is an even larger opportunity ...other devices, whether they're in the home or mobile."

But surprisingly, when we asked people if they thought their photos shared on social networking sites were stored at full resolution or a reduced size and quality, a large percentage – nearly half, in fact – believed they were being stored at full resolution. Another quarter or so said they didn't know, so only about 30 percent said they understood their pictures were being stored at a reduced size and quality.

That is a surprising figure for those of us who've been doing this for ten years at least. It's a given: Of course they're going to downsample your images, especially when we've gone from uploading 1-megapixel images to capturing 10-megapixel images. But I can see the average person thinking, "I have a picture. I've uploaded it. What do you mean it's not the same quality?"

Yes, exactly. And that is actually kind of frightening if people are relying on these sites as a backup method for their pictures and thinking they don't need to be concerned with storing their digital files safely and securely on their home computer because the files are uploaded to Facebook.

What can Facebook and others do to correct that erroneous belief? I guess every time you upload, the window should say, "Warning! Warning! We're not storing your whole photo. Please do not consider this to be image storage." Come to think of it, there's no reason they couldn't put words to that effect on their upload window.

There's no reason they couldn't, but I'm not sure it's the respon-

sibility of Facebook to be that overt with the message. The photography industry needs to educate consumers about photo storage in general. We've been talking for several years about photo storage companies being a good backup plan for photos, which can consist of both on-site and off-site solutions.

I think the output industry has a vested interest in making sure the consumer knows about this, because without good quality files available to them, the opportunity for selling decent-quality output products is quite limited.

A few companies offer online storage at high resolution and make it easy to copy the photos to a social network without uploading it again – performing two good services in one.

The most innovative approach I've seen to that problem is from the British company called PhotoBox. It has a Facebook application that can upload the high-resolution images to the PhotoBox site and the low-resolution images are sent to Facebook (to appear as a Facebook album). If someone wants to order prints or merchandise, the high-res images are automatically retrieved from PhotoBox, and the prints or merchandise are made using the better quality image files.

While we're talking about solutions to this problem, what can be done with all those images already shared and uploaded to Facebook and other such sites? Are there any printing opportunities or other ways of earning revenue from those low-resolution images, or should the industry just look to prevent that kind of problem in the future?

I definitely think there are opportunities there – the field is wide open at this point. There's one major U.S. retailer that has a Facebook printing application, and that's Walgreens. Wisely, they limit the size of the output products and the size of the prints that can be ordered from Facebook images because of the low resolution. There are also some other innovative approaches that can make use of those low-resolution photos.

I can see a store saying "come in and we'll make a real, hard-copy, photo album from the low-res images in your Facebook album." Whether you're putting three or four images on a 6-by-10-inch page, or printing a small pocket-sized book, there are still hard-copy products that can be made from even those low screen-resolution images.

You're exactly right. That's using the low-resolution images at a size appropriate for them. Another innovative solution we've seen is from another British company called HotPrints, offering a photo book made from Facebook images. Every image is printed at about 2-by-3 inches, and they look great at that size. HotPrints just piles a bunch of images into a book printed on glossy paper, folds it, staple-stitches it, and sticks it in the mail to you at a very reasonable price.

There are other companies starting to approach this market as well, offering products using the low-res images at a size that still looks good. So I don't think it's all lost opportunity; it's a matter of designing products to make use of the images in the current form.

Sharing and... what else?

Lastly, I'd like to get your thoughts on the big-picture implications of social imaging. On the one hand, online photo sharing – and specifically the viewing of very small images on something like Facebook –meets pretty much all the user's needs. People are taking photographs to capture their own memories and share those experiences, and neither of those functions requires a high-resolution image or a hard copy. So when my sister takes a picture of her kid and puts it on her album, 20 of her friends go, "Oh, your kid's cute!" – that's all she needed from the field of photography for that moment.

Mission accomplished.

But on the other hand, nothing in our lives before this has made photography so exciting to so many people – because suddenly they're taking pictures that aren't just sitting in a shoebox. Their pictures are seen by everybody; they're getting feedback. That excitement builds; it just can't help but be a good thing overall for the industry of photography. What do you think are the long-term implications of this kind of change?

It's a good thing for the industry if it's measured in terms of the number of pictures taken and the number of images shared.

One of the challenges for the industry, though, as it's gone digital, is how to monetize that process. As the "razor blades" go away and as the need for film, processing, and prints go away, then the industry is faced with the need to innovate to find other products and services that can generate the income.

We think sharing electronically, whether via social networks or other means, is an even larger opportunity. And what I mean by that is, other devices, whether they're in the home or mobile – certainly we've seen the growth in popularity for digital photo frames and the connected photo frame with built-in Wi-Fi or some other transmission device – can connect to pictures stored on a shared folder on a home network, an online photo service, a social network, or maybe even all of the above.

"The digital imaging ecosystem continues to grow and offer consumers new opportunities to share and view their pictures on a whole variety of different devices and in different places — and social networks are a big part of that equation."

We're also starting to see other consumer electronic devices offering this connectivity. An increasing percentage of high-definition televisions are being sold with network connections; the sexy application for that is to download streaming movies from services like Netflix or Blockbuster Online, but they also enable the viewing of photos on those nice big screens as well. Many of these devices offer the ability to tap into photo collections stored on social networks or on services like Flickr and Picasa.

So we think the digital imaging ecosystem continues to grow and offer consumers new opportunities to share and view their pictures on a whole variety of different devices and in different places — and social networks are a big part of that equation.

As a result of your findings in this survey, are you projecting any growth in the number of images the average user shares, or any other significant changes soon in this type of activity?

We haven't put any hard numbers around the forecast for the number of images shared specifically on social networks, but, certainly, the trend is firmly in place for the foreseeable future. In our 2009 survey results, we've seen even more sharing and viewing on social networks than we had in 2008, so the field continues to shift in that direction.

— **6SR**

Mobile Imaging news

YOUNG ADULTS ARE MOST ACTIVE CAMERA PHONE USERS

InfoTrends' says its latest research shows teenagers and young adults take more digital photos than those in other segments — and they also share a greater percentage of those photos.

InfoTrends' Spotlight on Teenagers and Young Adults: Mobile Photography reports that while most respondents in InfoTrends' latest mobile photography end-user study reported capturing over 25 camera phone photos every three months — but for those under 18, the number jumped to over 45 photos.

• An online survey in Britain shows 44 percent of respondents share their photos using social media sites such as Facebook and Twitter. Also, 44 percent would prefer making a hardcopy photography book for special occasions.

Most tellingly: 83 percent of 18- to 24-year-olds share their images on social media websites, while only 19 percent of those older than 55 do so. The **YouGov** research, commissioned by **Blurb**, polled 2,146 adults from July 6 to July 8, 2009.

CHEAPER PICTURE MESSAGING

Visual communication – phone-to-phone photos while speaking – is too costly to enjoy with most wireless carrier data plans.

With the new PAYGo Phones from wireless services provider **Cricket Communications**, however, you can send unlimited photos for just $3 per day – paying just for the days used, not a full month unless desired.

The all-inclusive Cricket PAYGo line offers unlimited wireless service at $1 to $3 per day used, or monthly plans at $40 and $45 [for web access] per month. The plans feature picture messaging. Three Cricket camera phones are available at 400 Best Buy Mobile locations nationwide: the Samsung Messenger II has a 2-megapixel camera for $150; the Samsung MyShot II is $90 for a 1-megapixel camera; the Cricket CAPTR has a VGA camera for $50.

REALITY AUGMENTED WITH WIKIPEDIA

Billed as "the app your 3GS has been waiting for," Cyclopedia uses the iPhone camera, compass, and GPS together to overlay Wikipedia information in the viewfinder.

"By moving the iPhone around, you will see articles pop up according to the direction you are pointing," says developer **Chemical Wedding** of Britain. Users can get a quick overview, or access a full article.

The company says there are 65,000 entries in Wikipedia that have geo-tagged information included in them – and users can, of course, add location data to entries.

Cyclopedia is $2 at the Apple App Store.

Social Imaging and Camera Phones

What's Worked, and What's Needed

by Paul Worthington

Glenn Paul, founder of **dotPhoto,** has long been a key player in internet and mobile imaging. Here he discusses what he's learned about the profits and pitfalls of online photography.

Let's start off with a bit of your background. You've been involved with camera phones and mobile imaging pretty much from the get-go. How'd you get involved in all this?

In 1999, dotPhoto was launched. In about 2002, we could see printing was going to be a very rough business. We outsourced the printing to **District Photo,** and they were terrific.

We took what money we could scrape together and put it into a new piece of software for **Verizon Wireless.** They had just announced they were going to be working with the **Qualcomm** BREW operating system, the binary runtime environment for wireless – and they were coming out with the very first color phone for $500. It didn't have a camera, just a color screen.

It was more difficult than we thought. The operating system was just getting started and wasn't well documented, but we got a couple handsets out there. They were in the top menu and they did very well. Pretty soon, we were cash-positive and making money – and that was terrific.

Then we saw it go through several iterations: the phone companies, of course, viewed it as part of their businesses. At one point, an executive sat down with me, and he said: "Look, we're in the messaging business. We do voice messaging and we do text messaging, and we do picture messaging. That's really our business." From there, I could see it was going to get a lot harder. They began to take us down in the menus – we could try to buy a place in the upper menus, but it became very difficult to grow the business; and we couldn't do the creative things we wanted to do. It got hard even to get them to pull the switch to put our applications on the next phone. They'd all be ready, but they were very busy and they didn't have time to get us on that week.

So I think picture messaging in this country really is the province of the carriers, and users can see why. How many customers do they have at Verizon now? Is it around 100 million? If they have 10 million who give them $5 a month for picture messaging, there's a very good business.

It was a fine business for us for a while, but it was difficult to control.

From there, to what did you transition? What else did mobile imaging offer if picture messaging was taken off the menu?

The idea of the company was to get into lots of other wireless things. Wireless was a very exciting term, and everybody wanted to invest in wireless.

dotPhoto founder Glenn Paul

It seemed to me what people really wanted, what consumers want, is to have a seamless interaction between the way they store and manage their photos, and the way they capture them. That's what I was interested in doing. At one point, we went to California and met with **Jim Clark,** who had the understanding our Pictavision software would actually capture pictures. It didn't at the time, because we'd been told by Verizon, "No, we will not allow you to access the camera, because that's our piece of hardware." So I came back thinking Jim Clark was really right. We really should have a camera phone interface because, at some point, they would allow us to access that.

We began to invest in that area, understanding how to work with a camera – even though it wasn't going to be allowed. Sure enough, sooner or later, it was allowed; but by that time, it was very hard to get any marketing.

Now, dotPhoto is part of **MyPhotoAlbum** [it was acquired in February 2009].

The wireless business is now called **Exclaim,** and I'm told it is doing very well with several carriers. So they're still selling Pictavision [a phone to photo site service], and that's doing well.

Looking at it from the vantage point of 2009, what part of your expectations for mobile imaging in 2002 have come

to be realized; and conversely, what is the market still not offering that you thought long ago should be happening by now?

I think, for all these camera phones doing all these great things, every year it seems like everybody's a little more saddened by it all – because it's really a handful of carriers who control everything that goes on in the business. They may be the biggest camera companies in the country, but each company has its own agenda.

That agenda is to work with very small pictures, and it's hard to send even a full-sized picture off a camera phone. I think most of us thought there would be a lot more bandwidth in phones; and we'd be able to take a 5-megapixel picture, send it to the photo site, automatically print it, pick it up in any store – do all kinds of things like that – and consumers would be behaving in those ways.

It just hasn't happened, and it's not likely to happen until somebody gets paid an awful lot for it. Consumers don't want to pay, especially right now.

So the vision many of us had in the industry hasn't come true, as a result of the governor that's on the whole system.

One of many things I'd hoped for in the early days of mobile imaging was enhanced communication, with people being able to capture and send photographs in the middle of a conversation to illustrate what they're talking about, and that's not hampered by the resolution of the camera or the bandwidth available. Users can send very low-resolution images that are only designed to be seen on a 2-inch LCD.

Has that happened because the technology wasn't there, because the user interface made it too difficult, or because people just didn't actually need that technique?

People will do whatever we make it easy for them to do. I don't think it's a user interface problem. The companies just don't want to allow anything that's going to tax the system very much. The companies will say, "We did the research and nobody wants to do this." That's the old saw. **Henry Ford** said, "If I asked my customers what they wanted, they'd say 'a faster horse.'" So if we're doing that kind of research, we're just going to maintain the status quo.

Are there other aspects of mobile imaging you are still looking forward to seeing come to market? If so, are the obstacles to these other ideas technological, or are they still the corporate needs of the carriers?

People share pictures in batches, and that's certainly the behavior most of us on photo sites observe. They go to events, take bunches of pictures, upload albums that are mostly all those pictures they took at the events; and then they share those with people who were at those events, whether it's a family reunion or a baseball game. Whatever it is, they're sharing these batches of pictures.

The paradigm on cell phones is, "Here's the one picture I just took of us." It is not really very enlightening. It's probably a bad picture – most pictures are; but if people can take batches of pictures, have them show up on their phones, and then just tab down through them, they get a much fuller picture of the event and the experience they've had with other people. So I think that's the way people want to share, and I think somebody will do that. In fact, I'm thinking about doing it. So I'm looking forward to that.

Also, I think our phones are going to look a lot more like the frames on our desks, and the screens are going to get a little bigger. It may even get to the point people are carrying another screen in their pocketbooks because they want to have pictures on a very small, thin screen, not unlike the ebook.

I agree, and I hope that will come to pass. I hope we can carry two or more devices that still are only billed to one phone line, because I think that's a real obstacle to any innovation in mobile imaging and in mobile devices in general. They charge customers for a separate data line for every device. That's like me saying they have to pay for a different internet connection for each computer in the house.

Phones to photo sites

What do you see happening regarding the combination of mobile imaging and internet imaging? In the early days of the camera phone, they were almost seen as a separate ecosystem unto themselves. They hardly ever left the phone; if they did, they only went to the carrier's network. Now, we're seeing more people using their phones to capture pictures that go to their Facebook pages, or go to their Flickr accounts, or go to some other sites where people can see them, either from the phone, from the computer, or from any other device. This seems to me to be a much more natural growth of how imaging overall is going to be used by people. Where do you think this is going to end up going?

Well, you're not kidding: it's already happened. Before our conversation, I did a little tally on **Quantcast** to see what people were doing in various photo sites. The "small picture" sites, as they call them, are just running away with it. Facebook has 300 million users. [The count for] users in the United States per month was: Facebook, 94 million; **MySpace,** 58 million; **Photobucket,** 26 million; **Flickr,** 21 million; and **ImageShack,** 8 million. Those are all the "small picture" companies: Facebook doesn't have images much larger than the 100KB we could get off the screen, and most of the traditional photo sites wouldn't

even allow a picture that small to be uploaded and printed.

So, the very smallest of those had 8 million monthly users. Then, we come down to **Shutterfly,** about 6 million; **Snapfish,** 4 million, and **Kodak,** down about 2 million.

So, what people are doing and what the traditional industry is talking about are just two separate things. People want to see pictures, they want to see them right away, they want to make a little collection and show them in their Facebook pages, and they want it to happen fast.

The problem with big pictures is it takes a long time to upload them, and it takes a long time to display them. It's just problematic all around.

It's so easy on the small picture sites – and working with the small devices – just to share the experience.

I'd add people want to upload their images only once. Correct me if I'm wrong, but wasn't your company the first, if not the only one, to offer that service, where users can upload full-resolution images and then easily get those to Facebook at the lower resolution?

Yes, MyPhotoAlbum has a Facebook tool to do that. Customers can upload straight to MyPhotoAlbum and then copy them to Facebook – and then from Facebook, order them on MyPhotoAlbum.

How well has that worked out, to be one of the first to tie into Facebook that way?

I can't call it a runaway win yet. It's a nice feature; but when you go to Facebook, they have to approve the pictures because they're coming from the outside … and these are some of the same walls thrown up by the carriers. Whenever we make something too complicated for consumers, they just go, "Oh, maybe not." So I hope lots of people find out about it and use it, but so far it's just there. We hope it takes off.

At the 6Sight conference in November, we'll be talking about the impact of social networking on imaging, and how it boosts photographers' enthusiasm. How important is social networking proving to be to the overall growth of consumer photography?

Well, consumer photography is terrific anyway. Everywhere we go, we see people with digital cameras. The quality of digital cameras and the whole system there is just terrific. It's a wonderful invention. People would be using it with or without social networking.

The great thing about social networking is it lowers customer acquisition costs, and I think this is why everybody's moving toward these social networking sites to share their pictures. Their friends are already there, there are all kinds of ways to connect with them, and making connections is one of the two most important things in life.

On the web, there are two major ideas. One is search – help me find what's significant, and help me find it now; and the other is making connections, whether I want to make money, or just because I'm human and I want to make connections with people. That's what we're all about. Some people would say that comes right behind hunting for food. So it's a tremendously important human need – making connections.

I think most traditional photo sites – I know we did – mapped this stuff out and said, "Yeah, we could do that." Then the board of directors and the executives said: "How are we going to monetize that? How could we ever make any money on social networking? That's a bad idea."

What we have missed as an industry is, "No, that's a great idea," because the highest cost we all have is the cost of customer acquisition. We can no longer buy customers on the web. If we're running almost any kind of business, we find ourselves and our competitors in the same strip mall. We're just all lined up, and the only guy who can make money in that situation is the one who owns the parking lot. So everybody's paying for the parking spaces, trying to get people in their doors. **Google** is getting rich, but it's not doing anything for the folks who can't grow organically.

A couple traditional sites are doing interesting things. I think Shutterfly personal websites are great, because people want to establish a house on the internet; they want to have a place where people can find them.

That's one function Facebook really accomplishes. It's become the de facto directory for the world – 300 million users, 94 million every month in the United States.

The importance of social networking is it helps us find people and it allows us to make connections; but from an industry perspective, it lowers our cost of customer acquisition.

Facebook added photography as just another feature to help them grow their overall audience, but photography sites chose not to add social imaging. It's not too late; Facebook hasn't won the game hands down and, as you say with the example of Shutterfly, there are still ways other photography sites can implement social networking. What would you advise they do?

We see it on lots of sites already; it's popping up. First, we have to allow people to find significance: Help them with the search box to find exactly the picture they're looking for, exactly the photographer they want. The better the search, the better the photo site.

Part of that is to help them find their friends and what their friends are viewing. Social networking is going to involve not

just pictures, but text and any way they can make connections. We happen to come at it from the photo side, but look how well Facebook has done by coming at the photo side after they did everything else.

We're on these cul de sacs where we say, "Isn't this great that somebody can come here and make a poster?" Yeah, but after they're done making the poster, they really need some other reason to come. They need to connect with people. They want to see what's cool. Give them some time to fiddle around while they're there. Serve up some great content. There's that problem again – finding the significance within the site.

Most of us spend more time watching television than we spend making television, right? How many hours of television have you made? Not too many! Most people, they tell me, watch 6 hours or 8 hours of television a day. So it means we have a society that wants to be entertained. There's a lot of entertaining content, but it's just buried in these photo sites.

Many companies have made a great business from finding that, rating things, and bringing it to the attention of people who are interested in seeing it. **Amazon** has done a terrific job with making recommendations. **Netflix** has just paid $1 million for a better recommendation engine. Photo sites should be doing that: "Here's the kind of thing you like to see. Hey, look what we have for you."

One idea we're exploring is a social site, such as Facebook, fulfills so many photography desires. The primary reasons we take photos are to capture a memory for ourselves, and to capture a memory of an event we can share with others. As you said, it's that connection. Now, I take a picture; I post it on Facebook; all my friends, my family, and my colleagues see the image right there. I have a greater audience for my photography than ever before; it meets all my needs; I don't need to ever print it, email it, or do anything else with it. I have received a greater response to it than I have to any other pictures, so it encourages me to make many other photographs.

I think social sites, in this way, are great for making people want to take more pictures; but what I don't see is how there's a possibility of a revenue stream. You say social networking lowers the cost of acquisition, but customer acquisition for what? If my primary needs for photography are met by Facebook, what is there left to sell me?

That's a very good question. What is there left to sell me?

In fact, I think Facebook itself could become a printing site. I've seen some pretty good software that will enlarge Facebook images and allow them to be printed as 8-by-10s. It's the MP3 effect: a technology that's just good enough and it'll work. I could use that software to turn Facebook into a pretty good printing site that would be good enough for what most people need.

Is everybody going to print? No; but bandwidth is coming down and the cost of storage is coming down. I remember at dotPhoto years ago, our first terabyte was $500,000. We thought that was going to kill the company, and we wouldn't be able to store all this stuff. Those costs are coming down even today, rather spectacularly. Then, what kind of money can you get from it?

I think photo sites, to preserve and protect our photos, have to be subscription businesses, or they have to annoy us all the time with crazy ads. We see more and more of that on the leading social networking sites. There are huge numbers of people who don't want that. Young people may not mind advertising-supported sites, but I think once we become parents and we really want to preserve all these memories, we'll pay a subscription fee for that.

The average household used to pay $100 a year for its photographic needs, and I think sites will be able to carve out some kind of subscription plan for consumers. I think they'll have to, because consumers probably aren't going to print all that much, no matter what we do.

On the other hand, I think there are lots of opportunities in professional printing, and we will see professionals continue to sell prints. Those are the pictures we really want to buy – when we get married, or when someone is in a beauty pageant; or if we paid for a sitting, we're going to buy those pictures.

What else would you like to see happen, particularly with camera phones? What's still missing there from the hardware that's being offered today?

I have a **Verizon** LG Dare, which I call the "Dare to Use Me," because it doesn't respond well – but it takes nice pictures. It's a 3-megapixel phone, and I take lots of pictures with it. I get hundreds of pictures off a micro-SD card. I think SD cards are going to have a great place in our universe for a long time, because the internet is filling up with lots of data every day. Sooner or later, we want to own that data. We want to send files to somebody who is going to put that in a photo frame that hasn't been changed in 2 years. We want to take some files to our lockboxes, or send some files to our lawyers we don't want to send through the internet. I think people are going to record lots of data from the internet onto SD cards.

I think it's just too convenient; and when it gets to 2TB, well, that's a lot of data. They are being built into TV sets, cameras, camera phones, and exercise equipment … small devices we can carry to read, or to listen to media … and they're going to be everywhere. — **6SR**

Glenn Paul will be joining us at the 6Sight conference in November, and speaking more on these subjects. We hope to see you there!

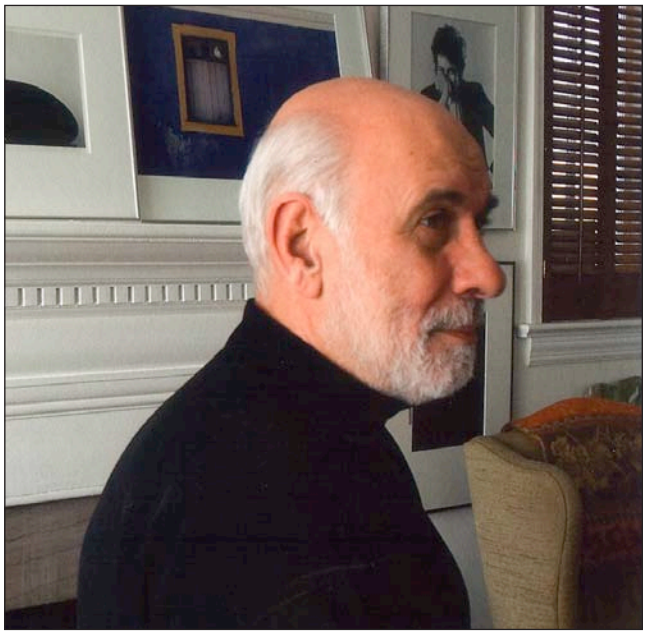
Marketing like a Professional

Monetizing Amateur Images

by Paul Worthington

Richard Weisgrau was the executive director of the American Society of Media Photographers (ASMP) for 15 years. He is the author of the new book, "Selling Your Photography: How to Make Money in New and Traditional Markets."

Weisgrau will join us in Monterey, Calif., at the 6Sight Future of Imaging Conference in November, where he'll be leading a panel about monetizing amateur images.



Author and photographer Richard Weisgrau

What can you tell us about your long-time career as a professional photographer?

I started as an amateur photographer when I sold an 11-by-14-inch print of my neighbors' child to them as a senior in high school. When I graduated from college and finished my military obligation, I became a professional photographer. I started doing what I call low-grade editorial work, shooting for small local newspapers and things of that nature, and, very gradually, I worked my way up shooting for magazines and better newspapers. After four or five years, I moved to work in the corporate market, where I did a lot of audio-visual work.

About 1987, I was operating a very large studio, doing primarily multi-image audio-visual work, with a whole raft of employees. It became very clear to me digital technology was advancing at such a rate I would have to make a huge investment and convert my whole operation to digital. This was at a time when there was no platform stability, so you could be buying the next Sony Betamax. At that point, I decided it would be smart to maybe get out of that business, so I sold it off.

At the same time, I was on the board of directors of the ASMP, and it was looking for a new executive director; the board convinced me to take the job. I thought I would do it for a year or two, and then I ended up there for 15 years.

At the end of 2002, I went back to utilizing my photographic skills and also trying to exploit a lot of the knowledge I had gained by writing books. I have written four trade books.

Today, with modern cameras, the profession of photography faces a quandary. Once, you needed time, skill, and expensive equipment to take an excellent, or even a very good, photo. Today, anyone with a $200 camera can quickly take a very good photo, and with a little luck and lots of exposures, they'll get an excellent one. How has that, overall, made it much more difficult for the professional to have a distinctive offering in the field of photography?

It has clearly positioned the professional photographer in a very poor place. For more than 150 years, what separated the average professional from the average amateur was the tremendous technical skill required to take photographs clients could really use.

That started to go away in the late 1990s when the industry began to build digital programming into automatic cameras – all types of exposure, aperture, and shutter speed combinations, based upon the scene the camera is seeing, which is analyzed by the sensors reading the light in the camera.

I used to always say the little "P" on the shutter speed dial doesn't stand for "Program"; it stands for "Professional." What the industry has done is taken technological information and a professional's brain and skill, and it has managed to put this on a computer chip and stick it in a camera. So effectively, when you buy a camera today (even a $150 camera), you're getting years and years of technological experience and competence built in.

It is the great equalizer. Professionals who once traded because they had, in addition to aesthetic skills, technical skills now are challenged by anyone who has strong aesthetic skills – because you don't need technical skills to produce a usable work product.

Now, of course, that's not true for every kind of photographer; if shooting automobiles, you need knowledge of lighting and things the average amateur isn't going to have. But the other 90 percent of photography doesn't require special knowledge. Certainly advanced amateurs, the ones who have

taken the time to understand digital photography, all share the same advantages as the pro. If they also have the aesthetic capability equivalent to any given professional, they're in line to sell their photographs with the professionals.

So it has had a major impact. It has been gradual, but today, I think the impact is about complete; you can go out and, for less than $1,000, buy equipment with which you could probably handle 90 percent of all professional jobs in this country.

As you put it, even amateurs are standing in line, ready to sell their photos. That begs the question: What is the distinction between amateur and professional? It's no longer whether they are getting paid for their pictures. Is that distinction now going to be the skill level or the time commitment? As I see it, the only distinction now is the motivation for taking a photograph. The professionals are taking photos for impersonal business reasons, while the amateurs – the rest of us – are taking pictures that have personal meaning.

Right. I don't think there is any distinction between amateur and professional when it comes down to using the technology, except in those very few cases in which you need very specialized knowledge. I don't think there's any distinction in terms of aesthetic capability. I have a very good friend, who is a doctor, and he's traveled extensively around the world; his photographs could compete with probably any National Geographic photographer there is today. But he happens to be a doctor, and he doesn't want to be a professional photographer. He doesn't sell his photographs, but if he were to put them into a stock agency, they would sell; there's no question about it.

So let's talk about what makes a professional today. A professional is in it for business. Professionals are not just trying to monetize their pictures; they're trying to support themselves, their businesses, their families, and their lives. I think what distinguishes a professional is the selling effort – the marketing effort. Professionals are trying to sell those images, or sell their services, every day. Amateurs generally are not. Professionals do it for money. If that's the old definition of a professional (someone who does it for money), then basically what distinguishes them is their goal – to make money. The goal of amateurs is usually to make photographs; and if they can pick up a few extra bucks, they're happy to do it.

So let's talk now about your book. With a title like "Selling Photography," it sounds like the basic point of that book is to turn all those amateurs into professionals.

Certainly I wrote the book with both amateurs and professionals in mind. The book explains, in very detailed fashion, what the photographic marketplace looks like, what the different segments in that marketplace are, how to approach them, the kind of photographs bought, and what the options are.

And yes, I have no doubt it will assist some amateurs in selling more photography. I think that's a good thing; from my perspective as a professional photographer, I don't mind competing. I'll compete with anybody. I'll win some; I'll lose some.

"Professionals are not just trying to monetize their pictures; they're trying to support themselves, their businesses, their families, and their lives.
I think what distinguishes a professional is the selling effort."

I don't want to compete with people who have no knowledge of the value of their work. So if I have to compete against a really capable amateur, I don't mind competing against that capable amateur – if he's playing by the rules I'm playing by and pricing that work based upon its value in the marketplace, not upon the desire to make a few bucks to buy another Secure Digital card for his digital camera.

I felt by writing a book amateurs could read, maybe it would educate anybody reading it and help them understand if they're going to be in this business, they should be in it "right" and make some real money, even if doing this part time.

Let me play devil's advocate because the first thought that comes to mind when you're talking about "the value of the work" and "playing by the rules of the market" is: Haven't those rules drastically changed? If there is one photographer with one great picture, that picture has a certain value. If there are a thousand photographers with similar photographs, clearly that picture is, let's just say, a thousandth of its value, is it not? So aren't those rules drastically different?

You know, those rules have always been in place; they're not drastically different at all. Whether taken by amateurs or professionals, the more generic the image, then the supply and demand equation exists.

Years ago, when I started in this business back in the '60s, the word "stock photography" was almost a joke. Stock photography was photographers' rejects. By the 1970s, photographers were shooting for stock photographs because there

was an emerging marketplace for stock images. Even then, the rule in the industry was: If I don't have time to shoot an assignment, I'll try to find something I can use in stock; or if I can't afford an assignment, I'll try to find something I can use in stock. So most photographers flourished; we did fine because we were primarily in the photography business. If we sold any stock, it was just to make a few extra bucks.

Now after 40 years, it's turned around. Clients look at things and the rule is: I'll only shoot an assignment if I can't do it with stock. And why is stock so good? Well, because it's so cheap. If you can find a photograph to meet your needs, you're going to buy it a lot cheaper than you're going to buy any assignment for it.

The problem is photographers have shot so many stock images; they are no longer just taking work from outtakes or work they produced in an assignment and putting it into stock, but they are literally going out and producing millions, millions, and millions of stock photographs. The supply and demand equation during the last 20 years has shifted so much; there is so much decent photography out there, which covers a whole range of purposes, the value of photography had to drop.

Then, of course, there are people who exploited it further. At one time, there was only rights-managed stock, through which you negotiated fees based upon usage. Then there was royalty-free, which had extremely broad licenses, which brought the price of photography down. In other words, almost all the same rights could be obtained for a third of the money. And now, we have microstock, through which a photograph can be purchased for $5 and used for many, many purposes.

This change has been happening for more than 20 years now, and it's reached a point in which generic photography in the marketplace has an ever-declining value. The smart professional knows that. For example, I stopped putting pictures into traditional stock years ago, and the reason was I kept getting a lower and lower return. So to cope as a professional, when I see a good set of photographs, I try to market them myself to prospective users. Now, the average amateur isn't going to do that. I don't compete with an amateur on that level. So if I have a particularly iconic type of photograph, I think about what product it might support? What service might it support? And then I try to sell it directly. So when I make a stock sale, I don't make a sale for $400; I make a sale for $4,000.

Well, that's much more enticing! Now, your book is subtitled, "How to Make Money"; so what are some of its primary messages?

The message is really simple: If you want to make money in photography, you have to understand the marketplace, what photography is used for, how it's used, and who uses it. You have to understand what your prospective client wants and/or needs in terms of a photograph. When you understand the marketplace, you then understand how to make money because you see where each one of your photographs potentially fits.

Also, when you're shooting photographs, you think about that marketplace. Because the difference between a photograph usable by a client and one that is not is how you take that photograph. Think about stock photography, which is such a huge marketplace today – estimated to be, in the United States alone, about $2 billion a year. If you look at that and say, "What photograph doesn't work well in stock?" Well, first of all, one that's dated. You don't want to put anything in the photograph indicating it was taken this year because two years from now it's an old photograph, if I can identify what year it was taken. You don't want to put corporate logos and trademarks in those photographs because they will not be used by anybody who wants to publish the photographs, for fear of being sued on a trademark or logo infringement case.

"I don't want to compete with people who have no knowledge of the value of their work. So if I have to compete against a really capable amateur, I don't mind competing against that capable amateur – if he's playing by the rules I'm playing by and pricing that work based upon its value in the marketplace, not upon the desire to make a few bucks."

So you have to begin to understand all the things influencing the purchase of a photograph in the buyer's mind, if you want to be successful selling photography as an amateur or a professional. My book gets into a lot of those things, and particularly it leans very heavily on the marketplace.

I've talked to amateurs and pros alike who think, "Oh, stock photography; let's see, I put a bunch of photographs in there and magazines will buy them." Well, stock photography is purchased so it can be printed on bank checks, calendars, greeting cards, T-shirts, mugs, saucers, plates, etc. Many people don't realize the merchandise market is a big user of stock photography. Certainly not as big as the publishing market, but big.

I had a friend who was a high school teacher, and he was a very good photographer and an amateur archaeologist. When I say amateur, I mean he was an archaeology buff; over the years, he went on all these digs on his summer vacations, and he collected a large number of photographs of these archaeological digs, all through Central America. He died recently; his photographic collection was sold by his wife to educational publishers for $25,000, because he had great photographs they will use in textbooks, audiovisual materials, multimedia programs, and things of that nature. She had come to me and asked, "What can I do with these photographs?" Immediately, I told her the people who would buy them are in education because these are really education-oriented. If you don't have that kind of knowledge, you don't know where to send your photographs, you don't know what might sell, and you don't know what to shoot.

It's like any other business: It starts with understanding the marketplace, and that's what my book really tries to do. In addition, I give people tips on how to sell, how to market, and how to research that marketplace, which I think is the most important thing.

A lot of people don't understand how to research the marketplace, and they don't realize there are literally hundreds of thousands of people and companies buying photographs, regularly. Go to a store and buy Photographer's Market; I mention this one because it's actually a very good source. It lists a whole slew of potential prospects for purchasing photographs. Probably 1,500 or 1,600. But that's probably only about one percent of all the people buying photographs in the United States alone. Why have a book on your shelf telling you what 1 percent of the market is, and 90 percent of the people you're competing with are using the same book? You're all trying to sell to a very small marketplace.

If you learn to do market research and go out on your own and do it, then, effectively, you open up the size of your own marketplace because you find a lot of places other photographers haven't found.

A classic example: If you're a photographer (whether you're an amateur or a pro) and you want to sell assignment photography, you can get in your car, in most parts of this country – excluding the rural market, drive around a 5- or 10-mile radius of your home, and write down the names of maybe 2-3 dozen businesses likely to use photography in their marketing or promotional materials. But nobody will do that – most people don't think to do that; so they miss markets right in their backyard. Ninety percent of the people I shoot photographs for are within 25 miles of my office.

I guess the real distinction between the professional and amateur is the professional does the physical legwork, while the amateur wants a web button.

Well, I wish I'd said it that simply! Absolutely right, that's it. It's legwork. It's hard legwork. And I think any pro will tell you, for every day they spend behind a camera, they spend 4-7 days trying to find somebody for whom to use the camera.

Industrial Monetization

You just hinted at another topic I'd like to discuss: How can the rest of the industry monetize this surplus of photography? You talked about a huge market for amateur photography in many items, and it occurs to me there are a lot of photographic services that could turn around and offer finished products using these images.: Printing companies offering poster-sized prints, for example, could also just have a web page stating, "Here are prints we've negotiated the rights to, and we've selected the 100 best shots for you to decorate your house." Companies making hard-copy, physical products could use these images.

You're absolutely right. Let me give you a quick rundown on who I think can monetize amateur photography and, certainly, digital processing laboratories:

- Stock photography suppliers
- Decorative art (wall art suppliers)
- Commercial printers
- Frame manufacturers and framers
- Corporations marketing photography-related goods

I also think there's an interesting opportunity to become an independent agent representing amateur collections. If I were to go amongst many of the people I know, maybe I could find five people like the doctor I spoke about, who are exceptionally good photographers. I could represent those five people and do what they don't want to do, and probably make a very good bit of money marketing their photographs if I wanted to be in that business. Many stock agents won't take an amateur; they'll say, "Well, you won't send us enough work because we don't want you to submit five images a month; we want you to submit a hundred images a week." So amateurs sometimes have difficulty getting into stock agencies. But an independent, willing to deal with that and do the kind of hand-holding necessary, could potentially make a lot of money. But I'm not sure anybody's doing that at this point.

Another example is a company called Zenfolio. It's a web service through which you can put photographs online in galleries and sell copies of the photographs from that site. They'll even print them and deliver them for you. This is true for a pro or amateur. There happens to be a lot of very good photography there by amateurs, and Zenfolio is effectively already monetiz-

ing that market; because every time they make a sale, they are taking a piece of that action.

Flickr is the largest photo-hosting site; and Getty Images, one of the largest stock agencies if not the largest stock agency in the world, now has a Flickr collection. They screen the work; they make arrangements – so there are ways to monetize it.

The thing is – and the challenge for anyone who wants to monetize it – what I call gatekeeping and hand-holding.

By gatekeeping I mean, if you want to monetize amateur photography and you go out in the marketplace of amateurs and say, "We want to license, we want to sell, or we want to do something with amateur photography," you potentially could be flooded with so many images so fast your head would spin. And unlike pros, who generally tend to edit carefully, amateurs would be more inclined, from my experience, to send you everything they've got. Well, if you've ever edited photographs, you know it is a very time-consuming process. So the question becomes, for anyone who wants to monetize amateur photographs, how do you get the people to edit and select carefully before sending photos to you – and even then, once you get this volume of work, how do you go through it to extract those photographs that are worthwhile? That's a burden.

Hand-holding is when, once you get into a situation in which you are monetizing either a pro's or amateur's work, you have a relationship with that person, and you've got to expect to service that person to some degree. If nothing else, they're going to have questions to ask. The good thing about pros is: They already know the answers to most of the questions. The amateurs don't know the answers to any of them.

So you're going to be getting a lot of questions, such as: "What are you going to do with my pictures? Why are they only going to sell for this much? What can I do to make it better? What should I shoot next week?" Pros don't ask those questions; they already know what to do. So that is a problem.

Even with that, if a company can see its way past that and get this kind of gatekeeping/ hand-holding operation working, it has a real prospect of making substantial money. For example, if I were a picture framer, – and the reason I think of picture frames is because I recently made a deal with a picture framer who is selling my prints – I would go to a site, say Zenfolio, and look through that collection because I can buy prints. If you're selling frames and people are coming in for that, you probably have somewhat of an established clientele. If they get to know they can buy prints there, then you have an additional revenue source.

Better hardware

Based on your experience, what can the overall photography industry still offer the professional photographer? What does the professional photographer still need that the camera companies aren't offering?

I think, probably for the first time in my life, I'm going to say, "Not much."

I just recently purchased some new cameras and lenses, and in the process of doing so, I really took my time evaluating what was out there and what would meet my needs. I was looking for something lightweight, small, easy to travel with, and yet had an assortment of lenses so I could cover the world with three lenses and two camera bodies. It also needed to be light enough to carry all day long without my rotator-cuff-injured shoulders aching so badly I can't stand it.

I didn't think it was out there, but it was. I found it. They have reduced the size and the weight of this equipment since the last time I bought digital cameras, which was maybe four years ago. There are now new models that are exceptionally lightweight and still offer superb quality.

I don't think the camera companies can do anything. If you look at the quality of cameras produced today and the price you pay for them, it's unbelievable. It's the best deal you could ever get in life. Seriously!

They could use that line as their marketing tactic from now on!

When I was starting in the business in the early 1960s, a camera body would cost about $125. There was no technology in it; it was just mechanics – you didn't even get the lens for that price. Now many years later, for $500, you can buy a camera that does 10 times more than that camera 40 years ago would do. When I bought that camera for $125, I still had high film and processing costs. I'll give you a number that may sound a little unbelievable, but in my last year, in 1998, I spent $110,000 just on 35mm transparency film.

Just the film – not even the processing and prints?

And roughly an equal amount to process it.

That's a lot. Today, I go out and spend $500-$1,000 (or if I want to go top of the line: $3,000-$4,000) for a camera – and I never have to put a roll of film in it. I don't have to spend any money. With digital photography, the industry has given me the opportunity to never purchase film or process it again and see my results instantly.

Also, there were times I went out on the job, shot 75-100 rolls of film, and had to fly back and wait a day to see if it was

all OK. It took a day until you got it back from the lab, and then you could look at it, breathe a sigh of relief, and know nothing had gone wrong.

Today, you shoot and, with instant playback, look at the picture screen; you know immediately whether or not to shoot it again. Take a laptop with you, and you can process it in the field. It is beyond belief.

So what could they do more? I can't even say "lower the price." I actually think the average digital camera today is worth what you pay for it, whether you're buying the $150 model, the $500 model, or the $3,000 model. As the cameras increase in price, they get a little more sophisticated – in some ways, a lot more sophisticated and more capable – but they're all worth what you pay.

A lot of photographers probably wouldn't like to hear me say that, but I think the camera companies have just done a great thing.

Look at the price of memory. When I first started to shoot digital, about 2001, a CompactFlash card cost about $60.

I remember paying $300 for a 32-megabyte card in 1999.

There you go. It was very expensive. Now, I just bought a whole stack of 4-gigabyte Secure Digital cards for $14 apiece – and these are the ultra-fast ones.

I mean, what more can you do for me? The only thing is lower the price; if you lower the price, I'm happier, but I can't complain now about the price.

The only thing I still ask from the hardware is ever-greater light sensitivity. I think that's something of which you can never have too much.

I don't know; I guess I'm too old-school. I listen to photographers complain – talking about light sensitivities and how you have to be able to shoot at 3200 with no noise – and, of course, I was shooting back in the days with Tri-X film ASA, which is now called ISO, of just 200. It was extremely grainy, and you shot available light. If you could take that 200 film and push it up to 400, you were a hero; and if you could push it past 400, you were really top-notch and desired. So we all learned how to push film. When it went to 400, you could push it up to 800, even 1200, and maybe even 1600 if you got lucky and had flat-enough lighting. So you sold photographs with a lot of grain in them, and nobody cared.

Now we have digital. To me, signal noise, if processed right, just looks like grain; I don't mind grain in my photographs. Frankly, most people I sell photographs to don't seem to mind it either. When I was working years ago, the notion you could shoot photographs routinely at 1600 or even 3200 ISO, it was like a fantasy. Now that you can do it, people are complaining it's not good enough.

Well, anything can be better. But right now, as far as I'm concerned, it's good enough. The only reason to shoot a photograph at ISO 1600 is because there isn't enough light and you're not able to supplement with your own light, and the photograph is so important that you've got to take it. That's a pretty narrow set of circumstances.

People are complaining simply because they want to push the technology up to the cutting edge all the time. But if everything stayed just the way it is right now, for what I do, I'd be a very happy camper. If the industry makes it better, great; but if they don't, I don't care.

Yes, it's definitely good enough. It begs the question: If you have a two-year-old camera or newer, you're probably really happy with it, and so what can the camera industry do to ever make you need another one? Today's camera is excellent.

I think a good example of progress is where they pull back. I have a Canon G10, which is really good; it has a small sensor, but very high image quality. It's a 15-megapixel camera, and it's not good for shooting at ISO 1600 or 800. Now, 15 megapixels – when I saw that, I thought, "Why do they make it 15 megapixels? I'm not making billboards; I'm printing 12-by-16s or 12-by-18s for the most part." If I make a print and it goes into publication, 75 percent of all photographs published are a quarter of a page or a quarter of a screen or less.

So now, Canon comes out with the G11, and it has made it a 10-megapixel camera, with larger pixels rather than more pixels for a little improvement in the image quality.

So camera manufacturers are actually getting a little smarter. They're improving the cameras, in some cases, by taking a step backward, and doing smaller megapixel count with a higher quality pixel.

Yes, camera manufacturers are taking note of what people need, which is brighter pictures, not higher resolution pictures. I often say, I want more light in my photograph, not more dark pixels.

That's right. I would agree with you; there's basically no reason to upgrade your camera every two years unless you're moving up from one class of camera to another – to a more versatile or more capable model. The technology doesn't need to get a lot better.

Manufacturers may keep pushing it because it's the way they sell; but 95 percent of the time, that's not going to mean anything to the average photographers, whether pros or amateurs. — **6SR**

Imaging News and Views

By Paul Worthington

JVC CAPTURES SLOW-MOTION HD

A new HD camcorder can capture video at 600 frames per second (fps) for slow-motion playback, enabling the capture of "crucial moments that are not visible to the naked eye," says **JVC.**

At 600 fps, 2.4 seconds is slowed down 10 times to 24 seconds. The Everio GZ-HM400 has a 10.3-megapixel sensor and records to an SDHC card or its internal 32GB of internal storage. It can also capture 9-megapixel still images, or 5-megapixel stills in a burst of 11 images.

The $1,000 camcorder has a 10x optical zoom from Konica Minolta, and its optical image stabilizer uses two active prisms to correct camera shake at the lens entrance, compensating for horizontal and vertical shift, JVC says.

PHOTRON CAPTURES EVEN SLOWER MOTION

The Fastcam SA4 captures 3,600 frames per second (fps) at a 1,024-by-1,024 resolution. At lower resolutions, it can capture up to 500,000 fps.

The industrial camera from **Photron** features a variable region of interest, 12-bit uncompressed data, a 1-microsecond global shutter, and 20-micron pixels for low-light, high-sensitivity, high-speed applications. Pricing was not announced.

Photron manufactures high-speed cameras and motion analysis software systems.

OLYMPUS LOWERS SLR PRICE

The **Olympus** E-600 DSLR is a lower-cost version of an existing model launched

WITH NEW NANO, APPLE RETURNS TO THE CAMERA BUSINESS

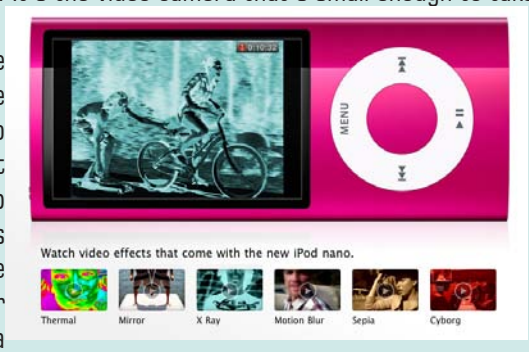
Apple announced a new line of music-playing iPods — and one model now sports a video camera.

"The iPod nano is the most popular music player with more than 100 million sold," says Apple CEO Steve Jobs in the announcement. "Now we've added a video camera to its incredibly thin design, without any additional cost to the user."

The 8GB nano is $149, while the 16GB model is $179.

The iPod nano with built-in video camera also has a 2.2-inch display, microphone, and speaker, while maintaining a tiny size much smaller than competing camcorders. The nano measures just 3.6-by-1.5-by-0.24 inches, and weighs 1.28 ounces.

"The iPod nano video camera lets you record fun as it happens," Apple says. "Then, share it with friends on the internet. It's the video camera that's small enough to take everywhere."



The Apple camcorder lags in one key spec: Whereas everyone else is rushing to embrace HD, the nano video is H.264 1.5 Mbps video at 640-by-480 resolution — not top of the line by any means; but, as Apple puts it, "the video file sizes are perfect for sharing on YouTube or emailing to friends." The iPod has a "special effects department included," Apple says, with 15 in-camera effects including mirror, X Ray, motion blur, and film grain.

Other features on the iPod include an FM radio with live pause capability, and a new built-in pedometer that keeps track of steps taken and calories burned. The nano does not capture still photos: video is forgiving of VGA resolution, while stills are not.

More than two decades ago, one of the first consumer digital cameras came from Apple — long before the market or the technology was ready: the QuickTake was high-priced and low-powered. Eight years ago, the portable music player field was already seen by some as mature and saturated with me-too products. Apple entered with the iPod, and soon dominated the market.

Of late, pocket video cameras abound. The niche was started by Pure Digital with its Flip flash storage-based camcorder, and is contested by cameras from Sony, Kodak, Creative, and others.

Today, cameras are a mature technology in a crowded market. Pocket camcorders are a growing product field, but one for which pundits have long been predicting an early death any day now when other devices provide video capture. Those other devices? Phones and iPods.

With the iPhone, Apple already has the best-selling smart phone, and by some tallies such as Flickr's image uploading statistics, the iPhone is the most-used camera. The latest model added video capability. But as successful as the iPhone is, its sales don't come near those of the iPod line — and so the new video-equipped nano may have an even greater impact on the video camera market.

For still photography however, we await a device like the rumored iPod Touch update, with a higher resolution camera and innovative features such as the touch-focus function. Freed of the carrier and pricing restrictions that hold back the iPhone, such a device could shake up the camera market.

just last February. It drops such features as backlit buttons and a two-shot multi-exposure mode, buts sells for $600, with a 14-42mm lens, around $100 less than its predecessor. The 12-megapixel camera has a 2.7-inch LCD that swivels to compose shots from any angle, with live view.

LOW-COST PENTAX DSLR PROVIDES HD VIDEO

Pentax Imaging announces an entry-level DSLR that offers such formerly high-end features as a live view LCD and HD video.

Also, "There's no rule that SLR cameras must come in black only," Pentax says, so "the K-x will be available in a choice of white or black, as well as special, limited edition red and navy."

The $650 camera comes with a with an 18-55mm lens, and its sensor-shift shake reduction stabilizes image and video capture with up to 4 stops improvement, Pentax claims.

The SLR has a 12.4-megapixel sensor, and a 2.7-inch LCD with live view and face detection autofocus. It captures stills at 4.7 frames per second, and widescreen HD video at 1,280-by-720, at 24 frames per second (a "cinematic frame rate," as Pentax puts it). Additionally, the high dynamic range function captures and blends 3 bracketed images into a single picture "with outstanding shadow, highlight, and midrange detail."

NIGHT VISION FOR NIKON

Electrophysics is offering a new night vision module that fits Nikon DSLRs.

The AstroScope 9350NIK fits between the camera body and lens, so the electrical connections of the lens are maintained; and important lens features, such as optical image stabilization, remain fully functional, even in night vision mode, the company says.

The AstroScope delivers the equivalent of 8-10 F-stops of light-gathering improvement. A variable gain control further brightens images when ambient lighting is so low, images are otherwise too dark to photograph.

LEICA OFFERS FULL-FRAME 18-MEGAPIXEL RANGEFINDER

The Leica M9 is the first digital Rangefinder with a full-frame 24-by-36mm sensor – making it "the smallest full-frame system camera," says **Leica Camera**.

The camera is "perfect for all fields of photography, from reportage and 'available light,' to the capture of discreet, spontaneous images," the company adds.

At the heart is a new 18-megapixel image sensor Kodak developed "to exploit the particular qualities of the M lens system." Kodak says "matching the larger image capture area with the unique Rangefinder optical design required a redesign of both the sensor pixel and microlens configuration." Micro lenses at the sensor edges are laterally displaced toward the image center to match the characteristics of M lenses precisely, to capture "even the most oblique rays on the sensor."

The KAF-18500 sensor also incorporates a new IR-absorbing cover glass, as well as a new red color pigment for improved color fidelity and improved image quality, the companies claim. At 24-by-36mm, the CCD is in the full 35mm film format needed so all Leica M lenses offer the same focal length as originally intended, with "the enormous potential performance of the current M lens portfolio, with focal lengths from 16mm to 135mm," Leica says.

Sensitivity ranges from ISO 80 to ISO 2500, and a new ISO button makes adjustments easier. Leica says "all functions important for everyday photography" are accessible by pressing a button. Shutter speeds range up to 1/4,000 second, and the shutter is "almost silent," which is "another enormous advantage for discreet and unobtrusive photography," Leica says. The M9 lacks a standard moiré filter, "allowing full exploitation of the superb resolution of M lenses;" but moiré patterns are eliminated in its processing.

Despite the considerably larger sensor, the M9 "maintains the compact size of the M8," Leica says, measuring 5.5-by-3.15-by-1.5 inches and weighing 19.9 ounces. The camera is made with a 1-piece magnesium alloy housing, and will come in standard black, and a steel-gray model with a "classic leatherette finish." It has a 2.5-inch LCD. Pricing will be around $7,000.

Leica also announced the compact X1, with a fixed f/2.8 lens, a 12-megapixel APS-C sensor, and a 2.7-inch LCD for around $2,000.

RUGGED ACTION CAMERAS

A wearable, waterproof video camera system for the extreme sports market, the Predator VX360 "takes great video in situations where other cameras can't cope." The recording unit is worn on the arm and has large ergonomic buttons. The camera captures 1080 video, and fits on a headband.

London-based **MotionTouch** and **Predator Technology** say the

camera is waterproof to 3 meters and robust enough to survive impact with rock. It will sell for about $875.

• **VholdR** updated its 720 HD camera with full 1,920-by-1,080 resolution. The $329 ContourHD 1080p helmet camera records video at 30 frames per second.

• Designed for sports and outdoor enthusiasts, the DXG 125V HD camcorder has a rugged weather-proof design, **DXG** says, with a durable rubber handgrip that protects the camcorder against bumps and drops, and a splash-proof exterior that can be rinsed off. The $140 camcorder captures 720p video, doubles as an MP3 player, and has a 2-inch LCD. It measures 2.5-by-0.88-by-4.1 inches.

YOU CAN STAR IN A VIDEO

Yoostar says its patented "Active Immersion Technology" digitally removes original actors from scenes and allows users to insert themselves into their places. "Users can deliver faithful, on-script performances or their own interpretation of movie and TV scenes while interacting with their favorite stars. The number of takes is unlimited, ensuring users get exactly the performances they want before wrapping the scene."

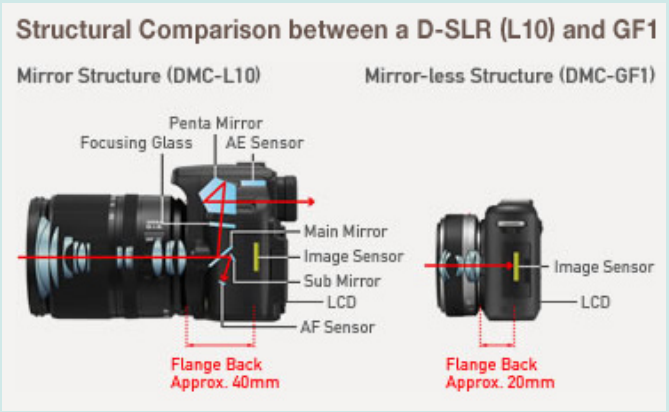
The $170 Yoostar kit comes with a web cam with dual microphones, remote control, portable green screen with stand, and Mac and Windows software.

Also at the company website, users can share their own performances and view, rate, and compete with other Yoostar users' efforts, for "the next big thing in social entertainment," claims the company. "It will create a whole new kind of entertainment experience around movies and television that is immersive, personalized, social, and amazingly fun."

PANASONIC CLAIMS SMALLEST INTERCHANGEABLE LENS CAMERA WITH FLASH

The Lumix DMC-GF1 is "the world's smallest and lightest interchangeable lens camera with built-in flash," claims Panasonic. "It packs powerful DSLR and HD video capabilities into a sleek and easy-to-use compact body."

The camera has an "elegant, compact design reminiscent of classic film cameras," the company says. The 12-megapixel camera measures 4.7-by-2.8-by-1.4 inches. It matches the small size of the Olympus E-P1, but adds the built-in flash – a $200 attachment for the Olympus model.



The first Panasonic mirror-free Micro Four Thirds camera was the smallest interchangeable lens model; the GH1 added high-definition 1080p video recording with continuous autofocus. The GF1 is an even smaller camera. "Its sophisticated, small body makes it easier and more convenient to carry," says Panasonic Imaging senior product manager David Briganti.

The camera captures 720 video in AVCHD Lite, not 1080p – but it adds a Movie Program mode allowing consumers to adjust the depth-of-field while shooting in HD video, "so background and foreground can be blurred to give creative effects – something typically only possible with expensive professional camcorders."

The GF1 has a 3-inch LCD with live view and automatic backlight control.

Additionally, Panasonic announced two new Micro Four Thirds interchangeable lenses. The Lumix G 20mm f/1.7 ASPH is a compact, lightweight "pancake" lens with outstanding brightness, the company says. Also due soon is "the first Leica Micro Four Thirds lens," the Leica DG Macro-Elmarit 45mm f/2.8.

The GF1 camera is $900 with either one of the lenses.

SAMSUNG ZOOMS 24X

The HZ25W is a new 12.5-megapixel point-and-shoot "outfitted with the most powerful lens ever offered" on one of its compact digital camera, says **Samsung Electronics**.

The Schneider-Kreuznach lens starts at a 26mm wide-angle focal length (35mm equivalent). The camera provides aperture and shutter priority modes, as well as full manual control and RAW support. It also captures 720p HD video in H.264 format. "The versatility of the lens gives any user, whether a soccer mom on the sidelines or an enthusiast creating a stunning image, the ability to be prepared for just about any shooting scenario," says the company. The $400 camera has a 3-inch LCD and measures 4.6-by-3.3-by-3.6 inches.

PHASE ONE FLASHES FAST

Copenhagen, Denmark-based **Phase One** claims its latest medium-format camera system "sets a new standard for high flash sync speeds" at up to 1/1,600 second. "Our patent-pending flash sync breakthrough eases working with wide-open apertures and fill-in flash on location," the company says. The 645DF camera

capture responsiveness, and autofocus speeds are also up to 5 times faster than previous models. The Phase One 645DF camera body starts at $5,990 and should ship Q4, 2009.

CAR CAMERA SAFETY

Houston-based Safety Vision is offering a "versatile, affordable, and easy to install" mobile digital video recorder, the SafeDrive MiniDVR.

The device attaches directly to the windshield, and has two cameras, one forward-facing for a road view, the other rear-facing to view the cabin. It has infrared illuminators for low-light recording in the vehicle cabin. It also records and tracks GPS map coordinates, G-force data, vehicle speed, event trends, and audio. All the data is stored on a CompactFlash card locked within each unit. The device automatically records video when a vehicle operator is speeding or driving erratically, when the driver manually presses the "event save" button – or when a crash occurs.

It has an internal battery backup feature, enabling recording to continue in instances of sudden power loss – for example, vehicle battery ejection or destruction during a crash. Pricing was not announced.

CANON 18MP DSLR CAPTURES FULL HD VIDEO

Canon claims its latest DSLR is "far more than a slight improvement from a previous model: the EOS 7D DSLR is a brand-new product standing on its own, with new features never before seen in any Canon camera. It is a revolutionary camera that redefines the highly competitive mid-range DSLR product category."

Key features of the $1,699 camera include: recording 24p full HD video; 18-megapixel CMOS sensor and dual DIGIC 4 imaging processors; shooting at 8 frames per second for up to 126 JPEGS; focusing with Zone AF mode; and speed settings ranging from ISO 100 to 6400.

The camera "takes DSLR video to new heights," Canon says, with its HD capture featuring fully manual exposure control, and selectable cinematic frame rates for both National Television System Committee (NTSC) and Phase Altering Line (PAL) standards. Video is captured at 1,920-by-1,080 resolution with selectable frame rates of 24p, 25p, or 30p.

"Native 24p recording helps videographers achieve a more cinema-style look for their footage without the need for post-processing," Canon says. It also can use an external stereo microphone "for professional audio effects" or a built-in monaural microphone.

The 7D AF system includes a new multi-axis cross-type 19-point AF grid, where the focusing points are evenly spread across the image plane and clearly displayed through the viewfinder. For architectural and landscape photography, the Dual Axis Electronic Level makes it easier to shoot accurate angles and perspective. It has a 3-inch LCD with VGA resolution and live view.

"This camera stands alone as the most functional and innovative DSLR Canon has released to date," the company says, "bringing together all the best professional features offered, along with numerous user requests at a price point everyone can appreciate."

Body-only, the camera is $1,699; with a 28-135mm lens, it's $1,899.

Along with the EOS 7D, Canon announced the EF 100mm f/2.8L Macro IS USM lens, its first SLR camera lens to feature "Hybrid Image Stabilization," which compensates for both angular camera shake and shift camera shake.

SAKAR SELLS KODAK-BRANDED WEBCAM

Sakar International markets a line of five webcams with prices ranging from $30 to $100 – all with the **Kodak** brand. The webcam software has a "Connect" tab for instant connections to many popular instant messaging and video talk services. Sakar says the high-end model is the first webcam with a high-definition true 3-megapixel sensor.

Sakar is also selling the "Smile" G150 photo keychain, a 1.5-inch LCD it says is 2 to 3 times brighter than standard products. It's $30, and the rechargeable lithium-ion battery lasts roughly 2 hours per charge.

TINIEST CAMCORDER YET

The PenCam HD Trio camcorder from **Aiptek** measures only 130-by-35-by-19mm, making it perhaps the tiniest flash camcorder yet, the company says.

It has a mere 1.1-inch OLED screen and a fixed lens. It captures 720p video and 5-megapixel stills to 4GB of internal memory. It also has an HDMI port for TV connectivity.Pricing was not announced.

SECURITY IMAGING ROUNDUP

The annual **ASIS** security trade show once again debuted several new surveillance devices and technologies.

Noting "the growing demand for high-quality HD video in the security industry," **Sanyo** announced nine new surveillance cameras with full 1080p HD, in 4 different form factors: Box, Dome, Zoom, and PTZ. All models incorporate H.264 video compression for 1,920-by-1,080 video recording or 2,288-by-1,712 MJPEG resolution. Sanyo says the cameras use the video technology found in its consumer-use Dual Camera Xacti lineup, but it's been further upgraded with enhanced image-quality processing, dubbed the Xacti HD-Pro engine. Also, the network-oriented Optimum IP-Pro engine manages image and network processing separately for bandwidth optimization. They also capture 4-megapixel still images, and feature intelligent motion detection, and face detection. The camera size has been reduced by more than 40 percent from previous models, to allow for "more discreet applications." The company adds it is "pricing these to go directly after the standard definition market."

•**OmniVision Technologies** is offering a 1080p sensor for security and surveillance markets. The OV2715 combines HD video with low-light performance, making it particularly suitable for commercial security systems, the company says. "HD surveillance systems are used predominantly in places where lighting conditions are often far from ideal. This makes image quality, low-light performance, and dynamic range key drivers to the success of products for security and surveillance systems." The 1/3-inch OV2715 is built on a 3-micron pixel, delivering best-in-class low-light performance of 3,300 mV/(lux-sec) and a peak dynamic range of 69 dB. It has a resolution of 1,920-by-1,080 pixels and operates at 30 frames per second. Competing solutions crop images or bin pixels, the company claims, degrading quality. The OV2715 is now sampling.

•**Arecont Vision** claims it has the first H.264 10-megapixel camera with dual H.264 and MJPEG encoding. With 3,648-by-2,752 resolution, the Anaheim, Calif., company says it "reduces the cost of surveillance per unit area and raises the standard of video detail achievable with manageable bandwidth … The Zoom windowing capabilities of this camera offer a true alternative to expensive pan-tilt-zoom devices."

• **Panasonic** provides the i-Pro WV-NW502S vandal-resistant fixed dome and the WV-NP502 box megapixel cameras. The devices have a 128x dynamic range, with face detection and Adaptive Black Stretch technology to make dark areas more visible. A sensor detects motion, sound, and shock – and trigger san alert, sends an email, or snaps an image saved to the built-in memory. The company claims its UniPhier video processing chipset delivers more efficient video streaming, and the high-sensitivity mode produces brighter images in low-light settings. Users can pan and tilt the camera angles remotely.

• For outdoor surveillance, **SightLogix** of Princeton, N.J., developed the WideView SightSensor, an intelligent video camera for wide-area monitoring intrusion detection over a 105-degree field of view, the company says.

• The Sweden-based **Axis Communications** dome network camera is a pan-tilt-zoom camera with HD video and an 18x optical zoom lens. It captures video at a 1,280-by-720 pixel resolution in a 16:9 format. The P5534 camera can pan 360 degrees through its "auto-flip" function, which "simulates a continuous pan beyond the mechanical stop, thereby enabling an operator to continuously follow an object." The camera can also automatically pan, tilt, and zoom in when there is activity in the scene – and zoom out after a preset time. It will be available to order in November for $2,499.

•**Scallop Imaging** is now offering its Digital Window security camera. The $1,695 Digital Window D7-180 camera has a 7-megapixel high resolution throughout its 180-degree field of view, without fisheye distortion. "Traditional security cameras, composed of a single lens and image sensor, either require several cameras to cover a 180-degree field of view, or utilize extreme, wide-angle lenses that are costly and introduce optical distortion," the company says. "Digital Window distributes this imaging task across 5 powerful microsensors, providing an increase in capability, at lower cost and lower bandwidth requirements than traditional IP video cameras." The embedded CPUs process more than 100 megapixels per second, synthesizing image data into a seamless, 180-degree field of view. Through its embedded web server, it services connection requests and provides 3 simultaneous video streams: A constant 180-degree view, without any fisheye distortion, at 15 frames per second; aA high-resolution, 15 fps detail window that is instantly repositionable; and a full 7-megapixel, 180-degree video stream at 1 fps for storage and later review. It measures 2.84-by-5.45-by-2.48 inches.

Pelco and **Cisco Systems** announced a strategic technology agreement for joint product development of new high-definition Internet Protocol video security cameras by the end of 2009. Pelco, a leading provider of video and security systems, was recently acquired by Schneider Electric Co. Cisco, which claims to be the leading provider of networking hardware, says Pelco "has developed one of the most advanced IP HD imaging systems in the global security marketplace."

The **Canon** VB-C500VD has a multi-directional shock absorber, and a 4-spring mechanism designed to protect the camera by lessening the effects of impact from various angles. The camera has an 82-degree wide-angle lens with 2.4x optical zoom. The Smart Shade Control automatically adjusts the contrast between bright and dark areas of an image for optimum detail display, and an Auto Day/Night function, allows the camera to automatically switch between Day Mode and Digital Night Mode, depending on lighting conditions. The $999 unit can simultaneously stream M-JPEG and MPEG-4 video encoding, for either higher image quality or lower bandwidth consumption and less storage space. A built-in Web Viewer allows live monitoring on the web without installing any software onto a computer.

IMAGING INNOVATIONS

Progress marches on: ever more imaging technology is emerging from labs across the world. Here are some of the stand-outs of science of the last few months:

SURROUNDSENSE SCOPES OUT A SPACE

Researchers at Duke University have worked out how to use a mobile phone camera, accelerometer, and microphone to process a computer re-creation of the environment of that phone.

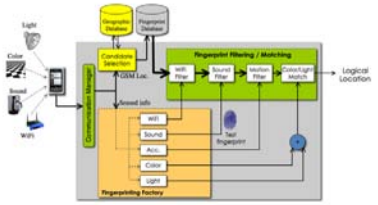


Figure 3: SurroundSense architecture: The ambience fingerprint is generated by the fingerprinting factory. This test fingerprint and candidate fingerprint (from the phone's macro-location) are matched in the fingerprint matching module.

The SurroundSense process records light, colors, sound, and the user's movement.

A server-side application works with the optical, acoustic, and motion data to create "a unique fingerprint of the space," say the researchers.

The system is now about 87 percent accurate; but the researchers say more data about a location, such as would come from multiple phones in the room running the application, would yield a more precise fingerprint of that environment.

LAYAR ADDS 3D TO AUGMENTED REALITY

Layar is expanding its augmented reality mobile device browser with the addition of 3D capabilities.

"With 3D, developers can tag real-life objects with 3D text, place 3D objects in real-world space, and create multi-sensory experiences," the company says. "The addition of 3D enables Layar developers to create more realistic and immersive augmented reality experiences for mobile devices."

What is displayed in a content layer is based on the coordinates supplied by the accelerometer, GPS, and the compass in newer smart phones.

"Augmented Reality is an experience medium, not just a tool or a substitute for maps," The company adds. "With 3D, we deliver these experiences."

The Layar Reality Browser runs on the Google Android phone OS, with support for other devices due this year. It provides onscreen information overlaid on the camera phone LCD, in real time.

Layar will launch 3D in November.

Layar is based in Amsterdam, The Netherlands.

REAL-TIME MOVING PEOPLE ON GOOGLE EARTH

Researchers are using real-time video from traffic and surveillance cameras to augment otherwise-desolate 3D simulations.

The system, developed by scientists at Georgia Institute of Technology in Atlanta, Ga., doesn't show video: It discerns cars and people in real locations, and places real-time animations of moving 3D objects in the corresponding virtual world.

Applications for the technique could include displaying real-time local weather data in the 3D models.

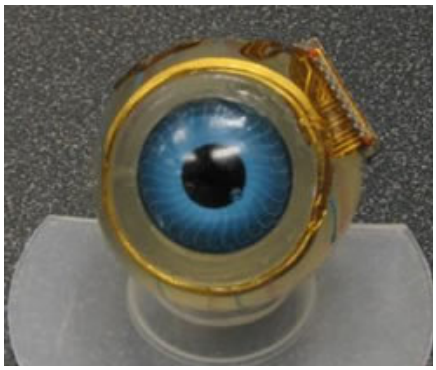
"We introduce methods for augmenting aerial visualizations of Earth (from tools such as Google Earth or Microsoft Virtual Earth) with dynamic information obtained from videos," the researchers say. "Our goal is to make Augmented Earth Maps that visualize the live broadcast of dynamic sceneries within a city. We propose different approaches to analyze videos of pedestrians and cars. We also analyze natural phenomena (clouds) and project information from these to the AEMs to add the visual reality."

IMAGES TO OPTIC NERVES, SANS EYEBALL

Scientists at the Massachusetts Institute of Technology have placed a chip on the optical nerve that inputs electronic images directly into the brain – with no need for an eyeball.

Electrodes implanted into the retina stimulate the optic nerve, and can so generate an image in the brain.

The researchers believe the technique could provide the blind with a semblance of sight, enough to identify objects and move around a room. So far, however, they've experimented only on pigs.



"FRANKENCAMERA" EXTENDS COMPUTATIONAL PHOTOGRAPHY

In an effort to extend computational photography research, scientists at Stanford University developed an "open-source camera" that lets programmers change camera features.

"Some cameras have software development kits that let you hook up a camera with a USB cable and tell it to set the exposure to this, the shutter speed to that, and take a picture; but that's not what we're talking about," says Marc Levoy, professor of Computer Science and of Electrical Engineering. "What we're talking about is, tell it what to do on the next microsecond in a metering algorithm or an autofocusing algorithm; or fire the flash, focus a little differently, and then fire the flash again – things you can't program a commercial camera to do."

Dubbed the "Frankencamera," the prototype combines a Texas Instruments processor running Linux, an imaging chip from a Nokia N95 phone, and off-the-shelf Canon lenses, reports the Stanford online news service. An outside manufacturer may, in the future, mass produce the cameras for less than $1,000 each.

Stanford says programmers can freely

experiment with new ways of tuning camera responses to light and motion, adding their own algorithms to process the raw images in innovative ways.

For example, one algorithm researchers have achieved in the lab, but which no commercial camera allows, is enhancing the resolution of videos with high-resolution still photographs. While a camera is gathering low-resolution video at 30 frames a second, it could also periodically take a high-resolution still image. The extra information in the still could then be recombined by an algorithm into each video frame.

ALL-SEEING AUTO EYE

Camera and phone manufacturer **Altek** developed an automotive 360-degree view and lane departure warning system.

The Eagle View uses multiple cameras installed around the vehicle perimeter to provide real-time video images of the vehicle surroundings. The system processes the images and synthesizes a clear 360-degree view of the vehicle surroundings. Also, sensors mounted behind the windshield or rear view mirror track visible lane markings. The control unit monitors the roadway traffic control lines with image recognition software to calculate the lateral and angular divergence from the center of the lane, and then estimates the future position of the vehicle. If the driver fails to use the turn signal and the data suggests the vehicle is leaving its intended path, the system alerts the driver via an audio and visual warning.

Market research firm Techno Systems Research projects the percentage of integrated vehicle cameras using CMOS sensors will increase from around 20 in 2008 to more than 70 percent in 2013.

OmniVision Technologies announced the system will use its sensors.

SONY SINGLE-LENS STEREO

Sony has developed a 3D camera capable of recording 3D images of fast-moving subject matter at 240 frames per second, with a new optical system for single lens capture of the left and right images simultaneously.

The high-end camera is aimed at movie production, and will be demonstrated this month in Tokyo. Sony notes the number of digital 3D cinema screens is expected to reach 7,000 worldwide by the end of 2009.

Sony says: "In existing half mirror 3D camera systems with separate lenses for the left and right eyes, the parallax range is adjustable, enabling the depth of the 3D images to be modified; however, when operating the zoom and focus functions of such systems, the sensitivity of the human eye, in particular to differences in the size and rotational movement of dual images, as well as any vertical misalignment or difference in image quality, has meant complex technology has been required to ensure each camera lens is closely coordinated, and there are no discrepancies in the optical axis, image size, and focus."

To counter the problem, the Sony single lens system "resolves any issues that may occur as a result of having different optical characteristics for each eye. Furthermore, by using mirrors in place of shutters, incoming light can now be simultaneously separated into left and right images, and recorded as it reaches the parallel light area (the area where diverging light from the point of focus on the subject matter becomes parallel) of the relay lens. The separated left and right images are then processed and recorded with the respective left and right image sensors. As there is no difference in time between when the left and right eye images are captured, it is possible for natural and smooth 3D images to be captured, even of scenes involving rapid movement."

ZOOM IN ON OUR GALAXY

The GigaGalaxy Zoom project presents online an 800-million-pixel panorama of the entire sky.

The 360-degree panoramic image covers the entire celestial sphere, its producers say, and was shot from "the darkest and best viewing locations in the world" – observatories at La Silla and Paranal in Chile, and from La Palma in the Canary Islands.

Astrophotographer Serge Brunier contributed to ESO's GigaGalaxy Zoom project, an 800-million pixel-panorama of the Milky Way.

The photographer used a Nikon D3 digital camera, and each photo required a 6-minute exposure. The final image is composed of almost 300 fields, each individually captured 4 times, for a total of nearly 1,200 photos.

The website is billed as a learning experience with information about objects in the image such as nebulae and exploding stars. It is produced by the **European Southern Observatory**, with 14 member countries.

BUILD ROME IN A DAY

Computer vision researchers are using photos from Flickr to compute 3D city structures – and will test their technology on a complete set of photos of Rome.

The GRAIL Lab at the University of Washington is exploring the use of large-scale internet image collections for furthering research in computer vision.

A search for Rome returns more than 2 million photographs, the researchers say. The Coliseum alone is in 2,106 images. Using image matching and large-scale optimization, the project will compute a complete 3D model of the city.

MORE FLEXIBLE DISPLAYS

A team of scientists lead by the University of Illinois has developed microscale inorganic light-emitting diodes that can be "stamped" onto glass, plastic, or rubber – resulting in a brighter and more flexible display than current LCD or organic LEDs.

Meanwhile, scientists at Kyushu University in Fukuoka, Japan developed organic light-emitting diodes with a liquid organic semiconducting layer to transport the charge. Most OLED displays use solid-state organic films; a liquid organic semiconductor could improve reliability and flexibility.

FASTER COLOR PRINTING

Magnetic fields can align nanoparticles into patterns that reflect different colors, and the techniques can yield letter-size color prints within a second.

Engineers at Seoul National University in South Korea developed M-Ink – 100- to 200-nanometer particles in a solvation liquid and resin. As reported in Nature Photonics, a magnetic field snaps the nanoparticles along its field lines, forming chains reflecting light in particular colors. Adjusting the magnetic field changes the color. The nanoparticles are fixed in place with UV light that cures the resin. The process takes a split second per color.

TOUCHABLE HOLOGRAMS

Researchers from The University of Tokyo Shinoda Lab developed a "tactile hologram" using ultrasound technology.

The hologram is generated by projecting an LCD image onto a concave mirror – pretty standard. The new wrinkle is using low-energy ultrasound to create "pressure fields," which feel like air bursts. An array of ultrasound transducers can even emulate the feel of a solid object.

"Our objective is adding tactile feedback to the hovering image in 3D free space," the researchers say.

Imaging Industry Financial Activity

Our coverage of financial activity in the imaging industry and related businesses is provided by **Woodside Capital Partners**, a boutique investment bank and leading provider of M&A advisory services, capital raising, and financial strategy for emerging growth companies in such sectors as digital media and semiconductors.

International Datacasting acquired San Diego, Calif.-based **Comtech Tiernan Video**, which develops digital video encoders and receivers.

China Security & Surveillance Technology raised $58.5 million selling 9.36 million shares in a direct stock offering. The surveillance system manufacturer is headquartered in Shenzhen, China.

DisplayLink raised $8 million in a fourth round of venture funding. The display technology developer is headquartered in Palo Alto, Calif.

RenoWorks Software develops visualization software that pre-visualizes home renovations based on digital photographs. The company is based in Calgary, Canada, and announced a private placement of 5,000,000 common shares at a price of $0.05 per common share, for gross proceeds of $250,000.

Colorimeter maker **X-Rite** issued preferred stock and warrants to purchase common stock to existing shareholders OEPX, LLC, Sagard Capital Partners, L.P., and Tinicum Capital Partners II, L.P., in exchange for the cancellation of $41.6 million of second-lien loans. The exchange transactions result in the reduction of the principal amount of the Company's first and second lien debt by $41.6 million to $195.1 million. The company is headquartered in Grand Rapids, Michigan.

San Diego, Calif.-based **DriveCam** secured $19 million in Series D capital financing led by new investor Triangle Peak Partners. DriveCam's systems mitigate risk in vehicles with cameras and video event recorders.

EYE-SIZED DISPLAY, MOBILE COMPUTER

With the Golden-i, **Kopin** combines its microdisplay with computing, wireless communication, and voice activation software for a head-mounted device that provides hands-free communication and control.

Golden-i is designed for mobile "information snacking," the company says; and with it, "users will no longer need to carry a PC or laptop everywhere they go."

The 3-ounce Bluetooth headset provides a virtual 15-inch display [Kopin's color CyberDisplay 800-by-600 SVGA microdisplay], and a hands-free natural speech recognition interface.

The headset screen hangs slightly below eye level so as not to obscure one's view too much. It uses a Texas Instruments OMAP dual processor and a 6-axis, solid state, real-time position tracker that provides "nearly pixel-for-pixel hands-free cursor accuracy across its 15-inch virtual display."

Internet Imaging

GOOGLE PICASA RECOGNIZES FACES

Google has improved its free Picasa photo editing software with face recognition, dubbed "name tags," it says are "designed to help organize photos by what matters most: the people in them."

Version 3.5 scans all photos on a computer [now including Macintosh models] and identifies people by their facial features.

The new software also integrates Google Maps, "so you can easily geo-tag photos or view the locations of already-tagged photos on a map," the company says.

Users can also add location information to photos – "one photo at a time or several photos at once. Simply select pictures, click the Places panel, search or surf to a place, and drop a pin in the right place on the map. Once you've added geotags, select a group of photos and see where they were all taken."

Google also improved the collaboration features of its Picasa Web Albums: "Every album on Picasa Web Albums is potentially collaborative. Multiple people can add pictures to the same album," the company says.

HP SKYROOM OFFERS SECURE VIDEOCONFERENCING

HP says its new SkyRoom "is the only videoconferencing tool to offer real-time collaboration for up to 4 people over a standard business network for $149."

Users can share office documents, streaming video, and interactive applications.

HP says SkyRoom "is the culmination of 3 years of research to design video and image compression algorithms by HP Labs into a customer-centric implementation by the HP Workstation team."

SkyRoom combines high-definition, multiuser videoconferencing with the capability of sharing display information more securely than with actual transfer of data and processing functions. The video engine enables all participants to see the presenter's display and each other through a multiway videoconferencing session.

The HP SkyRoom software, on the presenter's system, monitors and updates only changes in screen appearance – not the entire display – then compresses and encrypts the information before sending it to the participants, where it is decrypted, decompressed, and updated. In this way, network traffic is greatly reduced, latency and bandwidth requirements are reduced, and the need for dedicated networking hardware is eliminated, HP says.

SkyRoom will also come as a standard feature on select HP business desktop and mobile workstations.

IDTHIS PHOTO

Here's an interesting use of internet imaging:

Have you ever seen something, and you're not sure what it is? "Just snap a photo of something you'd like identified, such as a breed of dog, a type of car, that weird gelatinous blob sitting on your plate, or the name of the celebrity sitting next to you. Then, send it to be identified," says new web service idthis.org.

The New York City-based site uses human-powered identification of any photo subject. Anyone can submit an answer. Once an answer gets five votes, the picture becomes officially identified.

SHUTTERFLY SIMPLIFIES BOOK CREATION

Online photo service Shutterfly says it is "making photo books accessible to mainstream consumers by intelligently bringing the speed and convenience associated with 4-by-6 prints to the personalized photo book experience."

The Simple Path photo book creation process automatically creates a photo book in one click, the company says. It organizes and arranges photos into photo books that look professionally designed. Consumers can order as is, or further personalize their books in just minutes, using 21 exclusive style templates and easy-to-use editing tools.

Simple Path photo books can accommodate between 20 and 400 photos and are available in 5 sizes ranging from 5-by-7 to 12-by-12; pricing starts at $13.

Shutterfly also updated its iPhone application with increased interaction with Shutterfly accounts, and greater sharing capabilities, as well as added usability, the company says, and performance improvements that enhance mobile photo viewing, improve album navigation, and increase upload speed.

CISCO TO ACQUIRE TANDBERG

In a move that could lead to mass-market videoconferencing, networking hardware leader Cisco will acquire Oslo, Norway-based Tandberg for approximately $3 billion.

Tandberg is a leading maker of videoconferencing equipment.

Cisco currently has its executive-level TelePresence video meeting service, and the WebEx tool for online meetings.

"TelePresence and high-quality video have redefined how users communicate through easy-to-use, immersive, high-quality video experiences" Cisco says, "and are becoming a larger segment of the broader collaboration market."

Mobile Imaging

LATEST CAMERA PHONES

The Pop is "the handset people who want a simple touch screen phone have been waiting for," says **LG Electronics**, claiming it's "the most compact 3-inch full touch screen phone ever made." LG says its consumer research "showed a large group of consumers wanted the functionality of a full touch screen phone without the extra bulk and unnecessary features resulting in higher prices. According to the research, many users were also put off by the complexity of feature-laden

phones, but still desired the easier navigation and larger screens of full touch screen phones." The new phone includes "the key features these users craved, without the overhead of features they didn't use." In addition to its 3-inch WQVGA touch screen, the Pop, or the LG GD510 as it is more officially known, plays music and movies, has 8GB of internal memory, and a 3-megapixel camera to capture photos and video. Available in mid-October in Europe, prices will vary by country.

The **Sony Ericsson** Xperia X2 features a high-resolution, 8-megapixel camera, a 3.2-inch touch screen, Wi-Fi, GPS, and TV output. It runs Windows Mobile 6.5.

The **HTC** Hero phone has a 5-megapixel camera, Wi-Fi, a 3.2-inch capacitive touch screen, an accelerometer, and a light sensor. Of note is the Footprints application, which the company says lets users "chronicle special moments by capturing a digital postcard" with added notes, audio, and GPS location coordinates. It runs the Google Android platform, and will be offered for $180 with a 2-year service agreement from Sprint.

The Instinct HD from **Samsung Mobile** will be the first **Sprint** high-definition 5-megapixel camera and camcorder with a TV-out connection. The phone captures HD video, but does not play HD content on its screen; it does have an HDTV-out jack, as well as an ambient light sensor and accelerometer. That resolution costs, however: the phone is $250 with a new 2-year service agreement after a $100 mail-in rebate.

The Behold II touchscreen phone from Samsung Mobile has a 3.2-inch AMOLED screen and a 5 megapixel camera with autofocus, flash, five shooting modes, and video capture. The SGH-t939 runs the Android operating system, and will launch later this year from **T-Mobile USA**.

The **LG Electronics** GM750 with a 5-megapixel camera with a dedicated camera key. The smartphone runs the Windows Mobile 6.5 OS. It has Wi-Fi connectivity, GPS, and a 3-inch touch screen.

The **Nokia** X6 also has a 5-megapixel camera. It has a 3.2-inch touch screen, 32GB storage, and TV output, and sells for about $650.

The **Motorola** Cliq sports a 5-megapixel autofocus camera with video capture. The phone has a 3.1-inch display, runs the Google Android operating system, and will be offered in the United States by T-Mobile USA.

AT&T will market two phones made by HTC that run the Windows Mobile 6.5. OS. The Tilt 2 has a 3.6-inch WVGA display and 3.2 megapixel camera. The $300 (with two year contract) has dual speakers and dual microphones with advanced noise cancellation for improved speakerphone performance. The Pure has a 3.2-inch WVGA touchscreen and a five megapixel auto-focus camera with video capture. It's $150 with a two-year contract.

NAVIGATING CAMERA PHONE

The **Garmin** nuvifone G60 integrates a GPS navigator with voice, data, and mobile web, and provides turn-by-turn guidance when driving.

It has a 3-megapixel camera that automatically geo-tags images with an exact latitude and longitude reference of where the image was taken. Customers may then save the image so they can navigate back to the location, or email the geo-tagged image to others.

The nuvifone G60 will be available in AT&T stores Oct. 4 for $299 with a 2-year service agreement after $100 mail-in rebate.

Garmin is incorporated in the Cayman Islands.

LIFEPICS OFFERS IPHONE APPLICATION

Photofinishing internet technology provider **LifePics** announces its new iPhone application allows users to upload photos from their iPhone or iPod Touch to their LifePics online photo account, view online albums on their iPhone or iPod Touch, and create new online photo accounts in the LifePics network from their mobile devices.

Additional features include the ability to upload multiple photos simultaneously, upload photos at full resolution, and view existing online albums from an iPhone.

"Consumers are relying more and more on mobile devices as a primary camera in their day-to-day lives, and mobile devices are quickly becoming more sophisticated in picture-taking abilities," says Ken McDonald, vice president of Marketing at LifePics. "Developing an iPhone app was the obvious next step to converting millions of iPhone images into transactions for photofinishers in our network. We are constantly looking for new ways to drive orders to our retailers, and we are extremely excited to launch this new app as a new revenue stream."

LifePics is based in Boulder, Colo.

ONTELA EASES UPLOADS FROM PHONE TO PHOTOBUCKET

Ontela announced T-Mobile USA will install its Photobucket Mobile Uploader trial version on the new BlackBerry Curve 8520 smartphone.

The Seattle, Wash.-based Ontela uploader service automatically delivers pictures to a PC "My Pictures" folder, a private or public Photobucket album, or a personal email address. The service is free for a full 3 weeks, and $2.99 per month thereafter.

"This makes it easier than ever to get pictures off your phone," says Dan Shapiro, CEO of Ontela. "Every picture, old

or new, big or small, will be delivered."

Alex Welch, CEO of Photobucket, says the service "provides a seamless extension to the imaging ecosystem so anyone with a camera phone can upload pictures quickly and easily to Photobucket."

IPHONES SCAN WITH QIPIT WHITE

San Francisco, Calif.-based **Qipit** is offering "the first application that turns any iPhone into a portable scanner for capturing white board notes."

"We designed Qipit White from the ground up, creating a product that better meets the needs of anyone seeking to instantly and clearly capture and transmit the results of their collaborative efforts," the company says. The application automatically corrects the photo from the camera, increasing contrast, removing unwanted shadows and glare, and whitening the background. Qipit White is available at the Apple App Store for $4.99.

TOUGH PHONE AT CENTER OF SURVEILLANCE SYSTEM

Brickhouse Security claims its motion-activated home surveillance system will survive power outages and harsh weather conditions – because the entirely self-contained unit is an "All Weather Cellular Camera."

The $599 unit enables remote surveillance without a standard internet connection, as images are sent via GSM cellular networks. The 1.3-megapixel camera is motion activated. Also, passive infrared senses changes in temperature so large animals and such will trigger recording, but general motion such as tree branches in the wind will not, the company says. The system also has infrared flash bulbs that are invisible to the eye and so do not to alert intruders when their moves are caught on camera. Finally, a tactical laser ensures the wireless surveillance camera is pointing at the desired spot.

The system comes with a monthly $14.99 fee, plus a charge of 39 cents per picture.

Components & Architectures

TESSERA ENHANCES WAFER-OPTICS TECHNOLOGY

3-megapixel wafer-level optics enable smaller, lower-cost, higher-quality camera modules, says **Tessera Technologies**.

Developed for phones, web cams, and other camera-enabled mobile devices, the new solution combines its wafer-level optics with its image enhancement solution for extended depth of field that yields an in-focus image between 20cm to 30cm and infinity – with no moving parts – making it more reliable and cost-effective than mechanical approaches, the company claims.

Tessera says its OptiML wafer-level optics technology yields "thousands of miniature camera lenses on a single wafer," which are stacked to achieve the required performance for the 3-megapixel design. Sampling of Tessera integrated 3MPix wafer-level optics technology is expected to start in Quarter 4, 2009.

SUPERCAPACITORS BRIGHTEN FLASHES

Supercapacitor developer **CAP-XX Limited** of Sydney, Australia, claims its solution delivers the best flash photography on a camera phone.

It published a study comparing flash solutions for camera phones – xenon, standard LEDs powered by a battery, and high-current LEDs powered by a supercapacitor [its BriteFlash power architecture].

Tests showed the LED BriteFlash approach delivers more light energy than most xenon flashes in a thin form factor suitable for slim camera phones and digital cameras.

INVENSENSE COMPACT DUAL-AXIS GYROSCOPES

Sunnyvale, Calif.-based **InvenSense** says there is a "critical market need for an optical image stabilization system solution at a lower total cost in a smaller and thinner package" – and to meet that need, the company is offering the IDG-2000 dual-axis gyroscope.

The company says the small, thin gyroscope – housed in a 4.0-by-4.0-by-0.9mm package – is ideal for improving optical image stabilization in digital still cameras and high-resolution, 8-megapixel and above camera phones. InvenSense claims it's also the first digital dual-axis pitch and roll gyro with integrated 16-bit analog-to-digital converters, "providing the highest performance, lowest noise, and most competitively priced solutions in the market."

The gyro samples in October.

SAMSUNG 5MP SENSOR SLIMS MOBILE

Samsung Electronics quotes market research forecasting camera phones to rise from 750 million units sold in 2009, to 1.23 billion units in 2013. The sales volume of 5-megapixel and higher-resolution camera phones is expected to reach 98 million units in 2009, and grow to 660 million units in 2013, at a compound annual growth rate of 61 percent.

"To meet the current demand for slimmer, sleeker mobile phones with digital still camera capabilities," Samsung says it bringing 1.4-micron pixel technology to the quarter-inch optical format for a new 5-megapixel sensor, "giving mobile handset designers a cost-effective and size-efficient solution."

Samsung says the chip has regionally adaptive dynamic range expansion to brighten shadowed areas of a picture and intensify the clarity of brighter regions. The fast frame capture and anti-shaking control reduce blur.

The sensor also captures 1080p video at 30 frames per second. Combined with an image signal processor, the system-on-a-chip provides autofocus, Xenon flash, and mechanical or electronic rolling shutter.

Samples are available; mass production is slated for the first quarter of 2010.

SANDISK EXTREME SPEED

At 90MB per second, **SanDisk** says the read and write speeds of its new Extreme Pro cards are double those of its previous high-end cards. SanDisk credits its controller's dual-lane architecture and software algorithms for the speedier performance.

The ExtremePro CompactFlash cards are designed for professional photographers and enthusiasts with advanced SLR cameras, SanDisk says, and will come in 16GB, 32GB, and 64GB sizes, with prices ranging from $300 to $800.

TOSHIBA TOUTS FASTEST, BIGGEST SD CARD

Toshiba claims its 64GB SDXC card will have the fastest data transfer rate in the world for reading and writing to a flash storage card, with a maximum write speed of 35MB per second, and a read speed of 60MB per second. The company also says 64GB is the largest capacity yet available in the market.

"The combination of large storage capacities and increased data transfer rates will meet the needs of a wide range of consumer electronics applications, such as digital still cameras and digital camcorders, which require high bandwidth data communication," Toshiba says The new card is compliant with the new SD Memory Standard. Samples will be available in November. Toshiba will also offer 32GB and 16GB SDHC cards with the data transfer rate.

Industry Updates

ADOBE ELEMENTS EASES SOPHISTICATED IMAGE EDITING

The new version 8 of Photoshop Elements for Windows and Macintosh provides automated and intelligent photo-editing technology across both platforms, says **Adobe Systems**. "We've simplified the editing process, without taking away any of the power, and incorporated smart tools with built-in intelligence to bring once difficult tasks within reach of everyone."

New here is a Photomerge Exposure function that combines multiple shots of the same scene, with and without a flash, to create a perfectly lit photo that shows every detail.

The Recompose feature automatically resizes photos without distorting the most important parts.

The Plus version for Windows includes 20GB for online storing and sharing, as well as tutorials, tips and tricks, seasonal artwork, and interactive online templates.

The enhanced Organizer automatically analyzes and tags media so users can quickly find the most interesting and highest-quality content; and People Recognition identifies people in photos, becoming more intelligent over time, as it learns to associate names and faces.

Adobe also updated its video software. Premiere Elements 8 automatically fixes shaky footage, and color and lighting problems; identifies and helps get rid of the least interesting, lowest-quality footage; and balances audio elements to give videos professional-quality sound throughout. "We want to take the intimidation factor from video editing and empower users to get creative," the company says.

Each program is $100 individually, or packaged together for $150.

LIGHT CRAFT PROVIDES FREE QUICK FIX

The Aurora Quick Fix software offers simple photo editing, sharing, and publishing software – and it's a free download from Palo Alto, Calif.-based Light Crafts.

The primary Relight tool essentially "turns on" the light inside the image, creating a better, more realistic photo, the company says. Aurora Quick Fix also includes tools to help organize photos and share them online.

Light Crafts says it saw an opportunity to deliver a solution for the "social consumer" who wants a powerful, free tool to quickly edit and share photos online. "Aurora Quick Fix is a logical extension to our family of products that reflects our philosophy of offering a powerfully simple approach to bring out the natural beauty in your images."

TOPAZ ISOLATED IMAGES

The ReMask Photoshop plug-in for masking and cutting out images "easily isolates specific image elements in one image to be seamlessly merged into another," says **Topaz Labs** of Dallas, Texas. ReMask technology operates by using a tri-map, or user-generated mask map, made up of three tones – white, black and gray – Topaz says. Users are able to quickly define the elements in their images they want to keep, using white; elements they want to get rid of, using black; and elements they want the $70 ReMask to figure out, using gray. The tri-map technique significantly reduces masking times while increasing the cutting accuracy of delicate and complex image elements.

PHOTOMIZER FIXES PHOTOS AUTOMATICALLY

The Photomizer "tries to reconstruct the picture the photographer saw when he took the photo," says developer **Engelmann Media**.

The Windows application is billed as a "fully automatic photo studio" that analyzes photos for color, exposure, and clarity, and boosts image quality and luminosity. The Photomizer object recognition ensures the program manipulates only the parts of an image that need correction, the company says, leaving the rest of the photo untouched. Also, the changes are nondestructive, leaving the original pictures file untouched. For better display on TVs and LCD frames, the software will also adjust photo resolution and aspect ratio with its "scaling optimizer" function.

Engelmann Media GmbH was founded in 1998, and is based in Dortmund, Germany.

A free trial version is available at www.photomizer.net

IMPROVED IMAGE RECOVERY

Digital Assembly says its Adroit image recovery software "outperforms existing products by recovering ~100 percent of deleted and fragmented photographs."

Competing tools "typically cannot recover digital photos that have been fragmented – a significant shortfall because 15 percent to 25 percent of a computer disc is usually fragmented," the company says.

The Adroit patent-pending algorithms were developed at the Polytechnic Institute of New York University by a computer forensics researcher and his students, who founded the New York-based company Digital Assembly.

The $79 software is free to try: Run it first to see what, if any, images it can recover; and then pay to save them to another storage device.

ISTOCKPHOTO GUARANTEES IMAGES

According to iStockphoto, it is the first micropayment stock provider to legally guarantee all files in its collection – at no cost to the customer.

Its new royalty-free image, video, and audio Legal Guarantee provides, if a customer receives a claim, iStock will cover the customer's legal costs and direct damages to a combined total of $10,000; and iStock promises files purchased and used in accordance with the iStock license will not breach any trademark, copyright, or other intellectual property rights or rights of privacy. "Our first line of defense has always been – and continues to be – our rigorous inspection process," the company says. "The Legal Guarantee is simply an added layer of protection for our customers, many of whom are using microstock more than ever."

SHUTTERSTOCK ACQUIRES BIGSTOCKPHOTO

Image provider **Shutterstock** acquired **Big Stock Photo**, a credit-based stock photo agency headquartered in Davis, Calif. Financial terms of the deal were not disclosed, but BigStockPhoto will reportedly remain a separate entity.

Founded in 2004, BigStockPhoto has a library of 3.7 million royalty-free images. Shutterstock was founded in 2003, and says it is the largest subscription-based stock photo agency.

CANON, EPSON SCAN

With a compact size and ease-of-use, **Canon** is aiming its imageFORMULA P-150 personal scanner at executives on the road. Powered by its USB connection to a PC, the $295 device scans up to 30 images per minute in duplex scanning. It measures 11.0-by-3.7-by-1.6 inches, and weighs slightly more than 2 pounds.

For professional photographers, the **Epson** Perfection V600 photo scanner provides 6,400-by-9,600 optical resolution, and a 3.4 Dmax. The $250 model scans documents up to 8.5-by-11.7 inches, as well as 35mm slides and negatives – and even small 3D objects.

KODAK SCANS FASTER

Kodak claims its s1220 photo scanning system can process up to thirty 4-by-6-inch photos per minute at 300 dpi.

The scanner is aimed at inputting a family's photos to create personalized photo books and other keepsake items.

Kodak is marketing the s1220 with Utah-based Heritage Makers, which provides customized project consulting services to customers within the comfort of their own homes.

The s1220 can scan prints and documents up to 8.5-by-34.0 inches in size and up to 1,200 dpi output resolution.

EPSON IMPROVES PRINTER

The Stylus Pro 3880 is its "most sophisticated 17-inch printer to date," says **Epson**.

The $1,295 printer features the UltraChrome K3 with Vivid Magenta ink 8-color ink set, and a MicroPiezo AMC print head. It produces "gallery-quality color and black-and-white output" at sizes up to 17-by-22 inches. Epson says its pigment ink set "delivers an extremely wide color gamut with more dramatic blues and violets, while the all-new AccuPhoto HD2 image technology provides smoother color transitions and better highlight and shadow detail."

The HD2 technology was created in collaboration with the Rochester Institute of Technology Munsell Color Science Laboratory, Epson adds. It is a "complex mathematical architecture and advanced screening technology ensuring precision placement of each individual ink droplet for smooth, grain-free images. This advanced technology optimizes ink usage to maximize the color gamut and provide smooth color transitions and gradations, and reduction of the metameric index makes it possible to achieve consistent color under different lighting conditions."

KODAK PRINTER ADDS WI-FI

Kodak added a 1.5-inch LCD to the ESP 3250 all-in-one printer. It also has a multifunction card reader and costs $130.

The ESP 5250 adds Wi-Fi for $170, and has a 2.4-inch display. Both yield 29 pages per minute in color.

Kodak says its consumer photo printers offer "the lowest total ink replacement cost in the industry, saving an average of $110 a year on ink compared to other leading inkjet printers on the market."

KODAK SPEEDS UP KIOSKS

The fourth-generation retail photo center solutions from Kodak are more than 44 percent faster than older kiosk models on average for typical consumer photo orders, the company says.

The Picture Kiosk G4XE Order Station is also up to 70 percent faster on average for creating Picture Movie DVDs, when

compared with the G3 models. Kodak says the speed advantage "translates directly into reduced consumer queuing, more premium product potential, higher overall throughput capability, and higher customer satisfaction." In addition, lower power usage saves up to 25 percent in electricity costs.

Also, the new 8810 photo printer creates 8-by-10 and 8-by-12 prints, photo books, collages and calendars, as well as 4-by-8 greeting cards, in glossy or satin finish. Kodak says it will produce an 8-by-10 print in as little as 39 seconds.

FOCUS ON FACES AT RETAIL

Intellio says its face recognition and retail customer analytics solution "provides a detailed, real-time analysis of the number, gender, and estimated age of potential customers," and is a "powerful tool for retailers, marketers, market researchers, and media agencies."

VisiScanner can map out customer behavior and measure how many people show interest in a particular ad or promotion, and can segment the audience according to age and gender – all of which have "the potential to radically change how we look at the effectiveness of indoor and outdoor advertisements, Intellio says. It can also detect if lines in a store get longer than usual, and show paths most frequently taken by customers.

HP SMARTENS SCREENS

HP says its new connected screens will let people stay current with Facebook friends and photos, listen to Pandora internet radio, share Snapfish personal photos, and enjoy their music and pictures from home networked PCs.

Designed as a companion to the PC, the DreamScreen connects to a network to bring photos, music, and video into any area of the home, HP says. It features a piano-black design, a glass widescreen display, and 2GB of flash storage for photos, music, and home movies. It also comes with a remote control. "In addition to viewing images from a PC, flash memory card, or Facebook, customers also can access their own or their friends' Snapfish photos and albums," HP says. "Photos from any of these locations can be enjoyed in slide show mode simultaneously with music stored on the device or streamed from the user's PC in the background." The device also accesses music services, weather forecasts, and calendars.

The $250 DreamScreen 100 measures 10.2 inches and is available now. The $300 DreamScreen 130 measures 13.3 inches, and will ship later this fall.

SONY'S CRYSTAL FRAME

The latest **Sony** photo frame adds unique decorative elements: cut crystal glass manufactured by Swarovski. The $150 S-Frame model DPF-D72N/BQ has a 7-inch LCD with 800-by-480 resolution, 1GB of internal storage, and a remote control.

WALKMAN PLAYS VIDEO

The latest **Sony** portable media players have 2.4-inch QVGA LCDs for viewing photos or videos.

The Walkman S Series also has an FM tuner, built-in stereo speakers, and audio recording. It's less than 0.5-inch thin. The 8GB model is $110; 16GB of storage costs $130.

Also announced is the E Series, with a smaller 2-inch screen for $80 and $100, based on storage capacity.

SONY PLANS 3D TV

Saying "3D is clearly on its way to the mass market," **Sony** announced plans to sell 3D LCD televisions by the end of 2010. The displays will work with active shutter electronic glasses.

SONY EXPANDS EBOOKS

Sony completed its line of "electronic paper" devices with built-in wireless connectivity. The $399 Reader Daily Edition connects to the AT&T 3G mobile broadband network, although it apparently only reaches the Sony eBook store.

Its 7-inch touch screen works in portrait and landscape modes. Sony notes its "high contrast ratio with 16 levels of grayscale, ensuring text and images are crisp and easy to read."

The Sony line includes the $199 Reader Pocket Edition, with a 5-inch display, making it "the most affordable dedicated reading device on the market," Sony says. Also, the $299 Reader Touch Edition, with a 6-inch touch screen, works with a fingertip or by using the included stylus.

All models use the **E Ink** Vizplex electronic paper display.

LCD IMPROVES REARVIEW

Daihatsu Motor is offering the first Japanese car with a reverse view digital imaging system for helping eliminate blind spots.

The Mira Cocoa model has a Back Monitor Pack option priced at about $459, combining a CCD camera attached to the back door of the car and a color LCD on the left part of the rearview mirror. The CCD camera has a wide-angle lens with 133-degree angle of view horizontally and 102 degrees vertically. The 2.4-inch color TFT LCD, supplied by Gentex Corp., also has an automatic "anti-dazzle" function, lowering the brightness for night driving, reports Nikkei Automotive Technology.

SMALLER, BETTER AERIAL SURVEILLANCE

Two **Goodrich** divisions have partnered to produce an aerial observation system that "enables excellent visibility through many atmospheric obscurants like smoke, haze, and fog." **Sensors Unlimited** makes a shortwave infrared compact camera that weighs less than 90 grams; **Cloud Cap Technology** provides image stabilized micro-gimbal systems. As both are now part of the Goodrich Intelligence, Surveillance, and Reconnaissance Systems group, they are developing new autonomous micro-gimbal imaging avionics solutions for small unmanned UAVs and manned safety and surveillance tasks, the companies say.

Inside Out: An Insider's view of the Imaging Industry

By Bob McKay

SLRS & COMPACT CAMERAS

After a few hiccups, **Leitz** has finally created THE digital still camera lusted after: the Leica M9. It's the first full-frame rangefinder digital camera, and even jaded testers are drooling. At photokina in 2004, I met Volker Zimmer, Ph.D., head of Leica digital development, and we've kept in touch since. I heard from him a few days ago; he's very busy ramping up M9 and S2 production, with the X1 not far behind (I suspect this last one will be made by their partner, **Panasonic**). It's fascinating such a relatively small company has chosen to run three camera sizes in virtual parallel: big (S2), regular (M9), and smallish (X1). Of course, those three camera sizes demand three different lens families … I wonder if an eye-level electronic viewfinder (EVF) mounted on the hot shoe would add value to the M9? It would certainly help when using zoom lenses; but are those anathemas to Leica users? The Panasonic GF-1 has an accessory EVF that fits into the hot shoe; Leica could easily buy a version of it for the M9, in theory.

• **Sony** admits it likes the Micro FourThirds (no mirror and interchangeable lenses) digital still camera (DSC) concept but will not join the consortium, Reuters reported this month. About two years ago, a top Sony manager decried the fact DSLRs were using mirror/pentaprism systems; he found these involved far too much craftsmanship and fiddling (OK, I'm paraphrasing!). Imagine the paradigm-shift that occurred within Sony camera departments when it swallowed **KonicaMinolta**. Removing the mirror system makes it much easier to incorporate Live View and video capture into a camera; and, of course, the extra depth inside the camera body (into which the rear element of a lens can intrude) allows lens designers to forego the reverse-telephoto logic they had been forced to endure for many decades. However, if the rear lens element is closer to the sensor plane, it is harder to create vertical light rays, hence efforts by **Kodak** to create a micro lens array to sit in front of the Kodak-supplied sensor to reduce off-vertical effects and thus vignetting in the Leica M9.

• Will the **Apple** addition of video recording to its iPod nano line cause cold sweats at **Pure Digital** and Kodak? Probably not, but Jonathan Kaplan's timing in selling Pure to **Cisco** was incredible. We now know Apple uses sensors from **OmniVision** and lenses from **Genius**. We also know the iPod nano body is too thin to allow for any (currently available) camera module to take still pictures, which begs these questions: Does Apple think still photography is a waste of time and effort? Are they working with suppliers to develop even thinner, wafer-level, still camera modules? As devices converge, Apple (soon to be the biggest video-capture device brand in the world) and **Nokia** (now the biggest still-image-capture brand) will trip over each other's shoelaces more often, sí?

• I used to visit the **Samsung** headquarters in Seoul, South Korea, when the nascent camera division was part of the aerospace division. Times have changed, and Samsung now claims to be the No. 3 camera maker on the planet. It plans to spend $50 million here in America promoting the new dual-screen DSC, which presumably is seen as its best bet to break through to the American camera buyer. Samsung has dominated Sony in liquid crystal display (LCD) TV sales worldwide, so I guess it has the self-confidence to aim for the camera jugular, too.

PRINTS AND DISPLAYS

• Electronic book readers (EBRs) are said to be the next big application for built-in camera modules (especially when color e-ink is available), and Taiwan intends to grab 80 percent of the world EBR supply. **Hon Hai** (owner of Premier Camera) already makes the constantly back-ordered Kindle for Amazon and expects to make 50 million EBRs for China Telecom. Taiwan says it will ship 100 million camera modules this year for use in laptops and netbooks. **Microsoft** has had a double-page eBook reader design splashed over the gadget blogs on the web, and **Barnes & Noble** is about to jump in with its own EBR from **iRex** – a spinoff from Philips – which will also sell at Best Buy.

• **Shutterfly's** CEO says it has 34 percent of the online photo-sharing market, based on revenue, while **HP Snapfish** has 30 percent and **Kodak Gallery** has 24 percent. This proves you don't need a huge company behind you to succeed in this sector.

PICO-PROJECTORS

• It's an education to go to Amazon.com and see what its best-sellers are. In simple camcorders, apart from the obvious (Flip and Kodak), the name **Aiptek** pops up. I first met Willis Huang, the senior director of the Aiptek sales division, maybe ten years ago. Aiptek is also making a swift move into pico-projectors, as are several other companies, such as Microvision. It is interesting so many smaller Taiwanese camera makers are stealing a march on the bigger and more famous Japanese competitors by getting into pico-projectors so fast. Where are the big guys? Where is **Kodak**, for that matter – former king of the Carousel? For pico-projector makers, there are three Bs to solve: brightness, batteries, and bulk. 3M is already into the second-generation of its pico-projectors, adding more brightness, longer battery-life, and stereo speakers. For one view of the future of pico-projectors, see **Syndiant**'s plans to create HD-embedded projectors, reaching to 720P and beyond, small enough to fit into phones. Nikon wowed us with their combo camera/pico-projector, but the best is yet to come.