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B&H IS EXTREMELY PLEASED TO BE ABLE TO OFFER you this second, improved volume of the Student Buyer's Guide, or SBG—we love acronyms at B&H—the companion publication to our EDU Advantage Program. In addition to the special student pricing the Program affords you as you prepare for your career in a media-related field, we'd like to give you this full-color, glossy magazine, chock-full of tips, techniques, product reviews, and other material that we're confident will be useful and informative. From features on computer maintenance to viable careers in audio to

We have more than 100 product reviews in this issue, including one for the Canon Powershot G10 camera (page 45).



HD video work flow, the tech writers at B&H have worked hard and researched long hours to present you with facts and figures that we hope you will find, along with the EDU Advantage Program, quite rewarding and inspiring. Enjoy!



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PHOTOGRAPH BY OSKAR BARNACK, COURTESY OF LEICA CAMERA INC.

p38 **Small Format, Big Impact**

How a 35mm wonder changed the photographic landscape

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FAST FORWARD

A look at the freshest gear, technologies, and hardware since your granddad's 78 rpm's



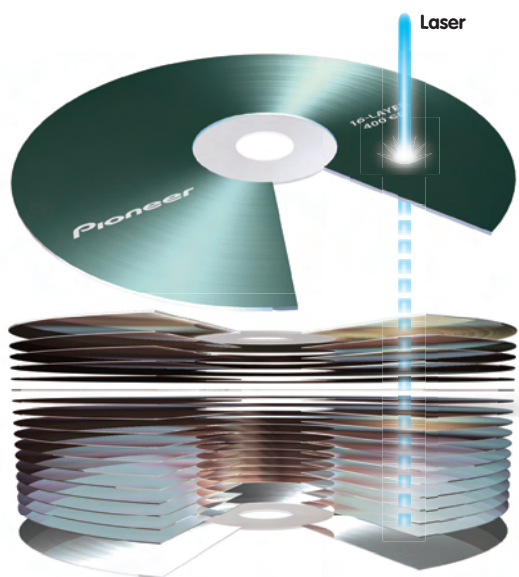
Grass-Roots Photography

Early pioneers in photography, including Joseph Niépce, Louis Daguerre, and William Fox Talbot based their experimentation on the fact that certain materials harden or darken when exposed to light. Two modern pioneers have based their work on a similar fact: certain materials turn green when exposed to light. After noticing that a ladder which had sat on a lawn for days left a pale image, artists Heather Ackroyd and Dan Harvey decided to “print” on grass, in lieu of photo paper. The images are created by focusing a projector bulb through a negative onto a sheet of sod in a dark room. In areas where more light strikes, the grass turns a dark green, while areas that receive no light turn yellow; areas that receive moderate light turn a shade somewhere in between those two extremes. Unfortunately, the images slowly fade away when the grass is returned to a normal light cycle.

HELEN BUCKLEY; OPPOSITE PAGE: DIAGRAM BY DAVID LEWIS; ILLUSTRATION BY PETER KROHMER

Mister Big Disc

It seems the old adage that you can never be too rich or too thin applies to having too much storage space as well. When people began collecting and archiving digital images, 650MB CD-ROM's were an ideal storage solution. But storing video requires much more space, which is why recordable DVD's with 4.7GB per layer are used. Unfortunately, high-definition video requires even more storage space, which is why Blu-ray discs, with a capacity of 25GB per layer, are quickly becoming popular. But even 25GB is not much space when you need to store hours of raw HD footage. That's why Pioneer is working on optical discs that are much larger still. In July of 2008, Pioneer succeeded in developing a 16-layer, read-only optical disc with a capacity of 400GB, and the technology will eventually expand to recordable discs. The real difficulty in reading and writing multi-layer optical discs is to get the laser to focus properly on each layer and to ignore crosstalk from adjacent layers. But Pioneer has figured out how to do it, so it seems likely that Blu-ray won't be the biggest disc in town for very long. The 25GB-per-layer capacity and the optical specifications for the lens are the same as Blu-ray, so it might be possible to make the new drives backward-compatible with Blu-ray. Leave some space for more news on this exciting new technology.



SPEEDING BUS

Fasten your virtual seat belts! Intel and the USB 3.0 Promoter Group plan to release a new version of the USB (Universal Serial Bus) technology sometime in the future. Designed to be more than 10 times as efficient as the current USB 2.0, the technology will draw from the same architecture. In addition, the USB 3.0 specification will be optimized for low-power operation and improved protocol efficiency. A tenfold increase would expand the current standard of 480Mbps to a lightning-quick 4.8Gbps.

CORN'OLOGY

Everyone wants the latest gadgets, which will then take eons to decompose. While most petroleum-based plastics do not decay, a new breed of bioplastics is being made from renewable and biodegradable sources such as corn starch. Because bioplastics degrade, they have been most commonly used to make disposable items such as shopping bags, packaging, utensils, and drinking straws. Now, Samsung Electronics has unveiled two new mobile phones made from corn starch. The Hong Kong-based company Hoshino is making efforts to manufacture environmentally friendly flash drives. Not available to consumers just yet, the drives are made out of biodegradable polylactide (or PLA), which is a type of plastic made from corn.



The End is Near!

As of February 17, 2009, analog television broadcasting in the US will cease, and the re-mapped Radio Frequency (RF) spectrum that the FCC has reallocated and auctioned off to major communications and technology purveyors will be in irreversible effect. This is a major issue for wireless microphone users, particularly in more RF-congested city markets, since much of the higher UHF band will be unavailable for broadcast and wireless mic use. The prime RF spaces from 470-698MHz will be

assigned to DTV in the UHF band. Wireless mic users will be allowed to access the unoccupied spectrum known as White Spaces. So may a variety of wireless broadband internet devices known as White Space Devices (WSD), creating potentially calamitous possibilities for interference. Those of you who use portable wireless mic systems for ENG or documentary work should follow the White Spaces debate with concern, and stay tuned for developments in future WSD regulation.

QUICK TO THE CORE

Intel's Core 2 Extreme processors can be either dual- or quad-core. For the desktop, the new, increased-efficiency Core 2 Extreme quad-core processor delivers warp-speed performance for multi-threaded applications. This is ideal for processing high-end graphics and video, CAD/CAM applications, and any other processor-intensive tasks. For laptops, the new Core 2 Extreme mobile processor is as quick as a wink ... for now, anyway. The mobile version has only two cores, not four, but rumor has it that faster, quad-core mobile processors will be ready for retail sale by the end of this year.





Three-D(eep)

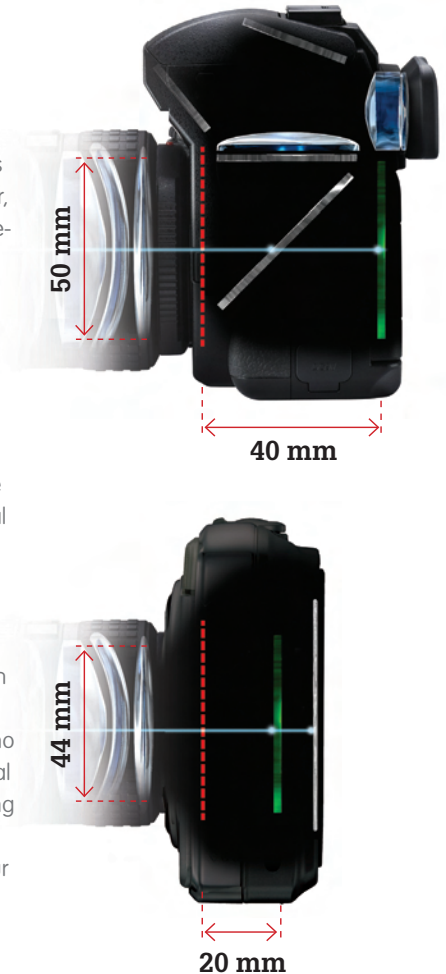
Is graphic post-production too time-consuming for you? Adobe engineers recently developed a prototype 3-D lens that may help cut down on post time. Similar to an insect's compound eye, the lens captures a scene from 19 slightly different angles at once, so that the depth of everything in the frame can be calculated. Using software designed to work with the 3-D image, photographers can then remove anything they want from a scene based on its depth of field.

Say you've taken an award-winning picture of a rare bird, but there's an ugly billboard or oil refinery in the background. Normally you would have to spend a lot of time retouching the image in Photoshop to eliminate the eyesore. But if a 3-D image were captured, anything in the background could be removed from the image quickly, based on its depth. The technology would also let you change the focal depth of an original image at will. All other graphics technology considered, this new lens is pretty deep stuff.

Lose 20mm—No Dieting

The Four Thirds standard for digital SLR cameras was developed to enable manufacture of lighter, more compact digital cameras with interchangeable lenses. Current DSLR's are still bigger and heavier than point-and-shoot cameras, whose lightness and size offer some advantages, but less flexibility than their DSLR kin. On August 5, 2008, Olympus and Panasonic announced a new Micro Four Thirds standard, which may merge the best traits of both camera types.

The Micro Four Thirds sensor is the same size (18mm x 13.5mm), but the mirror box and optical viewfinder have been removed. The bodies of the new cameras will be half as deep as current Four Thirds models, and the lenses will be smaller as well, thanks to a smaller lens mount (44mm instead of 50mm). The distance between the lens mount and the sensor can be roughly half what it is now (20mm versus 40mm). With no mirror box, the new cameras will have no optical viewfinder, so you'll have to compose shots using a live-view LCD or an external viewfinder. Micro Four Thirds cameras will not replace current Four Thirds models, but the new cameras will make great auxiliary gear, compatible with existing Four Thirds lenses, with an adapter.



High-Def Jams on Blu-ray?

The Norwegian record company 2L, an independent label specializing in classical music, has issued the first Blu-ray Disc album release. The two-disc set, a recording of the Trondheim Solistene Chamber Orchestra, includes a Hybrid SACD (Super Audio CD) and a Blu-ray Disc fully compatible with Sony's Playstation 3. Recorded in an old, acoustically-perfect church in Norway,

the Blu-ray Disc is a high-definition, 24-bit/192kHz, music-only version; the sole video component is the menu guide. The disc may open a floodgate of Blue-ray HD players for the benefit of consumers and audio-philosophers alike. The medium allows the listener to experience the wide dynamic range, rich sonic detail, and precise imaging in the stereo and surround fields that high-resolution digital audio offers, and which has until now been enjoyed mainly by the well-heeled recording and post-production studio elite.





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Get a Job

Each year, thousands of students graduate from college-level photography, graphics, video, and audio programs. You'll soon be one of them. The transition from the scholastic world to the professional one might seem daunting, but just follow this advice, and it won't be long before you're turning down gigs instead of scrambling for them. **By Michael Guarini**

SO, YOU ARE PUTTING THE FINAL touches on your portfolio or reel, and you're excited about scoring your first real project. How do you get prospective employers to take a look at what you have been pouring your heart and soul into for the past few years? What techniques get people in the industry to take you and your work seriously? And how should you present yourself and your work in a manner that will instill confidence in anyone who's thinking of hiring you?

Start Meeting People

As the old saying goes, it's who you know. How do you meet the right people? Simple: hang out where they do. There are numerous industry organizations, networking and user groups that you can join. Your local video editors' group, art directors' club, or an online photography forum is a great place to start meeting other working professionals. Members can offer advice, introduce you to potential collaborators, and maybe even direct a job your way. You'll learn about the practical side of the business and garner inspiration for future work. Also, meet the job or career counselor in your department at school and have her review your résumé. Counselors often have relationships with top industry employers seeking new hires, and they potentially can become your





conduit to interviews and network connections.

Spend some time researching industry-specific recruiters, or “headhunters.” Then schedule some face-to-face interviews with several of them. Most recruiting agencies have recruiters dedicated to finding candidates permanent or consulting positions. Recruiters also have relationships with hiring managers, and when your résumé is presented by one of them, it is usually viewed more immediately than when you present yourself through an online job board. Once you have met with a few firms who have an interest in working with you, stay on their radar by sending a weekly e-mail apprising them of your availability and any new work or freelance projects that you may have completed. Leaving messages every day will definitely get a recruiter to remember you, but not necessarily in a way that you will want to be remembered.

Rack Up Experience

Keep in mind that relevant work experience is invaluable, even if it was through an internship. Internships are as negotiable as gold. Many companies hire their former interns and having some life experience on your résumé and in your portfolio will really set you apart from the pack.

Starting as a freelancer is a great way to get your foot into different doors and create new pieces for your portfolio or reel. You might consider doing some work-for-trade or pro bono, such as designing a friend’s web site. Opportunities like these will help you beef up your portfolio through other means than course work.

When you first enter the workforce, don’t get discouraged by the multitude of production jobs and relative scarcity of truly creative gigs.

Production projects will give you the ability to get the feel for a particular company’s environment, work, and the types of people they hire. It will also give you the chance to get some professional experience at respected companies in your desired industry. These jobs won’t necessarily allow you to retire early, but they pay more than the average job behind a fast-food counter.

“... stay on their radar by sending them a weekly e-mail apprising them of your availability...”

Act Like a Pro

The worst mistake you can make is being unprepared when a prospective employer or recruiter returns your call or asks for your work samples. It's hard to believe the things that candidates let slip through the cracks when presenting a portfolio for a look-see. I can't tell you how many times I've seen a proofreader's résumé that has a typo in it; no one should have a typo on their résumé, least of all a proofreader. When you have finished proofreading your résumé, you can start checking your web site and reel. I had a candidate send me an amazing 3-D graphic he had created of a globe with his entire name in orbit around it—but he had misspelled his first name! Attention to detail is what separates a candidate who gets an interview from one whose résumé is stacked in a pile on the corner of a hiring manager's desk.

If you are sending work via e-mail, make sure that you set the display name on your e-mail account to be your real name. It's hard enough for a prospective employer or recruiter to remember every candidate they meet, and it makes it even harder when they receive an e-mail from some cutesy e-mail account alias. Use your own name or your business's name. Make sure that if you are sending files through e-mail that they are a manageable size; most companies have a size limit for enclosures on e-mails. This is your one chance to shine, so you have to make sure that your work gets through.

Watch what you post on your personal networking sites and blogs. Nowadays, employers are searching the Internet for prospective hires' personal pages and blogs. I witnessed a client rescind an offer they made after they found a blog entry in which the candidate had bashed his previous employer. The client did not want to be the candidate's next blog subject. And those funny pictures of yourself you posted that all your friends find so funny will probably not be well-received by a potential new employer. Just remember, if your friends can find it, your prospective employers can find it too.

Have a Killer Portfolio

Make sure your web site is functional and easy to navigate. It's okay to let some of your personality show through in your portfolio, but try to keep it as universal as possible. You really want to showcase the type of work that interests you, and you don't need to show every single school project that you've done for the past few years. If someone asks to see something specific, you can always tailor it for them. Make sure you show the work you do for big brands first. You'll want the spec work in your portfolio to be as professional-looking as possible, so avoid using profanity and nudity. Avoid

“Watch what you post on your personal networking sites and blogs. Nowadays, employers are searching the Internet...”

using celebrities in your spec work. U2 will not be pitching paper clips anytime soon, and it won't seem remotely believable, so don't use celebrities in your ads. If you have a traditional hard-copy portfolio, please make sure that it is neat and organized. You do not want pages sticking out of the sides. And always, always try to keep your portfolio updated and looking fresh. A lot of candidates start doing free-lance assignments but never take the time to update their web sites because they are “too busy.” Take the time. The work that you will be doing should help you get an even better assignment or job next time.

Rock the Interview

Once you have cleared all these hurdles and the recruiter or client likes your work, they'll want to bring you in for an interview. Now you are about halfway home. Interviews are very important. Your portfolio can get you a job but a bad interview can lose it for you. Make sure you stay focused on the job description, what you'd be doing on a daily basis, and don't get caught up in the minor details like benefits. You can discuss those things with Human Resources after they offer you the job. Dress and act professionally. You want to make sure that you leave them with the impression that you can do the job, you are not a prima donna, and that you are eager to get started.

It's important to realize an interview or meeting goes both ways. You need to keep your ears and eyes open. Take note of the work environment and the employees. If you get a full-time job, you will virtually be living with your co-workers. I see my colleagues more than I see my family—and I have fairly regular business hours. In advertising agencies, for example, 14-hour workdays are the rule rather than the exception. You might prefer being surrounded by people with whom you can get along.

Be Good at What You Do

Finally, and most importantly, no matter how tight your web site is, how well your résumé reads, and how professionally you present yourself, it's ultimately the quality of your work that makes or breaks your chance for success in your chosen field. And no one is going to see that work until you get out there and start networking, taking any real project you can get your hands on, and always keeping your portfolio, reel, or web site updated with that new work. Good luck, and stay focused.

Michael Guarini is a staffing specialist at the Forum Group in New York City. He specializes in placing creative, marketing, and media professionals on both a free-lance and full-time basis.

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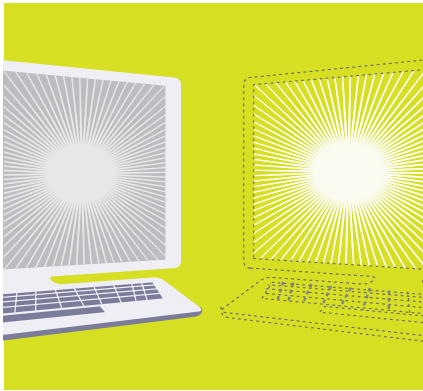




10 Tips to Keep Your Computer Humming

Tired of that hot-rod computer freezing, crashing, and losing data? Here are some suggestions for a maintenance routine to help it run like a race car—without frequent crashes. **By Vincent A. Randazzese**

ILLUSTRATIONS BY PETER KROHMER



BACK UP YOUR DATA!

This makes the top of the list because it means everything. Securing your data in today's world is a must. Your PC can be infected suddenly with a virus, for example; in the event of disaster, you can easily copy your files back to your computer. That's when you will thank yourself for securing your computer's data to a backup device. How often you do this depends on your schedule, but there is an enormous number of backup hard drives on which you can schedule daily or weekly backup maintenance.

Our Pick With the Maxtor 500GB OneTouch 4 USB 2.0 External Hard Drive, you can back up your files with the push of a button, or set up the software to perform convenient automatic backups. The device can be used with Windows or Mac platforms, and is hot-swappable and plug-and-play.



Remove Programs From Your Startup

The more applications you have trying to start up at the same time, the slower your computer will be when booting up. In Windows 2000 and later, you can remove them from startup by going to "Administrative Services" in the Control Panel.

DON'T PRESS THE BUTTON

Never turn your PC off with the power switch. Whenever possible, recover from crashes by pressing the Ctrl + Alt + Delete keys on your PC to access your Task Manager. Close programs that are not responding in the subsequent window. Press Ctrl + Alt + Delete again to reboot from this screen. If your computer locks up, go ahead and press the button. On a Mac, press Control + Escape to close down applications that have frozen. If your Mac freezes, reboot with the Start button.

Use a UPS

An Uninterruptible Power Source (UPS) is a device that works as a combination surge protector and a battery backup. It protects expensive computer equipment from brownouts, spikes, and black-outs. In the event of a power failure, it provides users with enough time to save their work and shut their computer down properly. Some manufacturers who produce power-protection equipment offer a warranty on your personal devices, in the event that a power failure damages your equipment's circuits beyond repair.

Our Pick APC's 8-Outlet Back-UPS ES offers affordable battery backup and surge protection for home computers. With enough power outlets to protect your entire system, built-in phone/fax/modem line (DSL compatible) protection and easy-to-install safe system shutdown software all make this power-protection solution the best value for home and home office computers.



Keep Your Software Updated

Software developers write and release patches that update the software you have already bought from them. Update your software one version behind the current latest and greatest version, to avoid acquiring the latest and greatest bugs.





USE A UNIQUE P@S\$WORD

Protecting your PC is very important, and we're not talking about antivirus software. Password protection is a practice many people take for granted. You should choose a password that is seven or more characters long, with a number and a special character in it. Do not use a word that is found in a dictionary—a program can be written to use every word in a dictionary. Try and misspell a word using one or more special characters in the center of the word, like Pho!0 (photo).

Check for Viruses

Early detection by virus scans will keep your Windows PC as free from infection as possible. Macs are no longer impervious to viruses; now Allume and many other vendors are in the process of creating antivirus utilities for the Mac.



Our Pick Computer Associates Anti-Virus and Anti-Spyware 2008 Software Bundle for Windows protects your computer against viruses, worms, and Trojan-horses. The software offers real-time and e-mail virus scanning. It also supports file quarantine, and virus definition files are updated automatically, on a daily basis.

Disconnect Correctly

If you're using a Mac, do not unplug peripheral devices while the power is turned on. Drag the icon for the device into the Trash first, unless the device is specifically hot-swappable.

Scan & Defrag

By defragging the machine, fragmented pieces of data are consolidated so your hard drive can run optimally and access programs as quickly as possible. Slow performance and computer reliability problems are tell-tale signs of file fragmentation. Defragging ensures optimal performance.

Our Picks The CheckIt System Performance Software Suite for Macintosh, from Allume Systems is a suite of



software utilities designed to optimize Mac OS X system performance. The suite includes the Spring

Cleaning, TechTool Platinum, and EMC Retrospect Express software modules.

The Windows Live OneCare 2.0 Software for Windows XP and Vista, from Microsoft, is a software package and 1-year service subscription that helps



to keep your Windows XP or Vista computer up-to-date with security. OneCare is an

all-in-one software package that offers antivirus, firewall, backup, and system maintenance features.

DEVELOP A MAINTENANCE ROUTINE All this advice is meaningless if you keep forgetting to do it, or remember only after something has gone wrong. Depending upon your frequency of use, get into the habit of routine maintenance, whether it's weekly, monthly, or quarterly through the year. You should be able to determine your schedule by paying attention to the way your computer operates between regular maintenance routines.

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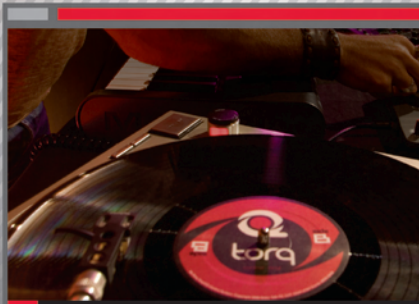
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M-AUDIO

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YOUR WISHES GRANTED

For many artists and documentarians, a grant can ensure the freedom and flexibility they need to create and complete a project. Here are some tips and guidelines to help demystify the process of applying, from a three-time grant recipient. **By Stella Johnson**



GRANTS AND FELLOWSHIPS HAVE empowered countless artists and scholars, providing valuable time and money to complete otherwise unfeasible projects. Robert Frank's seminal work, *The Americans*, is but one example of achievement made possible through endowment (the Guggenheim, in Frank's case). This year, two Magnum photographers were among the grant recipients: Jacob Aue Sobol was awarded the 2008 Leica European

Publishers Award and Jonas Bendiksen won a National Geographic grant.

It is appropriate to apply for a grant when you can show a track record with a cohesive body of work, most likely self-funded. It is obligatory that you have your thesis formulated, and that you are willing to make personal sacrifices for your work.

The grant application process is time-consuming. Letters of reference are required, making it important for you to connect with a nucleus of people in your university with whom you can study, work, and collaborate. Such relationship-building is crucial. These affiliations suggest commitment and your capacity for collaboration.

Be prepared to spend a significant amount of time writing and rewriting your proposal. Write succinctly about your work. Answer any and all questions the grantors pose. There can be no typos. Use spell-check. If you do not take time to proofread your work, why should anyone bother to read it twice, or to grant it funding?

Make sure you and your project are a good fit with the granting organization. Research your style of work on the Internet, and look for funding from various non-profit entities. Also check out foundationcenter.org/findfunders.



Stella Johnson is a photographer and educator whose photographs of the Third World have been facilitated by three Fulbright grants, the most recent of which will allow her to travel to Riobamba, Ecuador, to teach at the Instituto Santiago de Quito. See her work at www.stellajohnson.com

The Fulbright

One specific grant that has made a difference in my life and art—and can in yours, too—is the Fulbright Scholar Grant, one with whose application process I am very familiar. Recently, I was honored with a third Fulbright. With it I will travel to Riobamba, Ecuador, to teach Documentary Photography and Visual Anthropology at the Instituto Santiago de Quito.

The Fulbright, awarded annually, is the U.S. government's flagship program for international educational exchange. It was proposed to the U.S. Congress in 1945 by Senator J. William Fulbright of Arkansas, and signed into law by President Harry S. Truman. After World War II, Senator Fulbright viewed the program as a vehicle for promoting "mutual understanding between the people of the United States and the people of other countries of the world." Grantees are thought of as ambassadors, promoting the good will of Americans and America, and are offered an array of fellowships that allow U.S. graduating college seniors, graduate students, young professionals, and artists to study abroad for one academic year. Last year alone, the program awarded more than 6,000 grants—totaling more than \$230 million—for studies in more than 150 countries.

Providing Opportunities

My first Fulbright was especially significant to me. It enabled me to live and photograph in Mexico for eight months, and travel to villages difficult to reach, enter, and fully understand. Photographs from that Fulbright year are in my monograph and have since defined my black-and-white photographic work. Those photographs additionally gave birth to my new book, *Al Sol: Photographs from Mexico, Cameroon and Nicaragua*. It wouldn't be an exaggeration to say I may not have completed this project without the pivotal assistance of this grant. In fact, the "validation" a Fulbright afforded even helped me procure another grant

that helped fund *Al Sol's* completion.

If you are interested in applying for a Fulbright grant, and are currently enrolled in an undergraduate or graduate program at a U.S. college or university, you must apply through the Fulbright Program Adviser (FPA) on your campus. If you are not currently enrolled in a U.S. institution of higher learning or are unable to apply through your home campus or alma mater, you may apply At-Large. This includes U.S. students studying at institutions outside of the U.S. or students attending institutions where there is not a Fulbright Program Adviser. Campus deadlines usually fall between mid-September and early October.

The U. S. Student Fulbright Program features a single application form and adheres to the Fulbright mission. It allows students to design their own programs, including university coursework; library or field research; classes in a music or art school; assistant in teaching English and a combination of these or other projects. The Program provides invaluable opportunities to meet, work, and live with people of the host country, promotes cross-cultural interaction and mutual understanding through engagement in the community, and fosters the appreciation of others' viewpoints and beliefs.

You must follow the application process precisely. If you have the opportunity to work with a Fulbright Program Advisor, make friends with that person. Every person I worked with at the Council for International Exchange Scholars (CIES) provided enormous help and guidance. CIES administers the Fulbright Scholar Program. Having command of a second or third language will make you a more attractive candidate for a Fulbright Scholarship, but other grantors do not require fluency in other languages.

A Student Fulbright, or any one of a number of other grants, could change your life and empower you with the time and opportunities to forge lifelong friendships and create a dynamic and intense portfolio of work.



ROCKIN' THE FULBRIGHT

2007 was the inaugural year for Fulbright-mtvU Fellowships, to promote "the power of music" as a global force for mutual understanding. Fellowship winners will conduct research abroad for one academic year on study projects of their own design around an aspect of international musical culture. Winners will share their experiences with their peers during their Fulbright year via video reports, blogs, and podcasts that will be showcased on mtvU and mtvU.com. Through the creation of this new fellowship, the U.S. Department of State and mtvU are promoting the role of music in mutual understanding, invigorating interest in international education among U.S. college and university students, and furthering the positive impact of public-private partnerships.

Maximize Your iPod

By Tom Kirkman

HAS IT ONLY BEEN seven years since the first iPod? With more than 150 million of them sold, it's like they've always been with us.

The current lineup is so omni-capable that it seems almost quaint to mention that you can house your entire music library, up to 160GB, in one. You can note your running distance and calories burned while listening to music via a Nike/Apple partnership. Surf the web wirelessly with the new touch, or check e-mail, stocks, or the weather. YouTube, shows, videos, and photo albums are all at your fingertips.

The iPod has spawned numerous pilot companies. There are scores of speakers available to put your music out there; alarm clocks have become "Pod clocks;" headphones are available, from hardwire audiophile to Bluetooth wireless models. It has never been easier to transmit music wirelessly to your car's radio. Streaming Network's iRecord writes from virtually any source to your iPod, while products like Belkin's Tune Talk make voice, event, or lecture recording simple. The list of products with iPod docks and interfaces is steadily growing. Peruse this collection of Pod-expanding accessories to see exactly what we're talking about.

Podcasting 101

Podcasting is a popular way to publish media files to the web. Our lifestyle moves too fast for yesterday's time-specific programming. The first thing you need to do is choose the method you'd like to use to record voice programming into your computer.



That can be as simple as plugging a mic into your computer, or plugging in a USB mic for higher quality. For multiple microphones, you'll need an audio interface, a piece of gear that provides a boost in quality over an ordinary mic input and allows you to adjust levels. Or go mobile, recording anytime, anyplace on a portable device of your choosing. Just make sure you can jack in and upload to your computer. The **Blue Snowball USB Mic Kit** will get you going for about \$159.

Take a Memo

Apple manages and markets pre-recorded media so well that it's easy to forget what a great storage device the iPod is. Author content, prerecord lectures, concerts, or presentations for recording or to use as Podcasts. All that's needed is an accessory like the **Tune Talk** from **Belkin** (\$55), which has stereo mics for high-quality recording.



Run!



The iPod Touch and Nano are already the perfect running partners. Now clock your time, distance & goals, with music, on the **Nike + iPod Sport Kit** (\$29). View burned calories on your computer, issue challenges, and share results with runners all over the world on nikeplus.com.

Made for Scratch

Some people are content to let their music collection slumber in archive-land, dusting it off for a listen every now and then. Others want to mix it up ... If you're one of the creatively restless, try using your iPod this way.

Mixing consoles feature the ability to play multiple tunes from one iPod or scratch digital files on your iPod as you would scratch vinyl records. You're not limited to one iPod, either. You can connect additional iPods, flash drives, external hard drives, CD players, and vinyl turntables to units like the **Numark iDJ2** (about \$485).



Watch and Listen

Carrying a video iPod is like having a pocket-sized TV that goes anywhere you go. Need to load your iPod with saved video content? Here are two products that will save and upload audio and video to your iPod conveniently.



Multimedia Hubs act as a nexus of all your video content. Placed at the heart of your Home Entertainment system and coupled to an external hard drive, they can archive all of your content from components attached to the system, and create a handy index on the device. Some, like the **Neuros OSD** (\$170) even feature a media card slot. Record in MPEG-4: .MP4, .ASF. Take your pick of the items you'd like to transfer to your iPod via USB to watch on the go.

Take the computer out of the equation with a **Personal Media Recorder**. Writedirectly to your iPod from your DVD player, TV, TiVo, VCR, or cable/satellite set-top box, encoding high-quality H.264 video with AAC audio at 320x240 resolution. Some, like **Streaming Networks' iRecord**, (\$175) offer one-touch recording while supporting both Mac and PC iPods.



Expand

Morphing media displays seems like our favorite pastime. We easily swap out a 55" flat panel for a 2.5" portable player for fun on the run. If, at the end of a long week, squinting at your iPod feels like you're trying too hard, or if you just want to share, pop it in to the \$200 **iLuv i1155** for 8.4" of widescreen happiness. You can even jack into your home theater system and kick back with the remote control, or take this multimedia DVD player on the road when you travel. It plays many DVD formats, MP3, JPEG, and Kodak Picture CD.



Live Large...Anywhere

If you're homesick for that 1080p LCD while you're slogging through seminars or slaving away at the library, take heart. You can watch feature-length films and videos on your own private big-screen TV, anywhere! The **Myvu Solo Plus Personal Media Viewer** (\$165) supports any video iPod, including the Touch, Nano, Classic, and the 5th-generation video iPod line. It features a 4-hour battery and an ear bud-incorporated visor. You'll never be creeped-out again by an uninvited "guest" watching your movie on the bus. Catch up on those home videos, like that footage you shot on your last trek along the frigid ice floes of Tierra del Fuego.



GET YOUR COLOR INTO GEAR

What Is Color Management? Ask a photographer and a videographer this question, and you'll get two very different answers.

WHILE THE PHOTOGRAPHER WILL TALK ABOUT color space, RGB vs. CMYK, monitor calibration and printer inks, the videographer will likely squint, grow thoughtful and ask, "Color management?" That's because the real practice of color management is quite different in each of these fields. The overall concept may be the same—maintaining consistent colors between viewing platforms—but in the video world, the array of available calibration devices and techniques can be not only overwhelming but potentially bank-breaking: vectorscopes, waveform monitors, production monitors, color and focus charts, time base correctors, process amps ... but how much of this is necessary? And why is color management so important?

(Continued on page 26)





Color for VIDEO

Professional videographers agree: If you want good-looking and consistent color, you need balance. By David Speranza

The first thing to realize is that no matter how expensive your computer monitor—and no matter how well calibrated—it will never reproduce the colors and brightness of your footage as accurately as a video monitor or television. The same goes for your camcorder’s viewfinder and LCD screen. The color and contrast ranges of these devices are simply too varied.

But what happens if you use multiple cameras, where colors need to match from one camera to the next? Or if you plan to submit your work for distribution, requiring broadcast-safe colors? Or maybe you only want to burn a DVD that looks the same on your friends’ televisions as it does on your computer. What’s needed is some kind of unifying standard to keep the image both consistent and correct in its many forms.

The most basic form of color management is white balancing. This should be done, of course, before any footage is shot, and under a scene’s particular type of lighting. This tells your camera’s sensor how to reproduce white, providing a benchmark for all the other colors. The most accurate way to do this is by using a professional white balance card and the custom white balance setting on your camera. This not only creates color consistency from scene to scene, but is crucial for multi-camera setups.

Trade-off

To view your colors accurately, an external monitor is essential. A solid, low-end production monitor can be had for less than \$500, but if your budget won’t allow that, then a decent portable television will also work. This can be used both on set and in the editing suite; properly calibrated, it will offer a far

more accurate view of your video’s color and brightness range. An on-camera LCD monitor is also possible for run-and-gun productions, but the trade-off is less color accuracy.

Color bars are the next step. Generated by either your camera or editing software, these are used to calibrate the monitor beforehand so that the scene you’re shooting looks the same on screen as it does in front of the lens. Depending on your camera’s manual controls, you can also adjust colors before they reach the monitor—ideal for matching color values between more than one camera, or for achieving a creative effect. Professional test charts can aid in this process, allowing you to calibrate color, grayscale, skin tone, and focus.

Lastly, be sure to record at least 30 seconds of color bars at the head of each tape: these will be referenced in post-production—the next round of color management.

Color consistency needs to be maintained once the footage reaches your editing environment. The easiest way is to compare your recorded color bars with the bars generated by your NLE. Remember, a computer monitor’s color space is different from a television’s, so only a video monitor will accurately reproduce a scene’s colors.

For more precise measurements, you can run the footage through a waveform monitor and vectorscope (software versions are included in Final Cut Pro and Premiere Pro). The former measures brightness, while the latter measures color saturation. These professional tools—which can also help calibrate cameras and monitors—are essential if you plan to show your final project anywhere but on a computer.

Rabbit Hole

That’s because broadcast industry standards require color and brightness levels to stay within a “legal” range. If footage falls outside those limits, you risk having your material rejected—or, at the very least, improperly presented. The vectorscope and waveform monitor allow you to analyze the levels in each shot, and tweak everything accordingly.

As you can see, video color management can open up an electronic rabbit hole of possibilities. But making sure the colors in your video are consistent from one platform to the next—from camera to editing to presentation—is key to producing the highest quality production.

Color for PHOTO

In our studio productions, we try to get the color right before post-production.

By Kenneth Chen and Jason Nadler

Incorporating color management into your photographic work flow, at each step, is the best way to produce excellent photographs and minimize adjusting time afterwards. Here is a step-by-step checklist of how we approach color management in our digital work flow.

1 Shoot RAW whenever possible—it captures significant amounts of data which JPEG conversion discards. We don't recommend this for all situations, but you can often get a better result using the "auto" feature in Adobe Camera RAW or Lightroom than you would have if you allowed the camera to convert the file to JPEG.

2 Camera White Balance. Forget about "Auto" for white-balancing. Use "Cloudy" for outdoors and "Tungsten" (the light bulb) for indoors. Even better, take a custom white-balance measurement. ExpoDisk is perhaps the most convenient way of getting an accurate white balance, but we also use a Gretag color checker chart when it's convenient. Getting white balance correct in the camera is the best starting point.

3 Calibrate your monitor. Your eyes are so good at adjusting for color that you can be tricked into believing your monitor's color is correct without a calibration device to do the job. Anything is better than nothing; don't rely on just your personal color sense. Gretag-macbeth Eye-One is the device we use. Calibrate before every project.

4 We use Lightroom to download our images from the memory card to the hard drive. We like it for its data-management capabilities (too vast a topic to discuss here). We don't apply presets or develop settings on import. If you don't have Lightroom, Photoshop CS3's Camera RAW has RAW-processing capabilities. For the sake of this tutorial, we are using Lightroom, but ACR users can easily follow.

5 Once the images are loaded in Lightroom, we follow the Develop Module order. The white-balance eyedropper is used only to check and fine-tune white balance—remember, if we get it right in the camera we don't have to worry about it at this stage. Then we use the other sliders in the Basic panel to fine-tune the overall exposure.

6 When we are satisfied with our images, we prepare them for Export. Here we have to pick a color space, which is the technical term for the way the computer reads the image data. You should always export to the color space that your output handles. For example, many labs use sRGB. Choosing a different color space can result in banding when the output device has to re-interpret the data. We have three primary options for choosing our color space:

sRGB This is a smaller color space, but encompasses all the colors you see on your monitor and printer. The web is sRGB, and most labs operate in sRGB.

Adobe RGB 1998 This comprises a larger gamut of colors than sRGB. Some pro-level (expensive) monitors and printers operate in Adobe RGB 1998.

ProPhoto ProPhoto is a huge color space encompassing most of the colors a camera can produce. So why not just use it for everything? Well, in order to view it on your monitor or print it, your monitor or printer converts it to the output color space (usually sRGB). This can create problems, as

colors that fall outside the parameters of sRGB need to be "translated" to fit. These can go unnoticed, or they can create banding as the huge ProPhoto is jammed into the smaller sRGB. So, it is our recommendation that you use ProPhoto for your master files, but be sure to convert to the profile of your output before you print, as conversions allow you to see issues before they become problems.

CMYK Wait, we said three options! What's CMYK doing here? CMYK is used by offset printers and most commercial clients. Although your desktop printer uses CMYK inks, it's actually an RGB device. Lightroom doesn't convert to CMYK, so to conserve the data, we export to ProPhoto, and then using Photoshop, we convert the file to CMYK.

7 When we save an image for the Web, which is done in Export, we always assign it sRGB. Internet Browsers read sRGB. They will display a ProPhoto or Adobe RGB 1998 image, but probably incorrectly. Although the color gamut is smaller, sRGB is always your best option for files destined for the Internet.

8 Instead of Exporting, we sometimes choose to go straight to print. A desktop printer, however, needs color space information to understand the image. Lightroom assigns a color space to the image on the fly, sending the correctly-tagged file to the printer.

An OS with Claws

By Vincent A. Randazzese

FORGET ALL THE FELINE clichés alluding to the new Mac OS 10.5 Leopard. Panther, Tiger, and now Leopard—with each cat comes a veritable litter of new features, and Leopard is no kitten. The only thing you need to know about Leopard is that the engineers at Apple have brought you a brand new OS that is ferocious, with a ton of new features, but you can master it without a whip and chair. Here are some handy tips for using the new Mac OS. These tips are just the pick of the Leopard litter, when it comes to the new features offered with this powerful OS. Work with it for awhile, and you'll learn to navigate the digital jungle with greater prowess than you experienced previously with any other Mac OS.

Michael Wolff and Ari Rolnick contributed to this story.



Trash views

One really cool feature which has been missing from all PC platforms for years is the ability to view something that has been dragged to the Trash. Thanks to Quick Look, you can preview selected items in Trash. Simply select the items you want and press the space bar to view them in Quick Look.

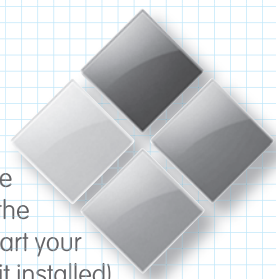


All is Wells

With the amount of data people are storing today, Apple realized a necessity to include backup software in the new OS. Time Machine allows you to set automatic backups to any remote drive. While there is a seamless integration to Apple's Time Capsule, you can still use any third-party external drive. Remember: while hardware can be replaced, data cannot, so back up your data regularly.

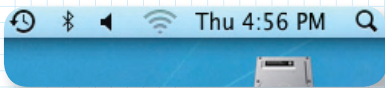
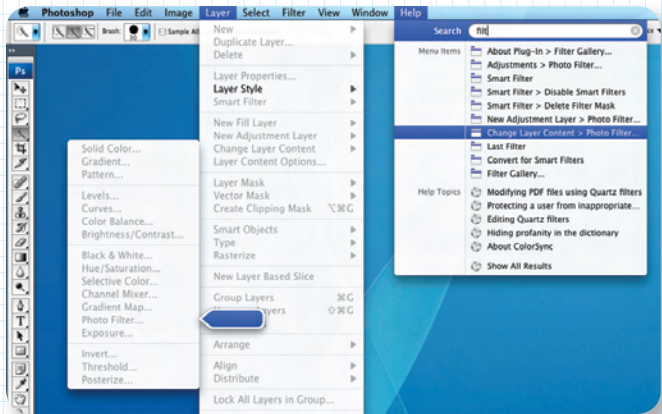
Boot-fusion

One of the greatest enhancements of the new OS is the addition of Bootcamp for the Intel chip set. Bootcamp allows you to start your machine in either Windows (if you have it installed), or OS X. Hold down the option key before you hear the start-up chime, and you are given a choice of OS to boot up. An alternative to Bootcamp, once you're in OS X, is VMWare Fusion. Fusion allows you to run Windows within OS X and work within Windows on your OS X desktop.



The 911

This tip works in any program: If you forget how to do something, go to Help on the menu and type the name of the function you're looking for. If the function is accessible from the menu bar options in that program, Help will open the menu bar listing for you and point to the option you want. It's really helpful in complicated programs like Photoshop, where there are hundreds of tools hidden among the menu bar listings.



Such a drag

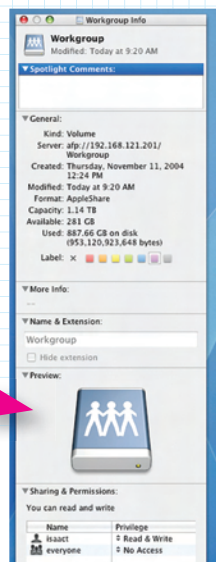
Click on any icon on the right side of the menu bar while holding down the Apple key. This will move or remove menu bar icons, which will allow users to rearrange the order, or even remove it completely by dragging it down from the bar.



Inspectorama

In the Finder, one can get information on any file by selecting Get Info from the File menu (cmd-I, or Rt-click and select Get Info). This is a well-known method for checking size or other information about the file. Apply this to more than one file, and a Get Info window opens for each file selected, as you would expect from any recent Mac OS.

When you hold down the (magic) Option key and click in the File menu, the Inspector window replaces the Get Info window. The same applies if you use the quick keys, cmd-opt-I or hold the option key, control-click on the file and select Inspector from the contextual menu. With the Inspector, only one window opens, and you can then select any file, or multiple files, before or after you open the Inspector.

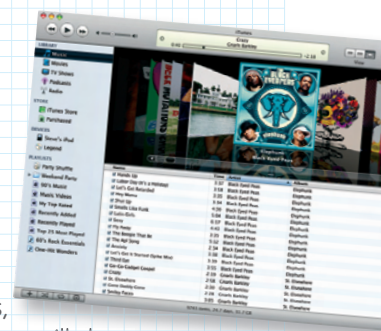


Path-o-logic

The Finder's Path Bar is one of Leopard's most versatile features. Select View: Show Path Bar and the path to the current open folder will appear at the bottom of the window. Users can drag an item onto any of the folders shown in the Path Bar to move the item to the folder, and you can double click on any folder in the path to quickly access that folder.

Name that tune

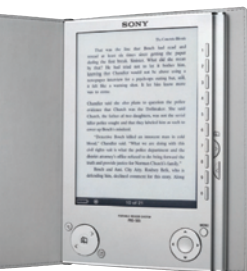
If you are listening to a song in iTunes and you don't know what song it is, just click Apple-L, and iTunes will show you the current song in the library.



Sony Digital Book



Peripatetic bookworms have a new gadget. At just 9 ounces, and a paper-thin 1/3", the Sony PRS-505 can carry up to 160 digital books in its internal memory and can download thousands of titles from Sony's eBook site. The 6" SVGA LCD screen displays crisp text and graphics, is easy on the eyes, and its batteries have enough juice for over 7,500 page turns. Download RSS feeds and news sites.



Expand your library with external Memory Sticks or SD media cards. With the Sony Reader Digital Book, you'll always have the perfect text.

#SOPRS505SC Reg. \$269.95 **\$259.95**



Nikon Trailblazer Binocular



You never know when you'll need a pair of lightweight adjustable binoculars. Nikon's 8x42 Trailblazers are a welcome addition in your pack for outdoor excursions, better viewing at arena events, identifying passing aircraft, or for just checking out the next full moon. The ergonomic magnesium design is easy to hold, and a rubber armor coating not only improves shock resistance but provides a firm, comfortable grip. They will also deliver excellent performance in temperatures as low as -20° C to accompany your next winter outing.

#NI8X42T Reg. \$149.95 **\$139.00**

Logitech Wireless Keyboard



The Logitech diNovo Edge combines sleek styling with compact convenience in a wireless computer keyboard that will add laptop mobility to your desktop. The smooth-action aluminum-clad keyboard delivers up to two months of battery life from a two-hour charge. But the key design features are the TouchDisk navigator and the dedicated touch-sensitive volume slider. This new touchpad consolidates scrolling, selection, and cursor control into a simple one-finger interface.



#LODKCE Reg. \$159.95 **\$154.95**

Ultimate Ears Headphones

Sound isolation headphones have become the preferred choice of stage monitoring for many pro musicians worldwide. These headphones allow music through, while blocking extraneous sound. This technology has now become available in models that won't cost you an ear and a leg. The Metro.fi 2 personal earphones are lightweight, sound great, and come with a selection of earpieces to help you get the right fit.



#ULMFI200B **\$69.00**

Creative Labs USB Webcam



A webcam not only lets you meet face to face with everyone, it also lets you participate in lectures remotely—and record video and still images as well. Creative Labs' compact Live! Cam Notebook Pro USB Webcam connects to a computer via a USB 2.0 interface, has manual focusing, and its 640 x 480 resolution produces sharp images. A PowerGrip mount allows it to attach easily to a notebook computer. It features an integrated microphone, and an included headset.



#CRWLCP Reg. \$49.95 **\$39.95**



Logitech Pro 9000 Webcam

Kick online communication up a notch by adding the Logitech Webcam Pro 9000 to your computer. You'll never be out of sight or out of mind with razor-sharp Carl Zeiss optics (with autofocus) that maintain optimal detail and clarity, even in extreme close-ups. RightLight2 Technology intelligently produces the best possible images in terms of resolution and color, regardless of lighting, while the integrated mic with RightSound Technology eliminates echo and background noise. The unit is compatible with Mac and Windows platforms.

#LOQ9000 **\$74.95**

Onkyo CD/DVD Micro Audio System



Don't have room for a full-size sound system? Craving style and performance? The Onkyo CS-V720 CD/DVD Micro Audio System is for you. Two-way bass reflex speakers (30 watts per channel), 5.1-inch woofers, and 0.5-inch soft-dome tweeters provide affordable big sound in a small package. The XM-ready tuner is your key to "limitless" commercial-free programming, and there's an optional DS-A2x Remote Interactive iPod Dock.

#ONCSV720..... Reg. \$309.95 **\$294.45**



Sony Blu-ray Player

Now that the dust has settled and the industry has decided on one HD format, this beautiful Blu-ray player is a guilt-free indulgence that would amaze your ancestors. Features like 7.1-channel Dolby TrueHD, Dolby Digital Plus decoding, and 1080/60p and 24p True Cinema output mean breakthrough sharpness and smooth, film-like action, while the quality of the audio is close to studio master. The backward-compatible S550 will also up-convert your standard DVD's to 1080p, breathing big-screen life into your collection. All you need to supply is the popcorn and a comfortable spot on the davenport.

#SOBDPS550..... Reg. \$395.00 **\$329.95**

Audiovox LCD Television

The Audiovox FPE3208 32" 720p LCD television is ideal for bringing high-definition TV to any cramped living space, and is eminently affordable. There's no need to worry about the end of analog TV broadcasts, because the TV's integrated ATSC/QAM tuner receives digital terrestrial and cable broadcasts. Dual HDMI inputs provide compatibility with the latest HD components, while a VGA input lets the display double as a 32" computer monitor. An 8 ms response time allows for fluid motion during fast action sequences.



#AUFPE3208..... **\$799.00**

Eye-Fi 2GB Explore Wireless SD Card



The Eye-Fi 2GB Explore Wireless Secure Digital (SD) Card wirelessly connects to Wi-Fi networks and uploads pictures automatically, using Wi-Fi security for secure transfers, with a 90-foot range outdoors and 45 feet indoors. The card can also locate any of the 10,000 Wayport Wi-Fi hotspots across the US, translate the data into geographic locations, and attach that info to each picture. Images can then be uploaded via a Wayport Wi-Fi hotspot to your photo-sharing website or your computer, even if it's thousands of miles away.

#EYWEMC2GB
Reg. \$129.99 **\$119.95**



Belkin Router



Video streaming on the web can be a misnomer. Video stutter is more like it. At a lightning-fast 300 Mbps, the Belkin N1 Wireless Router blazes through web traffic bottlenecks, keeping stutter to a minimum. The device offers connectivity for both wired and wireless connections. Extensive firewall and network security protocols protect your network against malicious phishers and scammers, as well as really bad people.

#BEN1WLR..... Reg. \$109.95 **\$99.95**

Pinnacle PCTV HD Card



Watch HDTV broadcasts from the convenience of your home computer with the Pinnacle PCTV HD card. Just plug an HDTV antenna into the card after installation, and you're ready for high-definition enjoyment. TVCenter Pro Software enables you to schedule and record TV shows, play back recorded video, and archive to DVD. Itching for the requisite remote control? A mini-remote comes with the outfit, so you can surf the HDTV channel waves with no worries.

#PIPCTVHDC
Reg. \$79.95 **\$64.95**



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Nikon Digital Cameras

PHOTO

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SHOOTING UNDER FIRE



With the great power of pictures comes great responsibility. Photojournalist **Ron Haviv** considers his images artifacts of awareness and signposts of history.

BY J.P. REGALADO

THE CAMERA IS NOT A shield that protects you from getting shot," says the prolific, award-winning photojournalist Ron Haviv. He has captured some of the most riveting images of world conflict, from the Balkans to Darfur.

He's also a co-founder of VII, a socially-conscious photographic collective focused on documenting the historical events of the 21st Century.

Haviv's discerning eye captures the raw human condition amidst the



Just another day on the job: Ron Haviv reacts to sniper fire on assignment in 2001.

PHOTOGRAPHS COURTESY RON HAVIV, VII PHOTO: HAVIV BY SCOTT PETERSON

throes of war—despair, fear, hope, and elation written on the crumpled, creased face of an old Bosnian woman; the piercing gaze of a Sri Lankan girl.

Haviv studied writing in the journalism program at NYU. Relatives introduced him to photography; he took a class and taught himself the rest.

“The benefits of being super young and naïve were that I didn’t understand how the business worked. I opened the Yellow Pages and started with the letter ‘A.’” Haviv’s tenacity landed him an internship with the New York City Tribune, a springboard to his first picture-by-picture assignments at Agence France-Presse.

In 1989, at age 23, he got his first big break. Chris Morris, a seasoned war photographer, invited Haviv to cover the presidential elections in Panama. General Manuel Noriega nullified the election results, inciting a civil uprising. Haviv’s instincts kicked into autopilot: “I saw my first gunfire. We were surrounded by the army ... the Vice President was covered in blood.” The riveting image of the blood-soiled Vice President made the front cover *U.S. News and World Report*, *Time*, and *Newsweek*, making Haviv one of the first photojournalists since the Vietnam War to have a front cover image published on all three U.S. weeklies.

Witnessing History

This pivotal experience still keeps him going today, and underscores his role. “I started to understand that photojournalism wasn’t about me. It was about the subjects, and the role and influence that our work can have.”

He’s seen history unfold through his lens, entrenched in world conflicts. He’s seen the Berlin Wall crumble and Nelson Mandela surface from prison. “What’s amazing about being a photojournalist is that you get to witness history for yourself. There’s no filter. It’s an amazing privilege to show people your interpretation of history.”

Photographing the violent breakup of Yugoslavia in 1991 has affected him the most. “It became difficult to justify

my role as a journalist. I had photographed the first ethnic cleansing of the Bosnian war ... the pictures were published and there was no reaction from the politicians.” After chronicling the conflict for nine years, he compiled his thoughts and images in the book *Blood and Honey*.

Haviv speaks quite passionately about his photographs as historic documents, as artifacts of awareness to the world. “Those photographs exist to remind us that these things happen. We are responsible for each other as human beings.”

New Multimedia World

Haviv has never been wounded but he’s been accused of being a spy and has been taken captive a number of times in Africa, Iraq, and Bosnia. “I had politicians working on my behalf to negotiate for my release.”

Danger on the job is a given. The photojournalist must be equipped to cope “with emotional trauma on a high level. You have to be able to survive physically and emotionally, and be able to keep going.

“We are currently in a transition period. The old world is quickly dying, and a new world is being born.

That new world is multimedia. It’s an exciting time to be a photojournalist. A new generation of photographers is emerging ... we’re already seeing new ways of telling stories.” The web has removed walls across all forms of media, paving the way for new forms. Haviv predicts visually complicated pieces with multiple layers of video, audio, and stills.

As far as the technical tools needed to keep up in the digital age, Haviv recommends a digital audio kit, to supplement photos with live interviews. “Some editors expect photographers to also do audio.

“If the photojournalist continues along the lines of the old world, they won’t be able to survive the new market in the future ... new media won’t be on paper. It will be on the web.”

Ultimately, the human propensity to chronicle its history through photography will continue to drive journalists. Haviv will only continue his visual onslaught, reinforcing the fact that photography and a strong point of view are more powerful than bullets.

To see more of Ron Haviv’s work, visit ronhaviv.com. For information on internships at the VII Agency, visit viiphoto.com

Opposite: A displaced Sri Lankan girl whose family had taken shelter in a destroyed mosque, 2007.

This page, top: The African National Conference anti-apartheid rally for Nelson Mandela, 1994. Bottom: From the book *Blood and Honey*, children survivors of an attacked refugee camp in Bosnia, 1995.



GOT FILM?

Although they've become retro-chic, **vintage cameras** still play a "roll" in the age of digital photography.

BY MARC SPIWAK

DIGITAL PHOTOGRAPHY has taken the world by a storm of pixels, and professional photographers have fully embraced the technology. Digital photography is simply easier and more convenient than film, and the images can be examined and forwarded instantly to whomever needs them. While digital photography has become the norm, vintage cameras have been gaining in popularity for their novelty and aesthetic appeal.

Those interested in vintage equipment have to turn to sources such as flea markets, garage sales, eBay, and

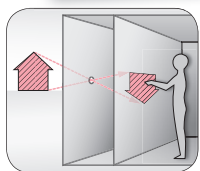
B&H's Used Equipment Department. The Used Equipment Department carries a wide variety of used 35mm, large and medium format, vintage, and Polaroid cameras and accessories, usually in excellent condition.

Polaroid fans, take note: Polaroid plans to stop manufacturing the film, but 4 x 5" film packs from Fuji will still be available. Store your Polaroid film in a cool place, such as a cellar or refrigerator, provided the foil pack is still sealed. Never freeze it, as freezing has an adverse effect on the chemicals and dyes in the emulsion.

Like fine mechanical clocks, vintage cameras can last for centuries, making them good investments as well as prized possessions. Unfortunately, photographic film and paper have finite shelf lives, so beware of outdated sources. Happily, B&H stocks fresh supplies of color and black-and-white roll and sheet film, slide film, Polaroid film (while it lasts), paper, and all the necessary chemicals and equipment for developing film and prints.



History of the Camera



Circa 1021 A.D.

A camera obscura is a room with a hole through which light is projected onto the back wall. The image can be traced with accurate perspective and realism.

1888 George Eastman sells the first Kodak box camera. The camera comes pre-loaded with film and has to be sent back to the factory for processing and reloading.



1912 Graflex makes the first Speed Graphic camera. The camera becomes standard for press photographers. From 1942 to 1954, all Pulitzer Prize-winning photos are taken with a Speed Graphic.





Toy Cameras

Beautiful Imperfection

Photographers using film can take advantage of techniques and effects that can merely be simulated using digital equipment. It is unfortunate for those wanting to learn about photography that so few choices in new cameras exist; only a handful of 35mm cameras are still being made, and some types of film have been discontinued. Fortunately, it doesn't take much of a camera to achieve extraordinary results.

The term "toy cameras" refers to extremely low-end models with inherent flaws that cause blurring, over-sat-

urated colors, improper exposures, and other effects that are considered undesirable when seeking perfection. But most works of art have nothing to do with perfection, and many photographers and art critics alike have long treasured the imperfect images taken with toy cameras. Pictures taken with toy cameras are typically made with no special lighting, posing, or planning, which only adds to their casual snapshot-like charm.

B&H carries all the toy cameras discussed here, as well as every significant film camera still being made.

DIANA

The best example of a toy camera is the Diana. First produced in Hong Kong in the early 1960's, the plastic Diana cameras were sold as novelty items. The cheesy lens and unavoidable light leaks produce pictures that many consider an art form. Though discontinued many years ago, the new Lomographic Diana+ is a faithful reproduction of the classic Diana, with a removable lens and super-small aperture added. Two image formats allow for twelve 6 x 6 cm or sixteen 6 x 4.5 cm shots on 120 roll film. A panorama feature allows for nearly seamless panoramic shots; there is also a standard tripod thread as well as a shutter lock.



LOMO

Lomographic also reproduces the classic Russian 35mm LOMO LC-A Compact Automat camera. The Lomographic LC-A+ Compact Automat is an all-metal manual-focus camera with a 32mm f/2.8 Minitar lens. This reproduction camera takes the same beautifully imperfect photos as did the original LOMO, with radiant colors, extreme contrast, and occasional blurriness.

SEAGULL

An inexpensive introduction into the world of medium format photography is the Seagull GC-104. This non-metered twin-lens reflex camera resembles the time-honored Yashicamat. The GC-104 features a waist-level viewfinder with pop-up magnifier, manual film wind advance, and separate shutter speed and aperture levers. Like other medium format cameras, the Seagull can take either 12 6 x 6 cm or 16 6 x 4.5 cm frames per roll of 120 film. The mechanical shutter allows for flash synchronization at all speeds up to 1/300 second, and the cold flash shoe and PC terminal allow the connection of an external flash.



HOLGA

Another camera that offers unique results is the Holga 120N. The camera uses 120-size roll film and, like the LOMO, can take either 12 or 16 frames per roll. The camera features a hot shoe, a 1/100 second shutter speed, and two f-stops: f8 and f11. The Holga can be had for less than \$25. Other variations of the Holga include a model with built-in flash and spinning color filter wheel.



1925 The Leica I is released, becoming the world's first commercially successful 35mm camera and the top choice of professional photographers around the world.



1936 The Kine Exakta is the first 35mm SLR. Its shutter speeds range from 1/1000 to 12 seconds. A winding lever advances the film, cocks the shutter, and sets the mirror. The Kine Exakta is the first 35mm camera with built-in flash synchronization.

1937 The Minox Riga, manufactured in Riga, Latvia, uses 8 x 11mm film. The pocket-size camera is ideally suited for use in espionage, and is the choice of Soviet spy John A. Walker during the Cold War.

Leica Changes History

Small Format, Big Impact

The German optical company Leica Camera AG had been designing cameras since 1913, but the original Leica I of 1925 (Leica A in the U.S.) was the world's first commercially successful 35mm camera. It has had a tremendous impact on the design of all other 35mm cameras that followed.

Oskar Barnack, the designer of the Leica A, didn't like the heavy plate cameras that were popular at the time, thinking it would be better to reduce the size of the negative and just enlarge the prints later on. His

thinking led to the world's first successful small-format camera, the 1914 Ur-Leica. The Ur-Leica used standard 35mm movie film. At the time, 35mm movie film would capture images measuring 18 x 24mm. But Barnack decided to double the size of the image to 24 x 36mm, a size that offered much better image quality for still prints. The camera would accept a 36-exposure length of film.

Because of the intervention of WWI, the new small-format Leicas could not be sold to the public until 1925.

But photojournalism was forever changed in 1925 with the introduction of the Leica A. The camera offered many innovative features including a combination film-wind and shutter-cocking knob, automatic frame spacing, and automatic frame counter. The Leica A's fixed 4-element, 3-group 50mm f/3.5 objective lens was based on the Zeiss Tessar design, and the speed of its fo-

cal plane shutter ranged from 1/20 to 1/500 second. The camera's durable construction quality, high reliability, and high-quality lens made it the reporter's choice around the world and put Leica's reputation high up on a pedestal where it still stands today.

In 1930 the Leica C, or Leica Standard, was introduced with an interchangeable 39mm threaded-mount lens system. Introduced in 1932, the Leica II, or model D, included a built-in rangefinder and a separate viewfinder. The Leica III introduced shutter speeds as slow as 1 second, while the 1935 Leica IIIa added a 1/1000 second maximum shutter speed.

The Leica III was continually refined through 1957, but the first bayonet lens mount was featured on the 1954 Leica M3. This jewel of a camera has been continually refined right through the current versions: the present-day Leica M7 has an electronically-controlled shutter with aperture-priority automation, while the Leica MP is fully mechanical. In 2006, a digital successor to the M3 was released. The Leica M8 digital rangefinder accepts most Leica M-mount lenses, and its 10.3-megapixel CCD is matched to the small size of the lens for optimal image quality.



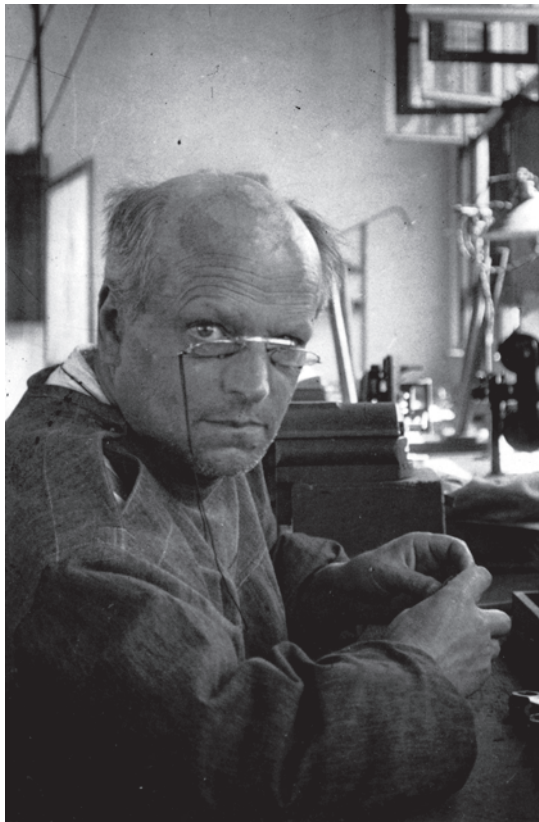
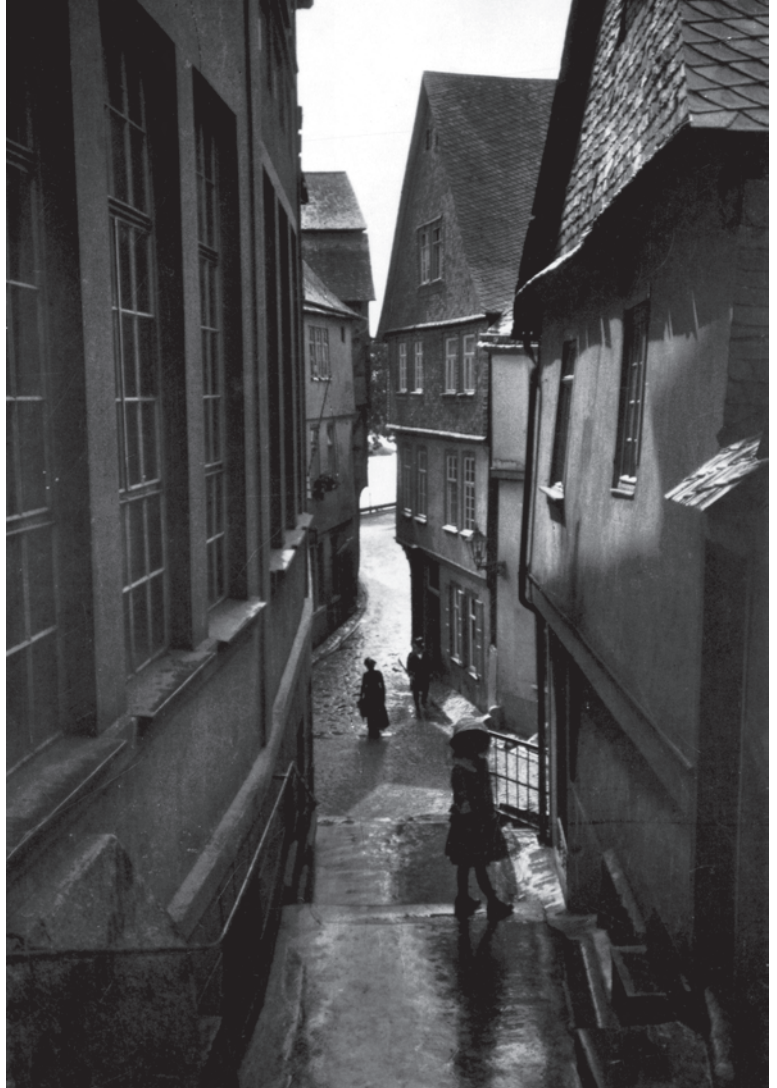
The Leitz Factory in Wetzlar

1948 The Polaroid Land Camera Model 95, named after its inventor, Edwin Land, uses a chemical process to produce black-and-white prints in less than a minute.

1957 The Swedish medium-format Hasselblad 500C's in-lens Compur allows flash sync at all and features sharp interchangeable lenses, viewfinder, film back.

1959 To the dismay of German manufacturer Leica and Zeiss, the Japanese Nikon F offers a system of interchangeable components such as bayonet-mount lenses, viewfinders, focusing screens, motor drives, and more.

BOTTOM LEFT ©POLAROID CORPORATION, COURTESY THE POLAROID COLLECTIONS



Photographs taken by Oskar Barnack, who invented the world's first small-format film camera, the Ur-Leica, which used 35mm movie film stock. Barnack's camera forever changed the course of photojournalism.

Clockwise, from left: Casper Michaeli; Eibsee; Eselstroppchen, 1914; Mrs. Barnack and her son Konrad.



PHOTOGRAPH BY OSKAR BARNACK, COURTESY OF LEICA CAMERA INC.

1985 The Minolta Maxxum 7000 is the first 35mm SLR to feature integrated autofocus (AF) and motorized film advance. Minolta places the AF sensors and focusing drive in the camera body so lenses can be smaller and cheaper.



1991 The world's first digital SLR, or DSLR, is made by joining a Nikon F3 body to a Kodak 1.3-megapixel back. The camera must be connected to a separate 200MB hard disk Digital Storage Unit, to store and view the captured images.



2008 Hasselblad's H3DII-50 SLR has a 36 x 48mm image sensor and 50-megapixel resolution. It shoots 3F RAW and TIFF formats.



IMAGING OFF THE GRID

Photojournalist **Beth Wald** gives us a peek into her streamlined camera bag and offers some advice for aspiring photographers

BY J.P. REGALADO



(Top) Rock climber silhouetted against large stalactites, Halong Bay, Vietnam. (Bottom) Kirghiz women, Wakhan Corridor, Afghanistan. Courtesy of Beth Wald Photography

BETH WALD HAS CANVASSED the globe as a photographer for *National Geographic* and *Smithsonian*. After six years of shooting adventure photography for commercial and editorial clients such as *Patagonia* and *Outside Magazine*, she inevitably shifted gears toward photojournalism. Wald explored the environment's impact upon culture, and reciprocally, how culture shapes its environment—from Argentina and Tanzania to Cuba and the Arctic. Inevitably, her true passion emerged: Wald documents indigenous cultures whose traditional ways of life are threatened by imminent modernity.

Yaks and Horses

In 2004 and 2005, Wald was invited to join conservation biologist George Schaller on a National Geographic expedition through Afghanistan's remote Wakhan Corridor. The expansive landscape, once teeming with wildlife, was riddled with the effects of environmental decay. Wildlife was scarce. For two months, the team trekked 500 miles on foot, yaks, and horses in search of the elusive Marco Polo sheep. We asked Wald to share her experiences and insights with us before her solo expedition back to the Wakhan in January 2008.

Unplugged but Powered

"You can't just carry everything you have," says Wald. Traveling by car, for example, enables her to expand her equipment kit versus traveling on foot with a backpack. "It's all a trade-off."

She recruits the expertise of other photojournalists by scouring web forums and blogs, and has found some unconventional technical advice. For example, she found a compact folding solar panel, powerful enough to charge a laptop battery.

After shooting more than 450 rolls of film on the first two National Geographic expeditions, Wald's lugging a completely digital kit for this trip. "I didn't see any of the film I shot until a month later. With digital photography, you already have some idea of what you're getting. That's a huge advantage." As digital work flows become more routine, Wald is optimistic about streamlining her field kit.

"On this trip, I'm bringing a digital voice recorder for sound." Wald notes that the ability to capture interviews with sound, in tandem with photography, "is another way to add value to a story."

Point of View

"You don't need to travel far. Shoot close to home if you need to so you can shoot more. Novices often wander a bit too aimlessly about the countryside and take generic pictures. Find out what really turns you on about photography. Research and be passionate about your subjects. Look at lots of pictures, how they're taken, and how they're put together. Best work is done when you are focused on a point of view or a specific subject."

To see more of Beth Wald's work visit www.bethwald.com

DATA BACKUP

7 memory cards from 2GB to 8GB. **Sandisk Extreme III CF cards.** "8GB cards are ideal when I'm trekking through thick snow, and in situations when it's hard to swap a card out." "The 160GB **Nexto Ultra ND**, and **Hyper Drive Colorspace** 160GB have really fast downloads and long-lasting batteries. I can download 80GB from CF or SD cards on one battery charge. Both have adapters and run on regular AA batteries, in case you don't have a solar charger."

OFF THE GRID

"The **Brunton Solaris 26 folding compact solar panel** is powerful enough to charge a laptop battery. I also use the solar panel to charge my satellite phone and batteries."

FLASHES

"I carry 2 **Nikon SB 800's with warming gel (81A)**, in tandem with with a **Nikon SC-24 TTL Remote Cord** so that I can take the flash off camera. Carry an extra battery pack just in case. I'll soon be upgrading to a **Nikon SB 900.**"

LENSES

"On the D300, I use the **17-35mm f2.8 Nikkor** and the **17-55mm f2.8 DX Nikkor**. For midrange telephotos, I use a **24-85mm** and **35-70mm f2.8**. The **Nikkor 70-200 f2.8 AFS VR lens** is a great super telephoto."

CAMERAS

"The **Nikon D3** is my workhorse. I carry a **Nikon D300**, and two **Nikon F100** bodies for backup. It takes five days of constant shooting to drain one D3 battery. I carry **four extra batteries for each camera.**"

ACCESSORIES

Cigarette lighter plug charger for D300 battery. "I can plug all cigarette lighter adapters into the solar panel. Web forums can give you ideas on how to rig your own chargers, but be careful—some generators produce a range of voltages, and can fry your laptop."

BAG

"I use the **Lowepro Pro Photo Trekker Backpack**. The removable inserts are great for organizing gear. Neoprene covers can pad bigger lenses and protect equipment against shocks and bumps."

AUDIO

Olympus WS311 digital voice recorder with **Technica ATR-55 mic.** "Capturing interviews and sounds is another way to add value to a story and give you a greater chance of publishing on the web."

Canon EOS 1Ds Mark III (body)



This Canon digital SLR features a 21.1-megapixel full-frame (36 x 24mm) CMOS image sensor, 14-bit-per-channel color, and dual DIGIC III image processors. A 45-point autofocus system lets users select the focusing point automatically or manually.



The camera offers a continuous shooting speed of five frames per second, and has an integrated cleaning system. The 1Ds

Mark III is compatible with all Canon EF lenses, EX Speedlite flashes, and a full line of accessories. It supports the latest UDMA CF memory cards.

#CAE1DS3 \$7,099.95

Canon EOS Rebel XSi Kit



This kit includes the Canon EOS Rebel XSi body and 18-55mm IS lens, ideal for the budget-minded. The camera features a 12.2-megapixel APS-C size (22.2 x 14.8mm) CMOS sensor with an integrated cleaning system, a DIGIC III image processor, 14-bit A/D conversion, 9-point wide area AF sensor, and sensitivity up to ISO 1600. The 3.0-inch LCD monitor includes a Live View function and the camera supports 3.5 fps continuous shooting, uses Canon EF & EF-S lenses, and SD and SDHC memory cards.



#CAEDRXSIK \$654.95

Canon EOS 50D (body)



A 15.1-megapixel sensor brings higher resolution, higher ISO performance, and lower noise to Canon's EOS 50D digital SLR. Its 3" VGA LCD screen offers 920K pixels displayed in real time. Using Canon's new DIGIC 4 processor, the 50D is among the fastest, shooting 6.3 frames per second. Other new features include Face Detection, 4 levels of high ISO noise reduction, AF microadjustment, and HDMI output for displaying images on an HDTV. The camera is compatible with more than 60 Canon EF/EF-S lenses.



#CAE50D \$1,299.95

Nikon D3 (body)



The Nikon D3 has an FX-format (36 x 23.9mm), full-frame CMOS sensor—the same size as a 35mm frame, eliminating any lens crop factor or focal-length multiplier. The EXPEED image processing system includes 14-bit A/D conversion and 16-bit image processing. The camera can shoot nine fps in the FX-format, and offers from ISO 100 to 25,600! The 3.0-inch LCD incorporates tempered glass. Other



features include a 51-point AF system and HDMI video output. Dual CompactFlash card slots allow for plenty of storage.

#NID3 \$4,199.95

Canon 70-200mm f/2.8L IS USM Lens



Canon's new zoom lens starts where standard 50mm lenses stop. Telephoto lenses tend to amplify shake, but sharp results are guaranteed with Canon's second-generation Image Stabilization (IS) technology, which responds in as little as 0.5 second. The IS function goes auto-off on a tripod, to conserve battery power. The lens is 7.7 inches long and weighs 3.2 pounds. It comes with front and rear caps, a lens hood, and soft case.

#CA7020028LIS Reg. \$1,699.00 \$1,639.00



Canon 24-70mm f/2.8L USM Lens



This 24-70mm f/2.8L USM lens brings versatility to your digital camera system. It covers the ultra-wide angle of 24mm, great for shooting interiors or environmental portraits, with two aspherical elements and a new Ultra-low Dispersion (UD) glass element that helps correct chromatic aberrations while keeping weight down. The lens is sealed and gasketed against dust and moisture, and a new processing unit allows for fast autofocus. The lens comes with front and rear caps, a lens hood, and a soft case.



#CA247028LEF Reg. \$1,190.00 \$1,140.00

Nikon D700 DSLR



Nikon's D700 is an affordable package that includes a 12.1 Megapixel, 23.9 x 36mm, full-frame, self-cleaning CMOS image sensor, 3" LCD monitor, 51-point AF system, 5 fps burst shooting, ISO 6400 sensitivity, and an HDMI video output. The streamlined design allows photographers to take pictures with greater comfort and less fatigue. With its magnesium-alloy housing, shutter rated to 150,000 cycles, rubber gaskets to protect vulnerable entry points from dust and moisture, and self-cleaning image sensor, the D700 is built to last.



#NID700 \$2,649.95

Nikon D300 (body)



Nikon's D300 D-SLR boasts a self-cleaning, 12.3 megapixel APS-C size (23.6 x 15.8mm) image sensor. Nikon's EXPEED image processor, 14-bit A/D conversion, and 16-bit image processing generate superior results. A 3.0" LCD monitor with Live View provides a crisp, clear image view, with continuous shooting up to 6 fps. A 51-point autofocus system features 3-D tracking with automatic focus point switching. The camera is housed in a lightweight magnesium alloy shell that's gasket-sealed and resistant to dust and water.



#NID300 \$1,513.95

Nikon D60 Kit



This kit includes the small D60 body, 18-55mm G AF-S VR DX and 55-200mm G AF-S VR DX AF lenses. The D60 features a 10.2-megapixel DX-format (23.6 x 15.8mm) image sensor, active dust reduction system, and Nikon's EXPEED image processing technology, with 3 fps continuous shooting for up to 100 consecutive JPEG images. Rotate the camera for the 2.5-inch color LCD to automatically switch to horizontal or vertical orientation. Other features include a built-in Speedlite flash with i-TTL automatic flash control and 3-area auto focus.



#NID601855200
Reg. \$849.95 \$839.95

Nikon 80-400mm f/4.5-5.6D ED



The light weight and extreme range of this zoom lens make it ideal for wildlife, landscape, and portrait photography. Its Vibration Reduction (VR) system minimizes blur—providing the equivalent of shooting at shutter speeds three stops faster, even in low light. The ED (Extra-low Dispersion) glass eliminates chromatic aberrations, providing high resolution and contrast throughout the entire zoom range. A built-in A/M switch enables instant switching from auto to manual focus.



#NI8040045AF Reg. \$1,429.95 \$1,379.00

Nikon 24-70mm f/2.8G ED



This is a fast-aperture, wide-angle zoom lens with ED glass and a quiet, built-in Silent Wave Motor that drives the autofocus. Designed for general photography, this G-type lens has no aperture ring, adding to its compactness. Optimized for sharpness on both Nikon FX and DX-format image sensors, it has two Extra-low Dispersion (ED) elements to control chromatic aberrations even at the widest aperture settings. A built-in A/M switch enables instant switching from AF to MF. Front and rear caps, lens hood, and case are included.



#NI247028GAFS \$1,499.95

Nikon Speedlite



The Nikon SB-900 Speedlite has an automated zoom head that covers the 17mm to 200mm lens range in just 1.2 seconds. Three light distribution patterns include Standard, Center-weighted, and Even. The SB-900 can work as a stand-alone flash, or slaved in a wireless group, and its integrated i-TTL system can control up to four groups of Speedlights. The flash head tilts down 7° and up 90°, and it rotates horizontally 180°, to the left and right. An AF-Assist Illuminator covers all 51 of the D300's AF points. The SB-900 accepts an assortment of light-modifying attachments.



#NISB900 Reg. \$429.95 \$409.95

Profoto Acute 2 Pack



EDU ADVANTAGE An economical way to build a flash system is to buy an all-inclusive kit, such as the Profoto Acute 2 ProValue Pack 1200 Kit. It includes an Acute 2 1200 w/s power pack, two Acute 2-D4 flash heads, zoom reflectors, and sync cord. The power pack offers action-stopping short flash duration and fast recycling times. The modular flash heads (with 5/8" stand adapters) feature a heavy-duty quartz flash tube and a UV-coated protection dome that surrounds both the flash tube and 250W modeling light for even, consistent illumination. The flash tube can handle up to 4800 w/s.

#PRA21200VPK..... Reg. \$3,099.95 **STUD**

Lensbabies 3G Special Effects Lens

EDU ADVANTAGE The Lensbaby 3G is an accessory lens that converts an SLR camera into a hybrid bellows/tilt-shift camera. The lens can be compressed, extended, and bent off-center in any direction to create unusual visual effects. It allows for selective focusing, blurring, glowing highlights, and prismatic color distortions—all without software manipulations. The lens can be locked into place once you find the "sweet spot." The aperture is changed by inserting different-sized magnetic aperture discs.

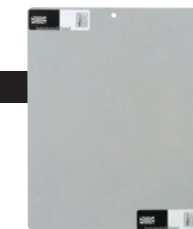
#LEL3GM*
Reg. \$269.95 **\$239.95**



Holga Medium Format Camera

EDU ADVANTAGE Considered a "toy" camera, the plastic Holga camera has developed a cult following since its 1982 inception. Its images exhibit blurring, over-saturated colors, improper exposures, and light leaks. The new Holga FN is a fun and inexpensive way to experiment with medium-format film. The camera accepts 120 roll film and can take either 12 or 16 exposures per roll. The camera features a fixed focus lens and built-in flash, with a 1/100-second shutter speed and a new range of f-stops: f8 and f11.

#HO120FN.....Reg. \$39.99 **\$33.99**



WhiBal G6 White Balance Card

EDU ADVANTAGE White balance must be adjusted so that colors reproduce properly. The WhiBal G6 RAW Reference Card is a standard for setting white balance in all RAW converters, as well as image editors such as Photoshop. The 11 x 8.5" reference card is light gray, and is certified to a specific luminance level. Hi-gloss stickers on the corners of the card provide true black and true white focus and sharpness targets, and a reference scale in inches and centimeters is helpful for macro, product, and scientific photography.

#WHWBCKReg. \$49.95 **\$44.95**

Seagate External Hard Drive

EDU ADVANTAGE Digital photographers need plenty of storage space to save their work. Back up your projects with Seagate's 1TB FreeAgent Pro triple interface external hard drive. It provides a full terabyte of storage space, and can be connected to just about any device with its eSATA, FireWire-400, and USB 2.0 interfaces. Files will transfer quickly with FreeAgent's rotation speed of 7200 rpm. The drive includes software that facilitates backups, data sharing, and remote access.



#SEUSFWHD1TB
Reg. \$228.95 **\$218.95**

Leica M7 Starter Set

EDU ADVANTAGE The M7 starter set is the perfect introduction for new Leica users. This kit includes the M7 35mm manual-focus, interchangeable-lens rangefinder body, with aperture-priority auto exposure and a rubberized cloth shutter with electronically-controlled speeds from 1/1000th to 32 seconds, and a 50mm f/2.0 Summicron lens. Two battery-free, all-mechanical shutter speeds, 1/60th & 1/125th second, are also offered. The 0.72x viewfinder displays frame lines, aperture, shutter speeds, film speed setting, exposure mode, and TTL flash readiness.

#LEM75020B
Reg. \$5,495.00 **\$4,121.25**



Canon PowerShot G10

The Canon PowerShot G10, a sophisticated little camera, is as affordable as its predecessors. It offers



14.7-megapixel capture, a true 5x zoom wide-angle lens (28-140mm equivalent), RAW format files

editable in Canon Digital Photo Pro, ISO up to 1600, all of it powered by the DIGIC 4 processor with face detection AF/AE and advanced noise reduction. A high-resolution 3-inch LCD screen orients vertically or horizontally when rotated. It also has a hot shoe and built-in flash.

#CAPSG10 \$462.95



Joby Gorillapod Flexible Mini Tripod



Conventional tripods are great on level ground, but can be useless in other settings. The Joby Gorillapod is a flexible mini-tripod for lightweight cameras. Its multi-segmented legs can be bent into shape to grip almost any protrusion, be it a branch, doorknob, rock, or uneven surface. Each of the joints can bend and rotate 360° to wrap around most objects. It can also be used in the traditional fashion. The Gorillapod has a maximum height of 5 inches, weighs only 1.6 ounces, and will support up to 12.5 ounces.

#JOG Reg. \$21.95 \$18.65

Sekonic L358 Flash Meter



Sekonic's compact flash and ambient meter provides freedom combined with high precision. It features flash/ambient analyzing in all flash modes, and an optional plug-in radio transmitter eliminates the need for cord connections while measuring flash up to 100 feet away. Additional features include all-weather design, nine memory banks, a retractable lumisphere, an attachment for reflected light metering, and a large cool-blue electro-luminescent backlit LCD.



#SEL358
Reg. \$259.00 \$210.00

Epson P6000

With the Epson P-6000 80GB multimedia storage viewer you can download, store, and display thousands of media files without a computer. You can back up images directly from a memory card, USB storage device, or camera, and transfers take no time at all with a fast USB 2.0 interface. Built-in card slots support CompactFlash and Secure Digital memory cards, and additional card types are supported using third-party adapters. A 4-inch LCD color monitor lets you review your images or videos instantly, or display them for your clients.

#EPP6000 \$599.95



Mamiya ZDb Digital Back Kit



This kit includes an autofocus lens and the ZDb digital back. The ZDb back houses a 22-megapixel, 6 x 4.5cm Dalsa CCD image sensor. It also houses CompactFlash (CF) and Secure Digital (SD) card slots and a 1.8-inch LCD preview screen. The 645AFD III SLR meets most needs of medium format photographers, and accepts interchangeable 120/220 film magazines and Polaroid backs as well as the ZDb digital back. All images are captured by Mamiya AF lenses. The camera can be PC-controlled when tethered via FireWire.

#MAZD22K Reg. \$9,999.00 \$8,900.00

Bogen Tripod/Ball-head combo



The Bogen/Manfrotto 055XPROB Pro Tripod and 486RC2 Compact Ball Head in tandem allow the center column to flip from vertical to horizontal. By extending the column to its zenith, it can swing horizontally without removing the head or disassembling the column. The ball head features a strong die-cast aluminum housing and a tough, phenolic resin ball that supports up to 13.2 lb (6 kg). A single pan/tilt control can be locked in any position.



#BO055XPB486R
\$206.83

3M SUPER CLOSE PROJECTION SCP712

Modular Solutions

Designed with a modular “build-what-you-need” concept, you can receive the benefit of Vikuiti™ Super Close Projection Technology by 3M with the 3M SCP712’s basic VGA and USB connections, all the way up to a full connectivity system that can turn even a standard dry erase board into an interactive whiteboard system.

The 3M SCP712 system is designed to be simple and cost effective with the flexibility to buy a projection system and additional modules that offer you the functionality you need to best fit your environment and your AV budget.



A complete solution: the 3M™ Super Close Projection System SCP712 on the 3M™ Folding Wall Mount with speakers. Two additional mounting options available.

XGA Projector with 3M™ Vikuiti™ Super Close Projection delivers large images close to the screen and virtually eliminates distracting shadows while annotating.

I/O Module: add full connectivity with the multiple inputs/outputs of the I/O Module.



Annotation: add the 3M™ Digital Annotation Sensor to an existing whiteboard to create an interactive whiteboard solution.

FEATURES

XGA (1024 x 768) native resolution

2000 lumens (maximum rating)

Wall mounting creates more space in the classroom. Simply hangs on the wall and can eliminate the need for costly and time consuming renovations

Virtually eliminates shadows for easier interaction with the projected image

Brilliant™ Color Technology



GRAPHICS



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HIGH STYLUS

For digital artists who require fine motor control, a **Graphics Tablet and Stylus** open up a world of style previously impossible with a clunky mouse.

BY COLIN SMITH
AND MARC SPIWAK

SCULPTORS HAVE THEIR hammers and chisels, painters have their brushes, and photographers have their cameras. Digital artists use computers in place of many traditional media, so it makes sense that they, too, would have their own special tools. The most versatile tool used by digital artists is the graphics tablet. A tablet is typically shaped like a mouse pad, and is drawn or written on using a special pen, called a stylus. Whereas a mouse is an active device that senses motion when dragged across an inactive surface, a tablet is like an active mouse pad that senses the movement of the pen across its surface.

Tablets provide a

greater natural feel for drawing than a mouse can. That, combined with certain characteristics of a tablet, such as the pointer jumping right to the spot you touch with the pen, make a digital artist's work a lot easier, more productive, and more accurate, all with much less hand fatigue. The more you use a tablet, the more proficient you become with it and you can evolve into a better artist, over time. A tablet lets artists work to the limit of their abilities, rather than their abilities being limited by the hardware.

Most pens are cordless, don't need batteries, and tend to be well-balanced. Like a touch pad on a notebook computer, you tap to click and double-tap to double-click when using a pen and tablet. Most pens also have an "eraser" on top which lets you "wipe away" mistakes completely without rubbing through the paper, as in the old analog days. Tablets work quite well with all operating systems and all popular graphic arts software such as Photoshop, Painter, Illustrator, Flash, and other animation programs.

Many people prefer tablets to mice even with programs such as Word and Excel. Most tablets have programmable shortcut keys placed around the edges that let you launch specific programs,



change modes, and so on, all with a single tap. Most tablets also have a touch-sensitive strip for quick scrolling and zooming. Tablets work with the handwriting recognition, inking, and pen features in Windows Vista and Apple operating systems, allowing you to write as you would on paper, but simultaneously entering it into the computer as text. Tablets also let users sign perfect signatures on electronic documents. But, as convenient as tablets may be for everyday computing tasks, they are perfect for photographic retouching or painting on a computer.

Handling Pressure

A mouse will draw the same line every time you drag it, but the better tablets are pressure-sensitive. This means you can control various drawing elements using pressure, just as though you were using a real pencil or paint brush. A good tablet will support at least 1,024 levels of pressure, and the sensitivity can usually be adjusted using the Tablets option in the control panel. Pressure sensitivity lets you make strokes thicker, finer, darker, or lighter depending on the amount of pressure you apply to the pen against the tablet. The pressure affects tools such as brushes, erasers, dodge-and-burn tools, blurring, healing, and so forth. A light touch will let you build up paint gradually to create natural-looking brush strokes and shading.

Some tablets and pens support tilting, where the angle at which you hold the pen controls its tip shape. Tilting lets you create natural-looking calligraphic and chisel effects. Some pens such as Wacom's 6D Art Pen also support rotation, which lets you spin the pen in your fingers to mimic rotating an actual brush, for a natural look. Other pens are designed to work like airbrushes, with a wheel near the tip to control the virtual airflow.

Tablets come in different sizes and sensitivities and with different features, depending on the intended application. Tablets are rated by lines

per inch, or lpi, which determines how far the cursor will move as you move the pen. The greater the lpi, the more precise movements you can make. Some low-end wireless tablets are intended to aid in doing presentations. They allow the presenter to move around the room while controlling a nearby computer. The presenter can mark up documents in Word or annotate presentations in PowerPoint. Presentation tablets are usually not pressure-sensitive, are small in size, around 4 x 6", and sport resolutions of only 500 or 1,000 lpi.

Graphics tablets are typically pressure-sensitive and larger in size, up to 12 x 19", giving you more room to draw. Resolution is much higher too, with up to 5,080 lpi. These let you draw, paint, retouch photos, and write freehand graphics and text as comfortably as you would on paper. Many tablets have a clear plastic overlay sheet underneath which you can place a photo or drawing to trace easily. The plastic overlay has a much smoother surface than paper, and drawing on it with a stylus doesn't feel like pen on paper. For that reason some artists will use a piece of real paper taped to the top of the overlay, to give them a more natural feel.

Right On (the Screen)!

Wacom is by far the most popular tablet maker, with other vendors such as Adesso, Hitachi, Numonics, and VisTablet also in the mix. At the very high end, there is Wacom's Cintiq, which is a flat-panel LCD monitor that lets you draw right on the screen. This eliminates the hand/eye coordination issues to which many traditional artists object. The Cintiq is not cheap, but it's the closest thing to working with actual paper or canvas.

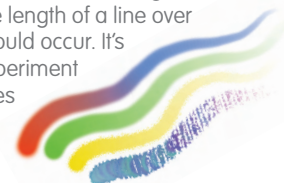
The main thing to keep in mind is that tablets are customizable, offering great flexibility in the manner in which you can work. Any graphic artist that has not yet used a tablet owes it to themselves to give one a try.



Wacom
Cintiq 21UX

Fade

This Photoshop tool works with a mouse or a tablet. Selecting Fade from the menu will subsequently reduce the size of the brush for the length of the line dragged out. If you enter a numerical value in the option box to the right, you can specify the length of a line over which the fade should occur. It's a good idea to experiment with different values to determine how far you can drag out a line.

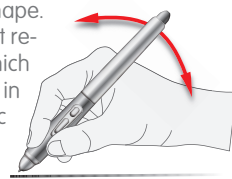


Pen Pressure

You can control multiple graphic elements by varying the amount of pressure you put on your stylus. Pressure sensitivity allows you to make strokes thicker, finer, darker, lighter, similar to using an ink pen, pencil, charcoal, or a paint brush. A light touch will even help you build up layers of color gradually, so you can create natural-looking shading and brush strokes.

Angle

Some tablets support tilting, or the angle at which you hold the stylus. To help you create calligraphic and chisel effects, the angle at which you hold the pen defines its tip shape. There are tablets that respond to rotation, which lets you spin the pen in your fingers to mimic the rotation of a real paint brush.





STACK YOUR DECK

For animation, video, and photography, a high-end **Graphics Card** can be your ace in the hole and can turn every project into a winning hand.

BY MARIO MOREJON

HOW CRITICAL IS THE graphics card in your PC? It can mean the difference between finishing school projects with cutting-edge animation, photography, and video software or falling behind while waiting for the graphics cards to render and display images correctly. The best graphics cards can render files in real time; the most expensive ones naturally offer the fastest processing times.

A 3-D rendering process produces realistic images of everyday objects by combining 3-D models with skins, surfaces, motion, and lighting effects. Finishing a simple one-minute animation film on a desktop computer can consume several hours. The more details there are, the longer it takes.

The rendering process is impractical when using low-end computers and graphics cards. Graphics processors in motherboards also don't perform as well as external graphics cards. Imagine creating a five-minute film with Autodesk 3-Ds Max, that takes the rendering process several days to complete. Every time a change is made, the process starts again. Having raw graphics processing power makes a huge difference. In addition, most animation software makers have created shortcuts to help animators view pieces of renderings before embarking on a complete rendering job.

Performing in Parallel

A graphics card is crucial in the rendering process because most of the work is performed by the graphics processing unit (GPU), which is the equivalent to the processor in a computer. A GPU has special programs that compute coordinates, colors, textures, and rotation of objects. Some high-end video cards use streaming processing programs that perform these calculations in parallel.

Recently, graphics card maker NVIDIA released a tool kit called Compute Unified Device Architecture (CUDA) that extends the programs

of its mid-market graphics cards, so that programmers can take advantage of the streaming processing algorithms. This is the first time NVIDIA has provided access to its internal high-end GPU programs. Students interested in graphics software development can learn about the internals of graphics cards by studying the CUDA programs and the open source graphics project (wiki.opengraphics.org) on the Web.

Designing and programming video games requires fast graphics cards. When playing 3-D PC games, players can see more realistic details if the graphics cards in their computers are fast enough to render them. Today, colleges and universities teach games programming using two of the most popular application programming interface software bundles—Microsoft's DirectX and the open source OpenGL. Both DirectX and OpenGL come with numerous programming functions to draw shapes, fill objects with textures and compose complex lighting scenes. Ultimately, having a fast graphics card shortens rendering processes in games—it's that simple!

Graphics cards also are important when working with digital still photos. Creating accurate images with Adobe PhotoShop requires that every pixel displayed by a PC monitor and rendered by a graphics card gets a precise color. To achieve that realism, graphic cards companies like ATI, NVIDIA, and Matrox include software bundles with their graphics cards that can optimize the color levels of monitors for extremely accurate rendering.

Video-capture features on some graphics cards are used by videographers to upload videos to PC's. AJA and Pinnacle offer special graphics cards that can capture video record-



The more detail you add, the more information your GPU must process. Use a fast graphics card to avoid long rendering times.

ings from HD camcorders and convert the videos into high-quality digital files. These vendors also bundle video-editing and DVD-burning software with their graphics cards.

Rule of Thumb

Selecting a graphics card based on the best graphics performance is sometimes a complex job. Benchmark programs measure speed and accuracy based on end-user bias. In addition to rendering speeds, these programs measure light scattering over natural surfaces, degrees of soft shadows from multiple light sources, and highly-detailed geometry. However, the scoring is often based on personal opinions from industry reviewers. Therefore, don't take these scores too seriously.

A good rule of thumb is to make an informed purchase by combining the results of your own research and your desired price point. As always, the professionals at B&H are here to offer their knowledge and experience, hopefully making your search for the right item a quick and easy function.

WEB AND FLOW

It doesn't matter if you're a photographer, a video editor, a special effects artist, or a music producer. If you want to go pro, you'll need a presence on the Web. You could hire a design firm, but you're on a budget, so you'll build it yourself. But before you jump into the project, you should know what you're getting into. Web design can be a byzantine process and you'll need to learn the basics before you leap. If you do, building your site will be a breeze.

BY DUSTIN DRIVER

1 Learn Some Code
The Internet is a sea of code, a maelstrom of acronyms that can perplex most beginners—HTML, XHTML, CSS, XML, SQL, APX, JavaScript. If you want to build a web site, you'll need to learn how to navigate it. Luckily, web code is relatively easy to understand when compared to the programming languages that underpin operating systems and applications. HTML—Hyper Text Markup Language—is still the *de facto* dialect of the Web. Learn as much of it as possible. You may never hand-code a page, but full HTML immersion will put you in the right space to begin building a site.

There are many fantastic online HTML tutorials. Log on and learn the

basics—HTML file structure, how to build a simple page and construct tables. Then move on to CSS, or Cascading Style Sheets. You can think of CSS as HTML's obsessive cousin. It'll allow you to nit-pick the look and feel of your site and use precision layout techniques. Once you know something about these two languages, grab a good site-building application like Adobe Dreamweaver or Apple iWeb. Armed with an understanding of the Web's primary layout languages, you'll be able to build custom sites faster and with fewer hang-ups.

You may want to start with a basic template (most web-building applications include a few) and modify it to meet your needs. It's a great way to learn and you'll have a functional

site for your trouble. But remember, nothing on the Internet is set in stone and you can always build a site from scratch, if need be.

2 Learn Clean Design
Flashy sites are passé. Today's successful sites are sleek, fast, and clean. They don't baffle visitors with overly-clever navigation schemes or mysterious layouts. Visit your favorite sites. They'll be easy to navigate and understand.

Remember: Content is king. You wouldn't wrap the Mona Lisa in a neon frame, so don't obscure your art with flashing GIF's, raucous theme music or anything that might give your audience seizures. Let your work speak for itself; create a design that complements your content. If you're building a photo site, think of it as a high-class gallery. Imagine your visitors wandering its halls, appraising your photographs. They probably wouldn't appreciate being assaulted with heavy metal and multicolored strobes. Keep it simple.

3 Get a Domain
Make your domain clear. Don't stoop to vanity-plate nomenclature or convoluted addresses. If you're independent, consider using your own name. It probably won't be taken by domain name speculators. Cruise the domain registration sites to find the best deals, but beware of fly-by-night registrars. Network Solutions is

the old standby, but plenty of other companies have gotten into the game and they're just as reliable and easy to work with.

Register your domain for a few years. You'll often get a better deal for purchasing a large block of time and you'll keep speculators from snatching it up. Be sure to enable every privacy feature you can when you register, otherwise anybody will have access to your name, e-mail address and physical address through the Whois database.

4 Find a Host

You can do all your testing and tweaking within your own machine, but when you're ready to show your site to the world, you'll need a host. Basic hosting plans can be had for a few dollars a month, but there will be plenty of options: LINUX versus Windows servers, storage space, bandwidth, SQL database support, multiple e-mail accounts. The list is imposing. First, make sure the plan you choose has enough storage. A photo portfolio will require multiple megabytes, but a video showcase

could demand gigabytes. And don't forget about data transfer. Hosting providers will have caps on how much data they'll serve up to your audience. Go over the cap and you could pay hefty fees or your site could be frozen.

All but the most basic hosting accounts will likely have enough storage space and bandwidth to stream your data. They should also come with one or more e-mail accounts.

5 Master the Search Engines

Once you build your site, you'll want people to find it. To make your site stand out, master the arcane algorithms of search engines. Thankfully, the biggest search engine out there, Google, makes it easy. Google Webmaster Tools gives step-by-step instructions on how to optimize your site for its crawlers—programs that surf sites and catalog keywords. The key to getting the most out of Google: Get popular sites to link to yours. It's the one sure-fire way to ensure Internet popularity. Without those links, your site could languish in obscurity.

Flashy, or Flash in the Pan?

Adobe Flash opens up another world of web design—custom animations, navigation schemes, audio, and even games. With a few hours of training, even a novice web designer can learn the basics of Flash. It's tempting, but there are a few things a budding web designer should know: The big search engines can't accurately catalog Flash sites, which could considerably cut down your audience. Poorly-crafted Flash can

bring even the most powerful PC to its knees and make old machines apoplectic. Complex or overly clever navigation schemes can baffle some users. Still, a well-crafted Flash site can impress and dazzle and Flash can be a great addition to your site.



Surf into a Splashy Web Site

Itching to ride the design curl yourself? There's a new wave of software that won't throw you off balance.

For Beginners

You just want to get something up on the Web with as little fuss as possible. Reach for a beginner site-building application



like **Apple iWeb** (pictured) or an online building tool like **Weebly** (weebly.com).

You'll be able to customize a template to meet your needs in a WYSIWYG environment without diving into the code. It's simple and straightforward, and a great way to get started.

For Advanced Designers

As your web design skills improve, you'll need an application with precision layout tools and advanced code-editing features.



Adobe Dreamweaver is the *de facto* standard for web design professionals. The application has sophisticated tools to

manage web site files, create custom layouts, and update your site's content. It also includes an extensive and searchable code library to help you hone your hand-coding skills. **Microsoft Expression Web** has similar features, and its companion applications help manage graphics and media. If you want to ditch WYSIWYG altogether, go with a pure code editor like **Bare Bones Software's BBEdit** or the **CoffeeCup** html editor.

Adobe InDesign CS4

EDU ADVANTAGE InDesign CS4 shatters the barriers between online and offline publishing. Enhanced features streamline print workflow—Simplify file management with the Customizable Links panel, or deliver multiple iterations of a document with Smart Text Reflow. Powerful cross-referencing tools dynamically update content. Transform traditional print layouts into interactive masterpieces. Create interactive PDF's and dynamic SWF documents directly in InDesign. Live Preflight prevent production problems before they happen.



#ADIDCS4M/W Reg. \$698.95 **\$649.95**

Adobe Illustrator CS4

EDU ADVANTAGE Scared of Bezier curves? Fear not. Illustrator CS4's updated tool sets make this essential vector-based software less daunting. Create intuitive vector drawings naturally with the new Blob Brush tool. Create over 100 artboards in a single document and explore multiple iterations of a design. New interactive gradients provide real-time visual feedback. On-Object Controls increase efficiency so you stay in your creative groove. Integrate and deliver print, interactive, and motion projects in one fell swoop with Adobe Illustrator CS4.



#ADICS4M/W..... Reg. \$598.95 **\$549.95**

Adobe Photoshop CS4

EDU ADVANTAGE The unrivaled image editing power of Photoshop CS4 sets the industry standard for photographers, graphic designers, and web designers. Navigate through the interface smoothly with fluid canvas rotation; Break through the 3D envelope with revolutionary 3D painting and compositing tools. Create layers from "flat" still images, such as digital camera photos and scans. A new Masks panel allows you to tweak pixel- and vector-based masks. Improved RAW image processing rounds out this comprehensive package.



#ADPSCS4W/M..... **\$698.95**

Canon Pixma Pro 9000 Tabloid Inkjet

EDU ADVANTAGE The PIXMA Pro9000 uses long-lasting, dye-based inks and produces brilliant, gallery-quality prints up to 13 x 19 inches on a variety of media and fine art papers. It uses Canon's high-performance, high-density 6,144 nozzle FINE print head to deposit precise and constant 2-picoliter ink droplets, delivering approximately 11-million droplets per square inch. The ChromaLife100 ink system combines the benefits of dye-based ink, Canon photo paper, and FINE print head technology to produce long-lasting, beautiful prints.



#CAPP9000..... **\$449.95**

CalDigit External Hard Drive Array

EDU ADVANTAGE The 4TB HDPro External Hard Drive Array is designed for use in video production environments. The array supports up to 20Gb/ps bandwidth, and has achieved writing speeds of over 300 MB/sec in AJA KONA benchmark tests. The HDPro has enough bandwidth to support multi-stream SD video playback, as well as 10-bit footage, 1080/60i HD video, and 2K film work flows. Its modular design, load-balancing power management, and RAID administration utility make it an ideal choice for professional production environments.

#CAHDPROD4
Reg. \$5,659.95
\$4,999.95



LaCie 500GB Disk

Anyone of college age these days is bound to have accumulated a large collection of digital images, music, video, documents, as well as graphics files and class papers. And nobody wants to lose these precious files. LaCie's 500GB Gigabit Ethernet Disk mini Home Edition is a high-capacity drive with a Gigabit Ethernet interface, which allows for fast and easy storage and backups over a network. You can even access data remotely via LaCie's HomeLacie web portal. A USB 2.0 port lets you connect other external storage devices for further expansion and versatility.



#LAGED500Q **\$99.95**

Adobe Photoshop Lightroom 2.0



The software's powerful interface manages large numbers of photo-

graphs, as well as non-destructive RAW editing, a printing module, and easy output to the web. Lightroom is



compatible with both Windows and Mac OS X, and is fully compatible with 64-bit operating systems. New

features include the ability to dodge, burn, and make other local adjustments as well as provide multiple monitor support. An upgrade version for Mac or PC is available for \$99.

#ADPSL2 Reg. \$299.00 **\$279.00**



LaCie 250GB Hard Drive

This drive is built to take your data on the road, off-road, and everywhere in between, including the school library. It features a durable, bright-orange rubberized bumper and scratch-proof exterior, protecting your drive—and all your precious files, photos, video footage, and MP3's—from the bumps, impacts, and accidents that can occur during normal transport. The drive connects to your computer via USB 2.0. A full 250GB of capacity allows for storage of approximately 18.75 hours of uncompressed DV digital video, the equivalent of 53 4.7GB DVD video discs, or up to 62,500 MP3 files. Powered through a USB port, this drive is truly portable.

#LARUD250 **\$99.95**

Dye Sublimation Photo Printer

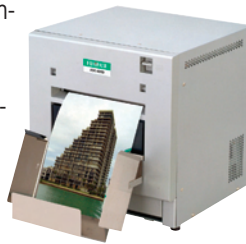


The Fujifilm ASK-4000 Digital Printer allows stu-

dio, wedding, and event photographers to provide customers with onsite printing capability quickly and easily. By simply connecting

the printer to a laptop via a high-speed USB 2.0 interface, profes-

sional photographers can use the ASK-4000 dye-sublimation thermal transfer technology to produce beautiful, natural-looking prints in as little as 40 seconds for 8 x 10" prints. The ASK-4000 gives you lab-quality prints without the wait.



#FUASK4000 ... Reg. \$2,499.95 **\$2,449.00**

Epson Stylus Pro 9880 44" Printer



Capable of handling any media type in roll or cut-sheet, up to

44-inches wide, the Epson Stylus Pro 9880 incorporates a front-loading, straight-through path capable of handling fine art paper and heavy-weight media up to 1.5mm thick.

A true evolution over past-generation photographic printing technology, Epson's latest professional wide-format printers comprise forward-thinking designs with a newly enhanced 8-color ink technology, resulting in a final print of uncompromised quality.



#EPSP9880K3 .Reg. \$4,693.50 **\$4,599.00**

Epson Stylus Pro 4880 Inkjet Printer



This 17" wide-format printer uses UltraChrome K3 ink technology (with three levels of black ink for maximum tonality) to produce archival prints with amazing color accuracy, gloss level, scratch resistance and stability, with virtually no metamerism or bronzing. The printer incorporates four ways to load media, is capable of handling media up to 1.5 mm thick, and even has a second, top-loading, single-sheet feeder optimized for fine art paper.

#EPSP4880K3 .Reg. \$1,769.95 **\$1,739.95**



Samsung Color Laser Printer

The CLP-300 Color Laser Printer is the smallest and lightest letter-size, general-purpose, color laser printer in its class. It features the same exclusive NO NOISE print engine that is found in Samsung's professional series of color laser printers, for quiet operation and simple toner changes. The printer delivers beautiful color at 4ppm and sharp laser text at 17ppm, along with the reliability Samsung is known for. Getting this printer up and running is as simple as about four mouse clicks. Who says color laser printing can't be affordable?



#SACL300 Reg. \$299.95 **\$224.95**



Xrite ColorMunki Color Management



This color-management solution provides display, projector, and RGB/CMYK printer profiling in an easy-to-use, all-in-one integrated package. It features a streamlined interface. Match colors easily, quickly, and affordably from display to print. The ColorMunki Photo software is particularly accurate when profiling for flesh tones, and provides excellent gray balance. Plus, you can send images to clients which will be viewed in a calibrated environment with the DigitalPouch communication tool.

#XRCMP Reg. \$449.95 **\$374.00**

Capture One PRO Work-Flow Software



Capture One PRO is RAW work-flow software designed for the professional photographer to load RAW files from the most commonly-used DSLR cameras, or to shoot tethered to the computer. The intuitive work flow guides you through image capture, editing, and enhancement in a few simple steps and converts your RAW files into TIFF-RGB, TIFF-CMYK, or JPEG images on the fly. It is renowned for producing exceptional image quality with fine details, accurate colors, and virtually no noise, and offers unlimited batch processing.



#PHC1P Reg. \$399.95 **\$379.95**



Sony Notebook with Blu-ray Burner

A perfect blend of mobility, style, and performance, this notebook PC will become the center of your digital entertainment universe. The system is powered by a 2.5GHz Intel Core 2 Duo Processor T9300 CPU and boasts 4GB of RAM, 400GB 5400rpm SATA hard drive, a Blu-ray Burner (write up to 50GB of data on one disc), Bluetooth, wireless Ethernet, and a 17" widescreen display powered by nVIDIA GeForce 8600M GT graphics. Windows Vista Ultimate is the platform that ties all this hardware and software together.

#SOVGNAR790UB..... **\$3,169.95**

Wacom Bamboo Tablet



The streamlined 7.9 x 7.4 x 0.3" Wacom Bamboo Tablet features four programmable ExpressKeys to customize commonly-used commands, such as Undo or Copy. A finger-sensitive Touch Ring has been added for quick zooming and scrolling. The textured work surface (5.8 x 3.7") provides an intuitive pen-on-paper feel, while the ergonomically-designed pen allows users to experience unlimited levels of pressure sensitivity, to create fine lines to bold brush marks. Bamboo works in both Mac and PC environments.

#WABTSB
Reg. \$69.95 **\$59.95**



GeForce 8800 Graphics Card for Mac Pro

The nVIDIA GeForce 8800 GT Graphics Upgrade Kit is a PCI Express video card that is compatible with Mac Pro systems that feature a PCI Express 2.0 interface. The card can be added to your Mac Pro to allow you to run multiple displays. The card features powerful unified architecture that delivers an incredibly true-to-life gaming experience so you can play at record speeds.

#APNGF8800UK ... Reg. \$278.95 **\$249.95**



Eizo ColorEdge 19" Monitor

Built with video professionals and graphic designers in mind, the ColorEdge monitor features a high 450:1 contrast ratio, a wide 170°/170° viewing angle, and a 20 ms response time. It is designed for use in environments where accurate color is essential, and features a factory-calibrated gamma, brightness stabilization, and ColorNavigator calibration software. The monitor is a flat panel, which saves desk space. That, along with power-saving circuitry, makes it a great choice for video editors and graphic designers alike.



#EICG19BK..... Reg. \$1,450.95 **\$1,259.95**



MacBook Pro Keyboard Cover

The Keyboard Cover for MacBook Pro and Aluminum Powerbook Keyboard with Photoshop Keycaps is a protective cover designed for use with Photoshop. The flexible silicone keyboard protector serves to protect your keyboard from spills, dirt, and crumbs. It features a black scheme with color and icon-coded printed keycaps that show common keyboard shortcuts for Photoshop. It is an excellent choice for protecting your computer while at the same time increasing application efficiency.

#KBPSBPC Reg. \$29.95 **\$19.95**

Hasselblad Drum Scanner



Having a device that can reproduce every subtle detail embedded in your negatives and transparencies while offering full control over the crucial interpretation of your work is what makes a Hasselblad scanner worth it. The Flextight X5 has two



auto-feed options; the Batch Feeder for mixed originals (up to 60 frames) and the Slide Feeder for scanning up to 50 mounted slides. These features, together with the 3F work flow, can produce a throughput that will satisfy all your scanning requirements.

#HASF5 Reg. \$19,995.95 **\$16,596.00**



HP Scanjet G4050 Photo Scanner



Superior accuracy, high-definition scans with 4800 x 9600 dpi, and speedy previews (as fast as 8.5 seconds) are benchmarks of the Scanjet G4050. Scan 16 slides or 30 negatives at a time, and automatically get rid of red eye in photos. The included software makes it easy to scan documents and create editable text from scanned documents and magazines. Restore old photos or convert 35mm slides or negatives to digital images. The G4050 is ready to deliver!

#HESJG4050 **\$184.95**



Pentax DSmobile Scanner



The DSmobile 600 provides exceptional 600 x 600 dpi scanning quality and easy management of documents and photos. The included software enhances and simplifies all scanning needs. This advanced technology sheet-feed scanner features a unique USB power/data interface, which avoids the need for a battery or an external power adapter. The scanner provides everything needed to scan a range of formats from business-card size to legal-size documents, anywhere and anytime.

#PEDSM600 Reg. \$129.95 **\$122.95**

Sanyo Multimedia Projector



The Sanyo PDG-DSU20N SVGA DLP Multimedia Projector is perfect for both education and business presentations, as well as big-screen entertainment. With a brightness level of 2000 ANSI lumens and a contrast ratio of 2000:1, the projector can be used even in well-lit rooms. It has a native SVGA resolution of 800 x 600 pixels. The manual-focus, manual-zoom lens allows for projection up to 100 inches measured diagonally. Easily portable, the 5.5-pound unit measures only 10.7 inches wide by 3.7 inches high by 8.8 inches deep.

#SAPDGDSU20N .. Reg. \$399.95 **\$389.95**



Data Robotics 1TB Drobo 4-Bay Robotic Storage

The Drobo features the convenience and data protection capabilities of a RAID, without the hassles sometimes associated with RAID storage. This B&H kit includes two 500GB drives for a total 1TB of storage capacity. The enclosure supports up to four standard 3.5" SATA hard drives. The 500 GB internal hard drives from Western Digital have sustained transfer rates of up to 70MB/sec, a large 16MB data buffer, and a rotation speed of 7200 rpm. Your computer reads the Drobo as a single hard drive for ultimate ease.



#DR4RSAU2K2 **\$499.95**



HD camcorders that take you wherever you want to go.

Whatever your vision, whatever your genre, whatever your shooting style, be the complete professional with Sony's handheld HVR-Z7U and shoulder-mount HVR-S270U camcorders. Broaden your field of view with interchangeable lenses, including the supplied Carl Zeiss 12x zoom. Roll cassettes or CompactFlash™ memory—or both. Capture news, sports and reality at 1080/60i. Or shoot music video and indie film at 1080/24P native. And be ready for anything with DV, DVCAM™ or HDV™ recording. If you've got the ambition, Sony has the camcorders. High Definition. It's in our DNA.

🔗 [click: sony.com/HDV](http://sony.com/HDV)



HVR-Z7U and HVR-S270U HD camcorders

VIDEO

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LOW BUDGET, HIGH QUALITY

It's a brave new 24/7 multimedia world out there, with virtually limitless avenues for expression and growth. Whether you go viral, web-isode, music video, podcast, guerilla, doc, indie or feature, your knowledge and résumé will be enhanced with every project you undertake. Yet, with a student cineaste's life being what it is, perhaps the cash flow hasn't quite kicked in yet . . . so, is it possible to get a Christopher Nolan look on a gonzo

budget? These days, having short bread doesn't mean coming up short on quality. Great video production packages are available to fit every bank account. BY JOE GALLANT

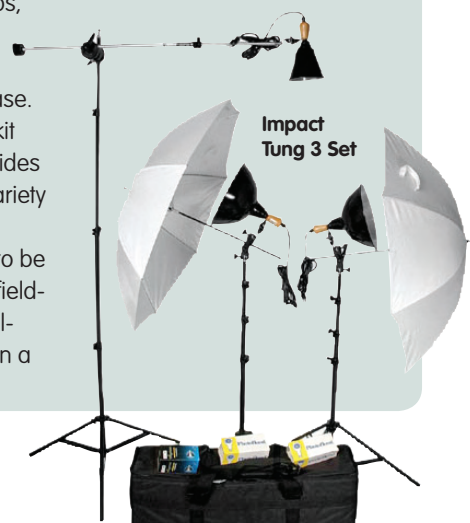


THE BASIC LIGHTING KIT

Let's say you now have your camera of choice, your cast, and your director's beret. You call out, "... , camera, ACTION!" But what about the "lights?" Look no further than a cool little **1250-watt lighting package by Impact**. It contains one 250w and two 500w lamps, tripod stands, reflectors, cords, and umbrellas, in a smart, small-footprint case. This is a great entry-level kit for quick setups, and provides plenty of coverage for a variety of situations.

On-camera lights tend to be more useful for close-up, field-interview or ambient small-set coverage. They come in a

variety of styles, some using LED's and AA batteries (such as the Litepanel Micro), some using tungsten lamps and battery packs (Bescor, for example). Assess your needs and budget—there are plenty to choose from.



CAMERAS

You'll need a main cam, a b-roll cam (if budget permits), lighting, additional lenses and mics, and editing software, to ensure excellent results.

One important initial consideration is: HD or SD? The future is leaning toward hi-def, yet there are two excellent SD cams that are popular worldwide. **Panasonic's DVX100b** is the upgrade of the DVX100, the cam that started the 24fps camcorder revolution. Delivering a rich, cinematic image in SD with a large array of adjustable parameters, the 100b is a true videographer's tool.

Another popular SD cam is **Sony's PD170**, a favorite with news groups and documentary makers. This cam is a workhorse—it's used all over the world in difficult environments, is excellent in low light (rated at 1 Lux), and produces a consistently razor-sharp image.

The new HD question: tape-based or card-based image capture? Both formats have a loyal fan base and both have advantages. Mini DV tape has a great track record, is inexpensive, and easy to archive. Cards record in true HD, they download much more quickly, and are immune to dropouts.

Among the tape-based cameras, the **Canon HV30** occupies a special niche. This little one-chip gem exploded on the scene last year (as the



Sony Z7U



Panasonic DVX100b



Canon HV30



Sony PMW-EX1



Sony PD170



Panasonic VX200

HV20), shoots in both 24p and 30p, and is a serious, widely-praised production machine with an appealing list price. It's perfect as your primary camcorder, or as a 2nd cam in your hi-def environment.

The **Sony Z7U** is a timely reworking of the classic Z1U, offering 3-chip 24p imaging, interchangeable lenses, and capture to both tape and card for post-production flexibility.

Canon has also released its 3-chip **XHA1**, which is becoming a fast-track indie-production fave. It sports a huge array of adjustable film-like image parameters, 24p capture, and the ability to transfer your custom settings to other A1's through an SD card.

There are some excellent card-based cams on the market. **Panasonic's HVX200a** offers the cinematic tweakability of its SD sibling, the **DVX100b**, but captures HD to proprietary P2 cards. The 200a has on-camera zoom, focus, and iris rings for a traditional film-cam feel, and variable frame rates that allow a ton of visual and composition possibilities.

Sony's EX1 is quickly taking on legendary status. Capturing to Sony SxS cards, this elegant beast truly sparkles in low light (min. 0.14 Lux), performs beautifully in 24p, and offers over- and under-cranking for remarkable movement effects.

MICS

Shotgun and lavalier mics will prove to be a necessity at an early stage. Mic systems by Shure and Sennheiser are some of the more popular, and are available in various price ranges.



Sennheiser MKH-30

LENSES

Try a good basic wide-angle lens for your cam (using .07 as a starting point). Wide-angle lenses are usually offered as an accessory for each camera specifically by its manufacturer, but there are some fine snap-on lenses by Impact and Raynox, for example, that will give you great quality and extended range.



Impact DVP-WA70-72

SELECT SOFTWARE

Final Cut, **Avid**, and **Premiere** are among the more popular editing software packages, for both SD and HD post-production setups. Most Macs also come with **iMovie HD**, which is ultra-simple to learn and works great with HD tape-based material. Research your program in advance to make sure it supports your camera's software requirements.





CREATING A “FILM LOOK”

If you want to tone down the super-reality of HD, creating a **“film look”** can change the feel of your footage. Here’s how.

BY DUSTIN DRIVER

FILM JUST FEELS RIGHT. ITS mechanical stuttering, organic grain, and sumptuous saturation invoke a century of cinema—motion pictures in all their glory. Video seems almost too sleek and clinical by comparison, hyper-fluid realism flushed through a digital filter. But film isn’t easy, especially when you’re on a budget. It’s extremely expensive, weighs a ton, requires processing,

and if you want to use editing applications, you need to scan it. Fortunately, it’s possible to tweak video to make it resemble film.

What gives film its signature look? First, it runs at 24 progressive frames per second. (Video, on the other hand, zips along at 30 interlaced frames per second.) Second, film has clumps of organic grain crystals, an artifact of the chemical process that allows it to capture images. Third, film cameras have a relatively shallow depth of field, giving cinematographers the power of selective focus—they can blur out backgrounds or foregrounds. Lastly, there’s a certain amount of motion blur and jerkiness to film—side effects of its relatively low frame rate.

Video captures images in odd-and-even stripes which are interlaced during playback, effectively displaying 60 frames per second. Motion blur

is greatly reduced. Video does have something similar to “grain,” but it’s called “noise” and it doesn’t have the same appeal as film grain.

There are a few ways to get a film look with video. You can do it in-camera. High-end cameras like the Canon XL-2, Sony HVR-V1U, and Panasonic DVX100A feature 24p shooting modes that approximate some of film’s magical qualities. If you’re shooting with an older model or one that doesn’t have fancy features, dial down the shutter speed to the lowest setting, usually 1/30 of a second. Of course, that may wash out the picture, so you’ll need to use a filter to reduce the amount of light striking the sensors.

To approximate a film camera’s shallow depth of field, open up your camera’s aperture. Again, this will probably wash out the scene, so reach for a light-reducing filter. If your camera has swappable lenses, you can at-

tach high-quality 35mm film camera lenses with an adapter. They'll give you a narrower depth of field, and the good glass will boost the quality of your picture.

A lot of the film look comes down to good lighting techniques. Cinematographers tend to use bright sunlight as a backlight, and they don't just light their subjects—they model them like pro still photographers. Try to imitate the lighting techniques of your favorite cinematographers. It'll give you a good basis to build your own techniques. Film also has a higher dynamic range than video, which means it captures lighter lights and darker darks without losing detail. With video, bright light can white out and dark areas can be completely obscured. Try to avoid super-bright sources and try some fill lighting to bring out the details in the shadows. A simple piece of white poster board works well to reflect diffused light into shadowy areas.

Finally, you can employ heavy machinery and software. There are hundreds of film-look plug-ins for Apple Final Cut Studio, Adobe Premiere CS3 Pro, and Adobe After Effects that will pretty much handle all the conversions you need to give your video footage a film look. They essentially de-interlace the video source to pull it into separate frames, or use a 3:2 pull-down technique that approximates the professional Telecine process that's used to transfer video to film. Some can also add film-like grain and even sample the grain from your favorite flick. These plug-ins are fairly affordable, especially when you consider the cost of a full editing suite like Final Cut Studio, and they give great results. There are also a ton of post-production techniques and color-correction tweaks that can do the job, but it would be best to learn them from the pros.

Ultimately, video can't truly match the feel and look of film. It can, however, get close, and the act of trying to approximate film can hone your video skills and stoke the creative fires.

Tips & Tricks

Grain Effect

Make your footage look more like film easily in post production. Most post applications have a button such as "Add Grain." You can also achieve this look manually, with layers, in Photoshop.



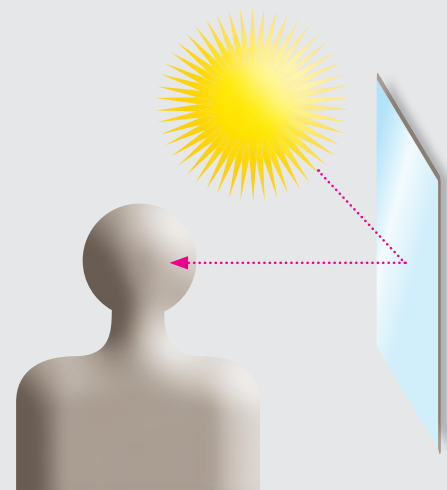
Depth of Field

Connect a 35mm camera lens adapter to your camcorder. Select a larger aperture than you would use normally, and you'll compress the depth of field. Adjust your exposure accordingly.



Diffused Light

To soften your video footage, illuminate with bounced or diffused light. Use a reflector, or cover the window with tracing paper. You can even shoot through a sheer stocking.





TO THE UNINITIATED, WORKING WITH HD CAN BE DAUNTING. THERE ARE SO many formats, flavors, gear types, and accessories they could obfuscate even the most lucid amateur videographer. 720p or 1080i? Go with HDV, AVCHD, or completely uncompressed? Capture with tape, flash memory cards, or disk drives? The fear of choosing the wrong format, gear, or accessory gizmos can be paralyzing. Don't fret: Shooting in HD really isn't that different from shooting in standard definition. And happily, a truce has been drawn in the format wars, so you're not likely to get stuck with a proprietary format that will vanish in a few years.

So let's explore your options. We'll take a look at the gear and the techniques you'll need to shoot in HD. The following work flow will take you through the process step by step, and will hopefully demystify high definition for good.

CAPTURING

Not long ago, HD cameras wore price tags that would give even a stoic person an apoplectic fit. Only filmmakers and television networks could truly afford them. Today, HD camcorders sell for under \$1,000—well within the reach of video enthusiasts. And there are numerous choices at that price point. But before you plunk down the plastic, you should know what to look for. Most HD camcorders nab both 720p and 1080i footage, both of which can be displayed on most HD TV's and make standard definition video look positively primitive. 1080i is, of course, today's apex of HD camcorders and if you want to "future-proof" your footage, you'll shoot in the highest resolution available. If you're going for high quality, you'll want lots of nice features to add some pizzazz to your videos. Even bargain-basement HD camcorders are chock-full of features. You'll be familiar with most of them, like zoom, image stabilization, and color filters. Some camcorders, however, come with new modes that can approximate the look and feel of film or broadcast TV. At first glance you may not think they're worth the extra money, but these features work remarkably well and can add some real flair to your home videos or film-school projects. Regardless of the bells and whistles, shopping for an HD camcorder is just like shopping for a DV camcorder. Look for the features you'll use and consider run time, size and weight, and ease of use.

RECORDING

Video cameras used to mean great unmanageable piles of tapes. Now you have plenty of options (including good old cassettes) to store your precious footage. All entry-level camcorders use some sort of compression to make capturing HD practical. JVC and Sony developed the first and most popular compression scheme, HDV. It employs the same technology used in DVD's to fit super-sharp footage onto Mini DV cassette tapes. If you're eager to dump cassette tapes and spend a little more money, you'll probably reach for a camcorder that employs AVCHD, another one of Sony's compression schemes. It's the next level of compression that squeezes HD footage into an even smaller package that's perfect for flash memory recording. Flash memory cards are smaller than cassettes, but they don't store as much footage. A 4GB card will hold 40 minutes' worth.

You'll also need to off-load your cards to something else—like a Blu-ray disk or a hard drive—for more permanent storage. Neither compression method robs HD footage of noticeable visual clarity. In fact, even compressed 1080i HDV has almost twice the resolution of standard DV. It looks great. If you're looking to go pro, you'll probably want pristine footage. Panasonic's DVCPRO HD takes up four times the space of HDV but it's known for superior quality and color. It uses Panasonic's proprietary P2 storage cards, which are popular among independent filmmakers and big movie studios. Sony's XDCAM, used by pros, uses optical disks for capture. These two less-compressed formats and storage systems are expensive: Expect to pay five to six times as much for a pro-level HD cam that uses either of them, and a heap of cash for the storage media.

DISPLAYING

Displaying the HD footage from your shiny new camera is a cinch. Most cameras are equipped with HDMI outs, which plug directly into

any late-model HDTV. HDTV prices continue to plummet, which means that even Grandma will likely have a set that can display your movies in

all their glory. This means that you'll need to dump your edited movies back onto whatever storage medium your camera uses and cart it anywhere you plan on playing back your movies. Not ideal, but it's a working solution. Distributing your movies will be a tad more difficult. You can



HDV



DVCPRO HD



AVCHD



XDCAM

EDITING

Few people will sit through the complete seven hours of your vacation footage. Edit it down to something more manageable. You'll need to dump your video to a hard drive for editing. Most HD camcorders have either USB 2.0 or FireWire outputs to export footage to a computer editing system. Remember that HD footage occupies a tremendous amount of space. We mentioned that 40 minutes of AVCHD footage takes up about 4GB. Since the price of external hard drives has dropped drastically, storing your footage shouldn't break the bank. Editing your HD footage is a different story: If you're working with compressed HDV, you'll need a top-of-the-line system to edit it without tediously long render times. Processing power is a must, whether you're using a PC or a Mac, regardless of editing application. Again, simply, HD contains a vast amount of information. Most, if not all, nonlinear editing applications deal with HD just like SD, from the consumer-friendly applications like Apple iMovie HD and Sony Vegas to high-end editing suites like Apple Final Cut Studio, the entire suite of Avid products, and Adobe Premiere Pro CS3. Once you have the gear to crunch HD footage, you can use your favorite editing application, as usual.

Speaking of Video

Resolution HD comes in two types: 720 and 1080. The numbers correspond to the horizontal lines that make up the picture. 720 HD contains 1280 vertical lines; 1080 contains 1920 vertical lines.

Aspect Ratio The proportions of your screen. Analog TV has an aspect ratio of 4:3, or four units wide by three high. For HDTV, it's 16:9. To confuse matters even more, motion pictures are shot in several aspect ratios, including 1.85:1 and 2.35:1.

Progressive vs. Interlaced Think of progressive HD like film: a series of stills strung together to create motion. Interlaced HD is broken up into odd and even horizontal lines, which are then meshed together during playback to smooth out the jitters caused by slow progressive pictures.

Frame Rates Frame rate refers to the number of progressive pictures a camera takes every second. Movie cameras record at 24 frames per second, video cameras usually record at 30, but some can snap 60 per second. Higher frame rates mean smoother playback and more realistic motion.

HDMI High Definition Multimedia Interface. It's the new cable/plug for streaming HD video from Blu-ray players, cable boxes, video game consoles, or video cameras to television sets and monitors.

DVI Digital Video Interface. This is another way to connect your HD-playing components to a display. It's a common interface for computer displays.

burn them to a DVD, but your audience will miss out on the enhanced resolution that got you into HD to begin with. You'll need to burn your movies to an HD disk, which means Blu-ray. Unfortunately, Blu-ray burners are expensive and rare and Blu-ray players aren't much easier

to come by—yet. Thankfully, Blu-ray has won the format war, so it's only a matter of time before players and burners drop in price. It may be wise to hold off on purchasing either until they become more affordable. Until then, your HD camcorder will make a perfect portable player.

Sony HDR-HC9 (HDV) Camcorder



Last year's HDR-HC7 was already impressive, with its 1/2.9-inch 3.2 MP ClearVid CMOS sensor, Carl Zeiss lens, 10x optical zoom and 2.7-inch Touch Panel LCD screen.



This year's HDR-HC9, with its sleek black finish, only adds to the list of winning features, bringing along with it Spot Meter and Spot Focus, focus peaking, a built-in lens hood, and higher-resolution still images (6.1 MP versus 4.6 Mp). As before, you can shoot stills while recording video, and switch between HD and standard DV.

#SOHDRHC9..... Reg. \$879.95 **\$839.00**

Canon (HDV) Mini-DV Camcorder



The successor to the HV20, the HV30 adds a 30p frame rate to the generous 60i, 24p, 30F, and 24F modes, rendering a "film look" while improving Web appearance. An enhanced 2.7" LCD screen—with better color reproduction and a wider view—an industry-standard 1/2.7" full HD CMOS sensor, 10x zoom with Instant AF, and manual control not found on most consumer cameras give the Canon line another winner.

#CAHV30 \$624.99



Sony (AVHCD) HD Camcorder



The vibrant colors and stunning clarity of full HD video are at your fingertips in these Sony hybrid camcorders. Record to Memory Stick® or to a roomy internal hard drive



(60GB on the SR11, 120GB on the SR12), and see what Sony's 5 MP ClearVID CMOS sensor can really do. What helps make this technology great are the BIONZTM image processor and ExmorTM imaging sensor, which reduce noise and increase color and contrast. The 12x optical zoom and 3.2" LCD monitor are icing on the cake!

#SOHDRSR12 **\$869.95**

Canon Vixia HF10/ HF100 Camcorder



The latest in Canon's line of flash memory HD camcorders redefine portability. Both the HF10 and HF100 sport the same 3.3 MP CMOS sensor with full HD resolution, a bright, crisp, 2.7" LCD screen, 12x optical zoom and a host of manual controls. Along with aperture and exposure, you can also adjust white balance, zoom speed, and frame rate (60i, 24p, and 30p). Record to SD and SDHC cards, or to the 16GB internal flash drive (HF10 only)—up to 6 hours of video. Want clearer audio? Both cams feature mic inputs.



Both cams feature mic inputs.

#CAHF10* **\$679.00**

V.I.O. POV.1 Camera



Share your most daring exploits with this waterproof, shock-resistant, wearable video camera. Affix to a hat, bike, or helmet and achieve YouTube immortality as you ski, jump, bike, glide, drive, climb, scramble, or dive. Recording DVD-quality MPEG4 video at frame rates of 30fps, 25fps, 24fps, or 15fps, this professional-grade recorder allows playback and setup on its LCD screen or connected to your computer, and yields nearly an hour of high-quality video on a 1GB SD card. And, it's bungee-compatible.

#VIPOV1 **\$595.00**



IDX X3-LiteLED On-camera light



This daylight-balanced LED light provides a lot of bang for the buck.

Brighter than tungsten or halogen lamps of similar wattage, it has the advantage of creating zero heat and never burning out. The LED-35 offers adjustable brightness levels from 0-100%, and features a lens holder that accepts a range of dedicated filters that will ensure consistent levels of light dispersion. The light attaches directly to your camera's shoe mount and is powered by three rechargeable AAA NiMH batteries (included).



#IDX3LITE Reg. \$339.95 **\$314.95**



Sony HVR-Z7U (HDV)

Sony's first HDV camcorder with an interchangeable lens system offers the ability to record in HDV1080i, DVCAM and DV, or in 24p/30p HDV native progressive video. Three newly developed 1/3" CMOS sensors provide unprecedented low-light sensitivity in an HDV camera, while the option to record to both Mini-DV and Compact Flash allows not only more flexibility and valuable backup but instant scene access and speedier capture to your NLE.

#SOHVRZ7U \$5,379.95



Bescor 20w/40w tungsten light

EDU ADVANTAGE This kit, which includes the MX-601 LED light and the X-645 battery, is a convenient small light source that offers the option to switch between 20 and 40 watts, depending on your needs. Achieve further control with the included barn doors, or soften the light with the KLK624D's diffusion filter. The 6-volt NiMH battery lasts 35 minutes at 40w, 1-1/4 hours at 20w. The BC-665R charger is available individually, or in another kit. Please check the EDU web site for details.

#BEKL624 \$69.95

Panasonic AG-HVX200 HD P2



Shoot professional-quality, full-bandwidth HD video, recording to Panasonic's P2 storage cards in either 1080i or 720p. Format choices include DVCPRO HD, DVCPRO, DVCPRO50, and standard DV (which can also record to Mini-DV tape) using 3 1/3" CCD's and a wide-angle Leica Dicomar HD lens with 13x optical zoom. 720p offers 11 different frame rates (12fps – 60fps) with instant playback, while 8 gamma settings, 4-channel audio, and customizable scene files provide even more control.



#PAAGHVX200A Reg. \$5,199.95 \$4,999.95

Hoya Filter Kit



UV (Ultraviolet) Filter: Absorbs the ultraviolet rays that can make images hazy or indistinct. Also protects lens without affecting image quality.

Circular Polarizer Filter: An adjustable filter that deepens blue skies while cutting unwanted reflections or glare from glass or water.

Warming Filter: Reduces the bluish cast that can appear in shade, beneath clear blue skies, or from using a flash, returning the natural warmth to colors and skin tones.

#12 different kits \$Varied



Canon Pro HDV Camcorder



It would be hard to find an HDV camera with more creative control than these. Their foundation remains Canon's 1/3" CCD full HD image sensors, interchangeable XL lens mount, improved 20x HD Fluorite zoom lens, and DIGIC DV II HD image processor. Both new models boast increased image control, improved monitoring and audio options, and independent manual, zoom, and iris rings.

#CAXLH1S Reg. \$8,999.00 \$8,499.95



Sony HVR-A1U (HDV)



The pro version of Sony's consumer HDR-HC9, this compact HDV/DVCAM/DV camcorder comes with all the bells and whistles you'd expect in a professional single-chip camera: balanced XLR inputs, manual focus/zoom ring, live histogram, user-assignable button, enhanced low-light sensitivity via Black Stretch, and CineGamma and CineFrame 24. The Enhanced Imaging Processor enables image capture with high levels of color and detail, yet consumes less battery power, thanks to the 1/3" 3 MP CMOS image sensor with native 1080i resolution. Add a Carl Zeiss 10x optical zoom lens, and this tiny package packs a lot of punch.

#SOHVRA1U Reg. \$2,179.95 \$2,099.95

Kata Camera Case



With its contoured, thickly-padded interior and reinforced bottom, the CC-195 offers rugged protection for your digital camcorder. Its 22.5" internal length accommodates cameras like the Sony HDR-FX7, the Panasonic HMC150 or the HVX200a, while a second long compartment and a full-length external pocket carry all your accessories. The padded mesh-grip handle, Modi-Vers dividers, and "one-pull" double zipper provide additional convenience. A removable

Reinforced Aluminum Frame (RAF) adds protection to your viewfinder and microphone.

#KACC195
Reg. \$149.95 \$100.00



Petrol Backpack



Ergonomically contoured and sporting three cushioned compartments designed to carry a 16" camcorder, a 15" laptop and accessories, this ballistic nylon bag is a serious road warrior. The easy-access front pocket and auxiliary side pockets give you even more room to stash your extras (cell phone, batteries, wallet, guidebooks, GPS device, etc.), while the padded shoulder straps make sure carrying the (digital) world on your back remains as painless as possible.



#PEPMLCB2 Reg. \$99.95 \$89.95

Vinten Pro Tripod



The Vinten PRO-06-HDVM tripod system works with small video camcorders weighing less than 13.2 lb, and comprises a total unit that includes a Pozi-loc tripod, Pro-06 pan and tilt head, mid-level spreader, and soft carry case. Offering continuously variable fluid drag, exceptional rigidity, and a fully-adjustable spreader, this system provides great functionality in matched components. The combination of quick setup, easy leveling, and a light-weight pan-and-tilt head give you all the support your camera needs.

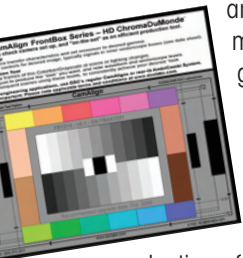
#VIPRO6HDVM
Reg. \$999.95
\$899.95



DSC Labs Test Chart



Even the best shooters and engineers need help aligning their cameras' parameters as precisely as possible. Featuring six primary colors and a spectrophotometrically neutral 11-step grayscale, the DSC FrontBox Pro test chart helps optimize tonal reproduction and create richer-looking images. The chart offers a selection of four average skin tones, and instructions for its optimal use. Also included are framing apertures for 16:9, 1.85, and 2.35 widescreen formats, and a DSC BackFocus Star—essential in creating the most accurate HD imagery.

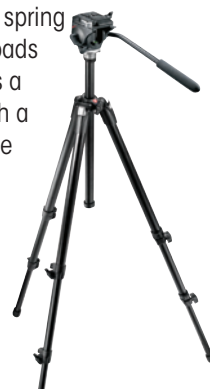


#DSFBP \$314.95

Manfrotto Tripod w/ Video Fluid Head



Lightweight and economical, this combination of tripod and video fluid head is ideal for use with small to medium-sized camcorders. The tripod legs feature wing-nut locks with improved ergonomics and two cold-weather leg warmers, while the mini fluid head supports video equipment weighing up to 8.8 pounds. The head is equipped with a sliding quick-release video plate system and a fixed counter-balance spring that positions uneven loads perfectly. It also features a fixed-length pan bar with a soft handle and separate locking mechanisms.



#BO055XDB701H
Reg. \$252.95 \$207.13

Anton Bauer Camera Support



Reduce arm and wrist fatigue while adding a new element of smoothness to your handheld shots. With its ergonomic, flexible rubber handles, the EgripZ provides a unique combination of stability, low cost and compactness. Easy to set up and easier to store, this lightweight tool attaches to the bottom of any small to medium-size camcorder to provide extra, more comfortable handheld support and keeps one hand free to operate controls. High and low shots also become steadier and easier to achieve, without breaking your back—or the bank!



#ANEGRIPZ Reg. \$59.95 \$54.95



Cavision Director's Viewfinder

EDU ADVANTAGE Set up your shots like the pros—without lugging around your camera or using up precious battery power. The VFM-11X gives you a wide 11x zoom range to work with, then goes one better by allowing you to view scenes over cinema standards (16mm, 35mm) and video standards (1/2", 1/3", 2/3", 1"). You can compare different aspect ratios—1.33, 1.66, 1.78, 1.85, 2.35—so that no creative stone goes unturned. The viewfinder extends from 2.2 to 3.3".

#CADVMZQ..... Reg. \$199.95 **\$179.95**

Porta Brace Production Hard Case

EDU ADVANTAGE There's a reason this hard case for video and photo equipment comes with a lifetime limited warranty: it's tough. It's also extremely handy, with its retractable handle, built-in wheels, "Pick-n-Pluck" interior foam, double-hinged locking system, and a pressure-relief valve to compensate for altitude pressure changes and ensure maximum watertightness. And did we mention it's 10–20% lighter than the leading hard-case brand? Your equipment deserves nothing less.



#POPB2550F..... Reg. \$134.95 **\$124.95**

Letus35 Mini Lens Adapter

EDU ADVANTAGE One of the distinguishing characteristics of the "film look" is shallow depth-of-field. But until recently, such dramatic separation of foreground and background was impossible in even the best prosumer camcorders. The Letus35 Mini lens adapter solves that problem by allowing filmmakers with even the smallest camcorders to attach 35mm still-camera prime lenses and create the artful focal planes of high-end productions. The Mini fits cameras with a 43mm filter size or smaller, such as the Canon HV30 or the Sony HC9. Letus35 units are available for larger filter threads.



#LELT35M43..... Reg. \$1,079.95 **\$999.95**

Raynox QC-180 Snap-on Lens

EDU ADVANTAGE Why not bring the mountain closer to Manhattan? Attach the QC-180 to any lens with a 34mm – 46mm filter thread and extend your viewing distance almost twofold. Great for capturing distant subjects or compressing depth-of-field for artistic effect. If your camcorder doesn't have interchangeable lenses, the QC-180, a 1.8x telephoto extension, can be popped on with minimal fuss to bring a scoche more "up-close" to your video-graphic experience—and the price won't compress your budget.



#RAQC180..... Reg. \$29.95 **\$25.95**

Raynox QC-303 Snap-on Lens

EDU ADVANTAGE Take in even the smallest interior space with this semi-fisheye lens—or get creative and recreate your favorite movie dream sequence. The snap-on universal mount attaches to lenses with 27mm – 37mm filter sizes. With a 0.3x wide-angle rating, you'll have added flexibility to your fixed-lens camcorder that will allow you to create generous shots in tight rooms, fashion sweeping environmental portraits, and save budgetary funds for your production wrap party, because the price of the QC-303 is widely underwhelming.



#RAQC303..... Reg. \$29.95 **\$24.95**

Raynox QC-707 Snap-on Lens

EDU ADVANTAGE When you need a slightly wider field of view without having to cover the width of a space as wide as the main room at Grand Central Terminal, snap the QC-707 onto your camera lens and get the elbow room your picture needs. This snap-on lens fits lenses with filter sizes of 27mm – 37mm. Rated at 0.7x, the angle is wide but not eye-bulgingly so, allowing a slightly generous but not overwhelmingly-framed shot. The price of the QC-707 won't make your eyes bulge, either.



#RAQC707..... Reg. \$21.95 **\$17.95**

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Shotgun Microphone



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- EXTREMELY LOW HANDLING NOISE
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AUDIO

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FILM-SCORE ILLUSIONIST



Presto! Touring musician-turned-film-score composer **Marinho Nobre** gives us his notes on gear, awards, and the industry in general

BY KENDALL SCOTT

THE CURRENT PACE OF technology has made this an exciting time to be involved in professional sound production.

As the size and price of high-quality sound tools shrink, it has never been easier to ride the techno wave like a big shot. The race for speed, power, and resolution in almost all audio and video technologies has caused an imbalance between the rate of product development and the speed at which the industry's protocols change and are embraced. This situation is further

complicated by the need to combine multiple technologies that must work together seamlessly. This imbalance shifts and merges as either rogue developers spearhead new ideas or the industry pushes the next higher sample rate or more efficient format.

The world of film and broadcast is a place where time is (lots of) money. It is also a place where gear must be extremely reliable, tested and proven, which is why you will see the same gear used repeatedly in the field, on set, and in the studio. Is it possible to juggle new technolo-

gies and get the job done? Scoring film, for example, requires one to keep apace with developing technologies, as filmmaking techniques become more sophisticated. Starting with a version of a film without music, the composer must create a score that transports the film to a higher emotional and dramatic level. The objective is to capture a three-dimensional experience, to deliver a greater degree of impact within the two-dimensional space of a movie screen. Knowing where to lay music and where to leave space is an art in itself: silence can be powerful as well. But it's essential to know your tools.

Marinho Nobre is a film composer and orchestrator who has embraced music, silence, and technology with equal fervor. Before hitting the road as a touring musician, he spent years studying composition, conducting, and classical guitar. His appetite for a wide variety of music adds to his versatility, and is a must for his survival in this very competitive field.

"In the mid 90's I was already deep into music production and a friend from a production company asked me to write and record music for a couple of local cable-TV commercials. I got to work on the music and sound design aspect of things, as well mixing and mastering the works. As it progressed I started getting more video-related gigs. Later on I got an infomercial for the New York Spanish Yellow pages which got me my first award at the Skymedia awards. Since that, I decided that this was where my heart was,

PHOTOGRAPH BY RICARDO MARTINS

More Than Score

Here are some other pros who have their hand in the "mix"

Production Dialogue Editor

Prepares prerecorded set and location audio for mixing

ADR Automated Dialogue Replacement engineers bring the actors back into the studio to rerecord dialogue that was captured in noisy environments.

Sound Effects Editor Adds background (wind, traffic, etc.) and hard (gunshots, door slams, etc.) effects to the production

Sound Designer Creates sounds that complement unique situations or convey a certain mood

Foley Artist Creates natural, everyday sorts of sound effects (footsteps, zippers, doors closing, ring tones, etc.)

Music Composer Composes the original music underscore for the production

Music Editor Handles final synchronization and organization of all musical elements

Mixing (Re-Recording) Is responsible for mixing all of the audio elements into a finished product

but began searching for feature film work, which was truly all I wanted to work on. From those years to now, it has never stopped."

How has the industry changed over the years as you see it? In the technological aspect it has been a big blast. Computers have taken over and it's pretty hard these days for you to find someone making music without a DAW. The competition between all pro audio manufacturers has put an extra edge in the making of new products. As a result of that battle, I guess the end user is the one to benefit from it all. In the artistic aspect, those changes and all the progress truly helped those with both the talent

and aptitude to create music to do their job with much more ease than before.

What technological and ethical changes do you see on the horizon?

As for technological changes and progress, it seems that the sky is the limit, and it will only get better over time. I see notation, midi, and audio blending at some point in the near future, and believe that this could change the face of how music gets produced. On the ethical side, I pray for a renaissance. Due to the ease of use of pre-recorded loops and whatnot, music is beginning to get the face of a simple commodity. Like, buy, use, throw it away. That goes well on most post aspects such as Foley, editing, and sound design, but when it comes to creating music, I truly hope a lot of the manufacturers start acting a bit more conscientious when it comes to how much you can do without ever having been a musician, producer, or composer. In other words, make great products, but please help the planet to keep music real.

What skills and attributes do you think are most important to possess for success in the industry? You have to first and foremost love what you do. Live it, breathe it, day and night. It will show even if you do not say it and potential employers as well as all your peers in the industry will know. Second, stay on the top of your game. Know your gear, read your manuals, update your software, read what's new. Last but not least, network. No one will know you have talent unless you let them know. Meetings, events, seminars, showcases, get-togethers are only a few means—not to say that today the internet hasn't become an extremely powerful weapon for communicating and promoting your own work.

What is the most memorable experience that you have had while working in the industry? Receiving the 2008 Gold Medal Award for best score on a feature film at the Park City Film Music festival in Utah. There were over 30 film scores competing in that category and being the one was just like getting an adrenaline shot!

Marinho's Favorite Equipment



▲ **Pro Tools HD3 rig** (\$1,299)
Digidesign's Pro Tools audio/MIDI production systems come in all sizes, from extra small to triple-extra large. Their software and hardware packages have become top choices in the world of music, broadcast, audio post-production and editing.

▼ **Genelec Speakers and Sub Woofer** (\$949 and \$2,382)
Genelec has built a very strong reputation in the industry as a provider of highly accurate studio and installed monitors and sub woofers.



To cover the extreme frequency range of today's film soundtracks, it is often beneficial to incorporate a sub woofer into your monitor setup.

▼ **Focusrite Preamplifiers**
The Focusrite ISA series of microphone/instrument preamplifiers (\$1,999) makes use of designs that were incorporated in modules from their benchmark Forte – one of the finest recording consoles ever built.



MAKING NEWS SOUND GOOD

You've seen **Handheld ENG Mics** in a thousand live broadcasts. Here are some hard facts about these iconic news-gathering dynamos.

BY KEN HAMBERG

Anatomy of a Workhorse: ENG's are among the most simply-constructed and dependable omni mics.

THE IMAGE OF A REPORTER, microphone in hand, on television at the scene of a five-alarm fire describing the events and interviewing the survivors, onlookers, and rescue personnel for an evening news broadcast is almost iconic. The microphone allows us to hear not just the on-camera principals, but also to experience the sound of the scene, enhancing the realism and immediacy of the story.

Handheld microphones of this type are categorized under the ENG (Electronic News Gathering) heading, and they're generally characterized by a durable, weather-resistant construction with minimal handling noise, an

omnidirectional pickup pattern, and a dynamic element expressed in a smaller diaphragm with a frequency response often optimized for speech clarity. Let's see what this means to you, the aspiring journalist, location sound engineer, or documentary filmmaker.

Power Without Power

A dynamic microphone reproduces a signal by generating a variable, electromagnetically-induced current. Dynamic mics don't require a power source for operation, and are less prone to the distortion caused by extremely loud sound levels.

ENG microphones are almost always dynamic, and usually feature an internal capsule shock mount that isolates the element, greatly reducing or eliminating handling, clothing, and cable noise. They're also typically equipped with interior pop and wind filtering designs, minimizing plosive aberrations and wind noise. The microphone grille, shaft, and electronics are often treated with a moisture-resistant coating, and though surprisingly lightweight, most ENG mic bodies are of a durable metal construction.

An omnidirectional microphone pickup pattern responds evenly to a full 360° of sound, as opposed to a cardioid, or heart-shaped pattern, and its variations, which are more directional and notable for their side and rear signal rejection. Because of the often adverse and time-stressed con-

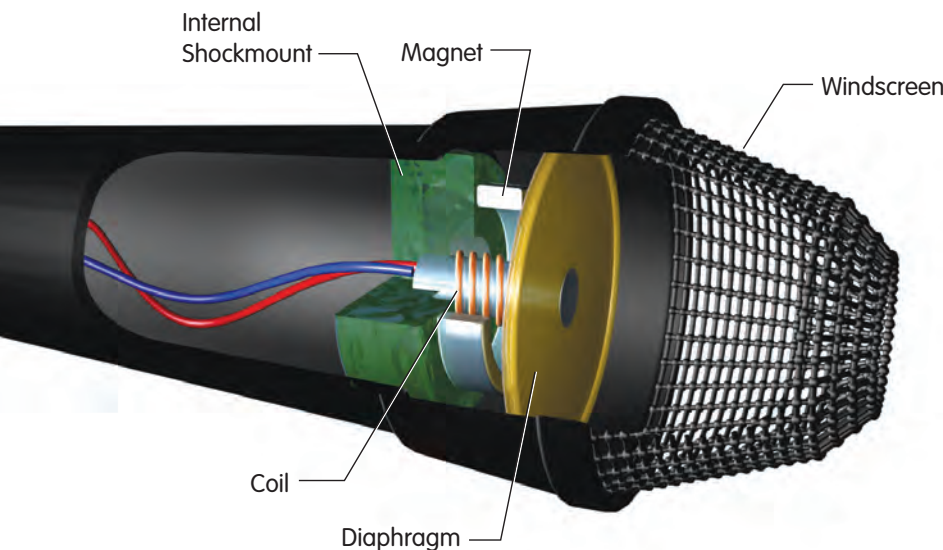
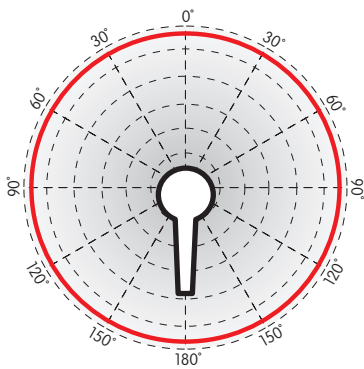
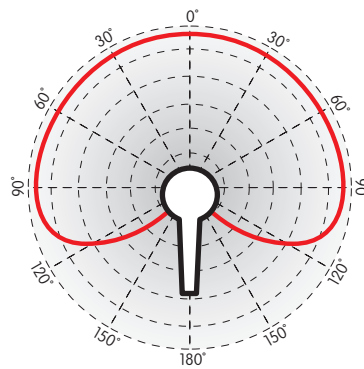


DIAGRAM BY DAVID LEWIS



OMNIDIRECTIONAL

These microphones pick up sound in a 360° pattern, enabling capture of ambient as well as primary sound. An omni mic is very appropriate for on-scene news reporting, or to add atmosphere to an interview.



CARDIOID

A heart-shaped pickup pattern distinguishes these mics from omnis, allowing them to reject unwanted signal from the side and rear of the mic. Cardioids produce increased low end when used up close.

ditions involved in location recording, ENG mics are typically configured with an omnidirectional pickup pattern. This is a safe bet when recording lively and mobile subjects for single or group interviews, random location sounds and ambiences, and even musical performances, when little time is allowed for proper setup and level-checking.

A Matter of Proximity

The interviewer should hold the mic about 4-6" from the subject, a bit off-center from the mouth to avoid possible pops and other plosive distortion. Omnidirectional mics are more forgiving off-axis (the center of the mic capsule) and don't produce as much exaggerated low end (called proximity effect) as cardioid microphones do in close-miking situations. You may need to hold a cardioid mic a little further away from your subject if you find the proximity effect to be distracting or muddying the clarity of the subject's speech. This can easily be assessed through headphones by you or your sound or camera person. You should be able to achieve a nice balance between the level of the subject or subjects, and the sonic ambience of the location surroundings, to achieve a compelling sound with a sort of on-the-spot immediacy that will hold the attention of your audience. You may need to use a windscreen to further diminish wind noise and protect the mic from dust or moisture.

Omnidirectional microphones will

often work very well for impromptu acoustic musical ensemble recordings, delivering a natural sound with surprising detail and good natural ambience. In these situations, the mic is placed on a tripod stand 2-8' from the subjects, depending on how loud they're playing and how far they're spread apart. Experience and experimentation will help improve one's mic positioning technique in achieving the balance of signal versus noise, with the optimal clarity, intelligibility

and immediacy that is the hallmark of a successful field recording.

Remember that ENG microphones are designed to be a field recording solution, and should not be compared to microphones meant for broadcast or recording studio use. One last tip: Never underestimate the importance of a high-quality, well-shielded microphone cable. Badly made or defective cables have ruined many recordings, so budget a little extra for a good one. Good luck in all of your pursuits!

Classic Tool of the Trade

The **Electro-Voice RE50** ENG microphone (\$139), first produced nearly 40 years ago, immediately saw active duty in the jungles of Vietnam enduring the heat, rain, humidity, and incredible decibel levels of the battlefield while in the hands of both military personnel and network news correspondents. The often-imitated design of this omnidirectional, dynamic microphone defines the standard in its category, combining the clarity, durability, and exceptionally minimized handling noise (largely due to its trademarked internal isolating shock mount) required for use in the broadcast media. The RE50 is still found to be the microphone of choice in the field kits of professional journalists and sound-gatherers worldwide: a lifetime investment available at a price any student or intern can afford.



SOUND PROFESSIONS

It's common for someone to desire a professional career in audio, but all too uncommon to find out how you can realistically initiate one of these elusive careers. Unlike dentistry or certified public accounting, there is no predetermined path to follow into a career in audio. Formal study in school is recommended for all of the following jobs, but forging a career in audio is never guaranteed, even with a college degree. What you accomplish professionally is contingent on your networking efforts and the quality of your work. Maintaining and multiplying your contacts while providing competent audio services are what it's all about.

BY SAM MALLERY

Gaming

Do you spend your free time waving your arms around wildly with a game controller? Why not make it your full-time gig? Gaming is huge, and every title needs creative sound design. Acquiring computer programming skills will help, but they're not absolutely necessary. Familiarize yourself with applications like FMOD Designer and wWise. Get started by testing products with game manufacturers' Q/A departments.



Audiology

If you're passionate about sound and desire to help those in need, becoming an audiologist may be for you. Audiologists specialize in the diagnosis and treatment of hearing disorders. The first step is to earn a BA in Communication Sciences and Disorders, and from there seek out a graduate program in Audiology. Doctoral programs are not mandatory, but will be by 2012. With the large numbers of young people who currently blast MP3 players in their ears, the future truly looks bright for audiologists.

Forensics

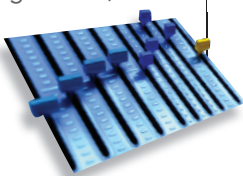
Legal and investigative organizations are in constant need of audio experts to provide a range of services. Surreptitiously-recorded audio often needs restoration, which is achieved with DAW software, EQ plug-ins, and a trained ear. Tapes and telephone conversations (voice mail, etc.) often need to be digitized and archived, so some hardware is necessary. Find out what

the typical rate for these services is, and then contact law firms and private investigators, offering your services at a competitive rate.



Recording Engineer or Producer

This job is the goal that drives many to pursue a career in audio. Small and large studios once dotted the landscape, but now they're scarce. To compete for an entry-level position at one of the few existing studios, a degree in audio will help. Expect to pay dues doing non-audio related tasks, working overnight shifts, as well as enduring long-term limited earning potential.



Electronic Field Production

Positioning a shotgun mic and mixing signals properly is a task that can only be handled by a living, breathing human being. A practical way to get started in field production is to purchase some basic equipment (shotgun mic, boom pole, etc.) and offer your services, pro bono, to productions. As you acquire experience and equipment, you can start invoicing your clients. Soon you may find yourself working around the world and making a decent living.

Theatrical Sound Design

Running sound as a theater tech is exciting because your cues and sound design are critical to a play's success. Start by familiarizing yourself with live sound. Attend as much live theater as possible. Introduce yourself as an aspiring theater tech and offer assistance as a volunteer. Familiarize yourself with digital mixing consoles and feedback suppression techniques. With hard work, focus, and a little luck, you could end up designing sound for major stage productions.



Live Sound

Live sound is the most fundamental service provided in audio, and so far it's not threatened by emerging technologies. Every sizable event relies on skilled professionals to bring the show to life. Getting involved with live sound isn't difficult. Small stages and sound systems are everywhere. Get started by volunteering, and build from there. There's much to learn about acoustics, feedback suppression, and the systems themselves.



Post-Production

Great effort is invested in crafting soundtracks and dialog for television and film. A number of specialized skills are involved in this area, called audio post, such as soundtrack composition, music editing, re-recording, automated dialog replacement, sound effects, and Foley. Many schools offer degrees in post-production audio. One proven path is to enroll in one of these programs, while always working diligently at building and maintaining a network of contacts.

Musical Instruments Industry

Many audio devotees find jobs in the Musical Instrument Industry. Working in this industry may not be as cool as producing a hit record, but you get to live and breathe gear and apply your expertise. Start by visiting manufacturers' web sites for job postings. Opportunities can be found in sales, marketing, technical support, documentation, and product development.



Professional Disc Jockey

DJ's work in many different media: as on-air personalities, in nightclubs, as wedding entertainers, etc. It's one of the more competitive fields listed here, but many people are finding ongoing jobs as DJ's. It's important to be fluent with the equipment: DJ mixers, sound systems, turntables, and DJ software. The key is having an insatiable thirst for music, and to pick songs that move and energize your audience.



NOT IN THE LIMELIGHT

A personal evolution, a gradual epiphany, and a turn of professional events helped set the stage for DJ **Christopher Garrett's** career—backstage.

BY DUSTIN DRIVER

IT'S LIKE A FAIRY TALE: NORTH Carolina farm boy becomes barnstorming international superstar DJ, then settles down as the engineer for one of the most popular progressive down-tempo bands in the world. But it's not make-believe. It's the story of Christopher Garrett, AKA Stone, Thievery Corporation's audio engineer. And there isn't any magic to his success, just a rock-solid work ethic and an obsession with electronic music.

"When I was 16 my parents were going to give me \$300 to help pay for a car," he says. "I asked for an EMU modular synth instead."

That set the stage for Stone's career, and today he's at the helm of the Thievery Corporation studio. He records all the duo's tracks and plays a key role in composition. He organizes their live shows, wrangling road gear and designing technical stage setups. He works with dozens of other artists on the group's ESL record label, doing mix-downs, audio tweaks, or anything



PHOTOGRAPH BY ALYSSA VEDIA

“I realized after doing the production side of things that my place was not on the stage. My place was definitely behind the scenes.”

else that needs to be done. “I like to say that I fly the plane, but they tell me where to go,” he says.

Spin Factor

Stone grew up on a farm in Newton, North Carolina. “It was your typical farm,” he says. “We grew stuff and had animals.” So how did a farmer’s son end up in the Thievery Corporation studio? It all started with a few piano lessons. “My grandmother was a piano teacher,” he says. “She taught me how to play at a young age and I ended up in junior high and high school band. I played tuba and trombone and eventually learned how to play bass guitar as well.”

The formal band training honed Stone’s traditional music skills, while trips to local clubs and underground parties spurred his interest in electronic music. “I started going to underground parties when I was, like, 14 or 15,” he says. “Then every chance I got I would go to a club or a venue. It inspired me to make my own music and eventually become a DJ.”

It wasn’t long before Stone had his EMU synth and a few decks for DJ gigs. He spun at local clubs and underground parties, slowly building his reputation. He graduated from high school early and enrolled in a Washington D.C. area community college to take care of some credits. Then things started to get a little crazy. “I was traveling to North Carolina a lot to play a club called Scorpio and Power Company,” he says. “Then I started getting gigs in New York and Chicago and Miami. Then it turned into this whirlwind thing. I was a resident DJ at a couple clubs in NY. I was traveling around doing festivals in Europe, just turned into something more than I ever thought it could’ve been.”

As Stone wrapped up community

college, his DJ career began to wind down. “I was really interested in making my own music and I was going to finish up college,” he says. He enrolled in the Columbia School of Broadcasting in Virginia to study recording. The training would, he thought, put him in a better position to work in music production. There was only one problem. “My entire formal education at Columbia was based on analog tape,” he says. “I was at this cusp in technology between digital and analog recording and I learned the equipment that was on its way out.”

The training at Columbia did give him a solid background in recording theory, which he put to good use as a salesman at a Washington, D.C. music center. He had to learn about digital recording gear on the job. “I didn’t know a thing about it; I had to learn all of that on the fly,” he says. “Thankfully, I worked with a couple of real geniuses and I learned everything I needed to know.”

Opportunity Raps

Luckily, he knew his stuff when Rob Garza and Eric Hilton of Thievery Corporation walked through the door looking for some new synths and gadgets. “They came in and I consulted [with] them a bit about what they could buy,” he says. “I didn’t know much about Thievery Corporation at the time. I’d heard their name bounced around because they were a local band from Washington D.C., but I didn’t know exactly what they were doing. They asked me to help them make their studio sound better and I set them up with my dream studio.”

For the next few weeks, Stone called in sick to his sales job to help Garza and Hilton set up their new gear. “I had a really good feeling about them and I

loved what they were doing with their music. Everybody said I was crazy to give up my job, but I was frustrated with being a salesman, and my own music was going nowhere fast. I was just kind of lost.” He freelanced at the studio until Thievery Corporation hired him in 2000. “I was working with their sound engineer at the time, but within a few months he left and I was the logical person to take his place. I’ve been with the band ever since.”

Now Stone is an integral member of the Corporation and the band’s digital audio alchemist, tweaking MIDI beats and live audio tracks with a high-powered Apple Logic Studio system. “I sit in front of the computer while they’re in the studio and they direct me,” he says. “We move through the process of making songs with this synergistic approach. We have a great working relationship and I understand what they want, the sound that they’re going for.”

The process satiates Stone’s hunger for making music, and he doesn’t miss the limelight. “I had always wanted to be on the stage, in the band,” he says. “I realized after doing the production side of things that my place was not on the stage. My place was definitely behind the scenes. I’m not a performer. I get off on knowing that we’re playing a 50,000-person show and I mixed the songs they’re playing, that I put together their entire live rig, and it all works.”

Thievery Corporation recently wrapped up their latest album, entitled “Radio Retaliation.” It’s slated to hit store shelves in late September.

Landing this dream gig wasn’t easy. “There are a lot of students and kids out there who want to be in the music business,” he says. “It’s not an easy road. It requires a lot of work and dedication. You just have to work at whatever you do. If you want to be a musician, photographer, or a filmmaker, you just have to work hard and be dedicated to that. I also consider myself incredibly lucky, but if I didn’t have the knowledge and skills when Rob and Eric walked through the door, I wouldn’t be here right now.”



Numark iDJ2

EDU ADVANTAGE The iDJ2 is an iPod mixing workstation, made specifically for iPod DJ's, that allows you to mix two songs from the same iPod and features USB inputs which allow connection to additional storage devices such as thumb drives and Memory Sticks. How cool is that? Songs from multiple devices can be stored in a single play list, and the large, friendly jog wheels offer scratch and back-cue functionality. The mixer also enables audio integration from turntables and CD players.

#NUIDJ2 \$484.95



Numark TTI

EDU ADVANTAGE Numark—one of the world's most innovative manufacturers of all things DJ—has issued the TTI, a turntable featuring USB connectivity and an iPod dock. The unit is rugged enough to satisfy first-time DJ's, while sporting the simplicity and elegance of design that home-stereo enthusiasts find appealing. The turntable allows anyone to transfer older vinyl recordings to an iPod quickly and seamlessly, and includes Windows and Mac OS archiving software for CD or MP3. Cool.

#NUTTI Reg. \$299.95 \$249.00

Røde NTG-3

EDU ADVANTAGE The NTG-3 is an innovative, feature-laden shotgun microphone that represents current technology from one of the planet's premier microphone manufacturers. Its clean, musical sound and unusually light weight should satisfy both broadcast engineers and boom operators, to whom every ounce can make a difference, and for whom quality sound is paramount. The microphone is weather- and RF-resistant, and is impervious to both humidity and electro-magnetic emissions from nearby camera or WiFi equipment on location. The mic's slightly wider on-axis pickup lends itself well to multi-person interviews. Moderately priced, with an expensive sound.

#RONTG3 Reg. \$699.00 \$636.09



Studio Projects C1

EDU ADVANTAGE The C1 is a large diaphragm cardioid condenser microphone for the home and project studio featuring a smooth, round sound and an elite appearance, priced for lean and hungry budgets. The microphone offers a full-range frequency response that is well-suited for vocal and acoustic solo instrument applications, and the packaging includes a carrying case, a custom shock mount, and a windscreen. Whether you're recording a podcast, hosting an internet radio show, or laying down vocal or instrumental tracks, this mic delivers natural, full audio that will challenge the quality of higher-priced mics.

#STC1Q Reg. \$239.99 \$218.39



Audio-Technica AT8004L

EDU ADVANTAGE The AT8004L is a light-weight, ruggedly-built handheld ENG microphone designed with the roving interviewer in mind. It features a transparent, shock-mounted capsule fitted with an omnidirectional element that allows for clear speech reproduction with minimal handling noise. The roughly-9.5" handle provides added reach and plenty of room for station ID flags. This mic sounds great, and offers just enough ambient pickup to add some extra location presence and urgency to your recording.

#AUAT8004L Reg. \$124.95 \$113.70



Euphonix MC Mix

EDU ADVANTAGE The MC Mix is a modular, expandable 8-channel DAW control surface for the Mac. Sleek and high-tech in appearance, it is graced with touch-sensitive motorized faders and rotary encoders. The controller features the proprietary EuCon Ethernet computer integration, enabling instant panning, volume, EQ, and parameter control supported by hi-res metering and information displays. Blessed with an intuitive, ergonomic design, the MC Mix combines ease of operation with advanced functionality like no other DAW controller in its class.

#EUMCMIX Reg. \$999.99 \$909.99

Edirol R-09HR



The R-09HR is a palm-sized, glossy-sounding two-channel audio recorder, designed for capturing interviews, location, and documentary sound and lectures or live music,



or as an electronic "sketch pad" for the aspiring songwriter. The unit records at up to 24-bit/96kHz resolution in PCM and MP3 file formats and uses SD or SDHC cards for

storage media. The recorder features a powerful built-in stereo condenser microphone, a large LED screen, and a USB 2.0 port that enables seamless Windows or Mac OS file transfer.

#EDR09HR Reg. \$399.00 **\$345.21**

Sony PCM-D50



The PCM-D50 is a robust, pocket-sized two-channel field recorder with 4GB of solid state internal memory and a Memory Stick slot.

The aluminum-housed unit, designed with broadcast journalists and sound-gatherers in mind, records hi-res 24-bit/96kHz WAV files and supports MP3 playback as well as A/B repeat. The onboard stereo microphones are adjustable for tight X/Y pickup or Wide coverage for multi-subject and other more diffuse sound fields. With its large, back-lit LCD screen, it's a winner in terms of versatility and sound quality.



#SOPCMD50 Reg. \$499.00 **\$427.49**

Novation Nocturn



The Nocturn is a small-format intelligent plug-in USB/MIDI controller for composers and DJ's. The unit has touch-sensitive rotary controls, illuminated buttons, and a pro-grade 45mm cross-fader. The GUI allows instant viewing of all parameter assignments, and a dedicated instant-access rotary encoder control allows immediate modification of any parameter. Lightweight with a small footprint and price tag.

#NONOCTURN Reg. \$149.99 **\$136.49**



Euphonix MC Control



The MC Control is an advanced Mac-only DAW control surface. The unit is housed in a sleek ergonomic chassis that connects to the computer via an Ethernet interface. Modular and expandable, the work surface sports a customizable touch screen, touch-sensitive motorized faders and rotary encoders, selectable record/automation keys, and control-room monitoring level control. The deluxe touch-screen interface offers dedicated track display, soft keys, and setup screens. An excellent value.

#EUMCCONTROL Reg. \$1,499.99 **\$1,364.99**

Pearstone PFMR



Kudos to Pearstone for introducing a professional-quality pop filter for studio vocal recording applications priced to fit a student's budget. The filter features a metal mesh windscreen designed to eliminate excessive pops and sibilance without affecting the vocalist's EQ curve, and is attached to a stable, extremely



flexible gooseneck with a secure stand mount. A pop filter is an essential piece of vocal recording gear, and the PFMR from Pearstone offers innovation, durability, and economy—and is better than a sock on a pipe clamp.

#PEPFMR5 .. Reg. \$29.95 **\$27.25**

Sony UWP-V1



The UWP-V1 is a portable, camera-mounted UHF wireless lavalier microphone system designed for ENG and documentary filmmaking applications. Housed in an all-metal chassis, the system components are endowed with superior electronics, reliable reception, and a trademark sound combining warmth and clarity. The system offers a selection of 188 user frequencies, selectable mic/line inputs and RF power output, and multi-status LCD screens. The discrete omnidirectional mic sounds quite natural. High quality and feature richness for first-time filmmakers on a lower budget.

#SOUWV13032 .. Reg. \$499.95 **\$454.95**

I.K. Multimedia Samplemoog



SampleMoog is a cross-platform plug-in software synthesizer stocked with 4GB of sound samples of the world's best-known synthesizers, from the vintage to the modern. The 16 sampled Moogs are spread across 1000 programmable presets functioning as either a stand-alone virtual synth or as a plug-in for just about any DAW. SampleMoog offers a rich sonic palette of lovingly recorded old- and new-school analog colors that will enliven any electronic musical genre, from techno to ambient.



#IKSM Reg. \$229.95 **\$209.25**

iZotope RX



Fans of restoration, archiving, and even forensic audio will appreciate this innovative cross-platform, stand-alone application. The program features five different types of noise removal, an advanced hi-res spectrogram, and a streamlined, intuitive GUI. RX is great at removing anything from pops, clicks, and hiss on vinyl or tape to dropouts, AC hum, and overload distortion on disk. Whether you're consolidating a record collection, cleaning up tracks post-session, or investigating a case, you can do it with RX and have fun, too.

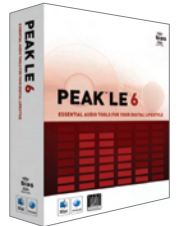


#IZRX Reg. \$279.00 **\$253.89**

Bias Peak LE 6



Peak LE 6 is an inexpensive set of audio editing, effects processing, mastering, and restoration software tools for the Mac. The program may also be used for podcast publishing, Red Book CD burning, and real-time or off-line sample rate conversion. The fully-integrated podcast publishing tool is self-contained, requires no additional software, and offers cool features such as voice ducking (that automatically lowers music levels during voice-over recording) and iTunes integration. The software reads and writes in most file formats and offers QT Movie/DV Clip sync for editing audio to video.



#BIP6LE Reg. \$99.00 **\$90.09**

Motu 828MK3



The 828mk3 is a FireWire audio interface that works on Mac- or Windows-based platforms, and features ultra high-res recording capability up to 192kHz. The unit also functions as a stand-alone digital mixer with two microphone preamps and a total of 26 digital and analog inputs for microphones, keyboards, and effects or dynamic processors, as well as 30 outputs. It's got a big, clean sound, it's loaded with features like SMPTE time code, Word Clock and MIDI, it's expandable, and it's sleek and streamlined, so it will fit cleanly into your rack.

#MA828MK3 Reg. \$749.00 **\$681.59**



T.C. Electronic Konnekt 24D



Here's a FireWire audio interface designed for modern mobile laptop recording. KONNEKT 24D has a pair of phantom-powered mic inputs, dual mic preamps, built-in effects processing, and a shiny 24-bit/192kHz-capable resolution; it's really a production tool with a big sound for tracking on location, in a hotel room, or in your bedroom. It comes with both Mac OS X and Windows XP drivers and it's lightweight too, weighing just over 3 lb. Big-boy portable studio sound for the little guy.

#TCK24D Reg. \$469.95 **\$427.65**

Access Music Virus TI Snow



The Virus TI Snow is a desktop synthesizer designed to expand the possibilities of laptop music production. It uses the sound engine that resides in the legendary Virus keyboard series, offering a palette of more than 1,000 sounds and a maze of oscillators and filters that enhance its Virtual Analog, Wavetable, and Granular synthesis modes. The unit integrates seamlessly with any sequencer, and the work surface allows for lightning-fast parameter access and intuitive programming.



#ACVTIS Reg. \$1,149.95 **\$1,046.45**

Native Instruments Guitar Rig Session



Guitar Rig was one of the first software applications to give guitarists the ability to process their sound reliably and dependably through their laptops for live situations. Choose your amp, pick a cabinet, and add effects to taste for an unbelievably rich result that also works well on other instruments, too. The folks at



Native Instruments have combined this great-sounding software with a durable all-aluminum USB-powered audio interface to make performing and recording a breeze.

#NAGRS Reg. \$179.95 \$163.75

Apogee Duet



The Duet's sleek appearance suggests a beautifully-executed piece of gear, and with Apogee's high-quality reputation for reliable equipment it doesn't disappoint. This FireWire-powered portable audio interface for the home studio or portable recording rig accommodates guitars, keyboards, and microphones with ease. Don't let the minimalist styling fool you—detailed software control functions are built directly into Apple's Logic Pro, Soundtrack Pro, and GarageBand. The Duet includes Apogee's Maestro control software for use within any Core Audio-compatible application.

#APD Reg. \$495.00 \$450.45

Presonus Firestudio Tube



The FireStudio Tube is an innovative product, combining a FireWire mixer and audio interface with a pair of tube mic preamps and two tube limiters. It records at up to 24/96 resolution and comes with Cubase LE recording software and more than 1GB of drum loops and samples. The unit sounds warm and pristine, a Presonus hallmark, and redefines the studio-in-a-box concept. The system works equally well on either Mac OS X or Windows XP/Vista Platforms.

#PRFST Reg. \$774.95 \$705.20



Alesis USB Drum Kit

If you're a drummer tired of pushing buttons and mouse-clicking to create your drum tracks, the USB Pro Drum Kit lets you play for a change, right into your favorite DAW or sequencer. The pads have Mylar heads and play like real drums, and the unique Surge Cymbal triggers are coated with a brass alloy that looks and feels genuine. Add the trigger brain with USB and MIDI connectivity and you can perform instead of program.

#ALUSBPKS Reg. \$799.00 \$729.09



Rane Serato Scratch Live



Let's face it—half the fun of scratching records is getting your hands directly on the vinyl and doing what comes naturally. Totally computer-based systems, although very cool, can leave you wishing for something more tactile, even though dragging all your records to a gig is a hassle. Scratch Live lets you scratch and mix files from your computer using regular turntables or CD players so that you can leave your precious vinyl collection at home yet feel as though you're scratching LP's.



#RASL Reg. \$538.95 \$490.44

Korg Kaossilator



The KAOSILATOR is a pocket-sized synth engine and phrase generator featuring a dynamic parameter and expression XY touchpad controller. It's a truly 21st-Century device loaded with 100 programs culled from Korg's modeling synth lineage with pitch, filter cutoff, feedback, and modulation control completely programmable from the touch-pad's horizon and vertical axis. Party and club DJ's or stage musicians will rock the house harder with the sonic craziness buried in this easy-to-use magical little box.



#KOKO1 Reg. \$199.00 \$181.09

KNOWLEDGE EMPOWERS

Text and video to raise your digital intelligence quotient



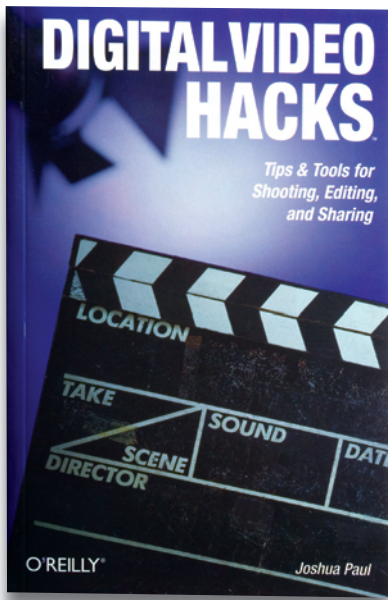
Photography: The Essential Way

The Pearson Education book, *Photography: The Essential Way*, by Barbara London, Jim Stone, and John Upton, is a well-rounded look at how digital images are captured, shaped, transmitted, printed, and saved electronically. It also includes plenty of information on traditional film-based photography and its history to round things out and provide some technical perspective for anyone who's curious about film-based techniques. Fifteen chapters in this 368-page book detail everything photographers should know about their craft. Four chapters examine basic picture taking, camera controls, lenses, filters, lighting techniques, making proper exposures, and color. Other chapters explain how to process black-and-white film, how to set up a digital darkroom, image editing, printing and display methods, how to organize and store your work, alternative processes, and more. An entire chapter is devoted to the history of photography, from the daguerreotype to the modern SLR. An online study guide to accompany the book offers a deeper look at the book's content, along with quizzes and demonstration activities. B&H# PEPEW, \$68.95

Class on Demand: Basic Training for Mac OS X Leopard

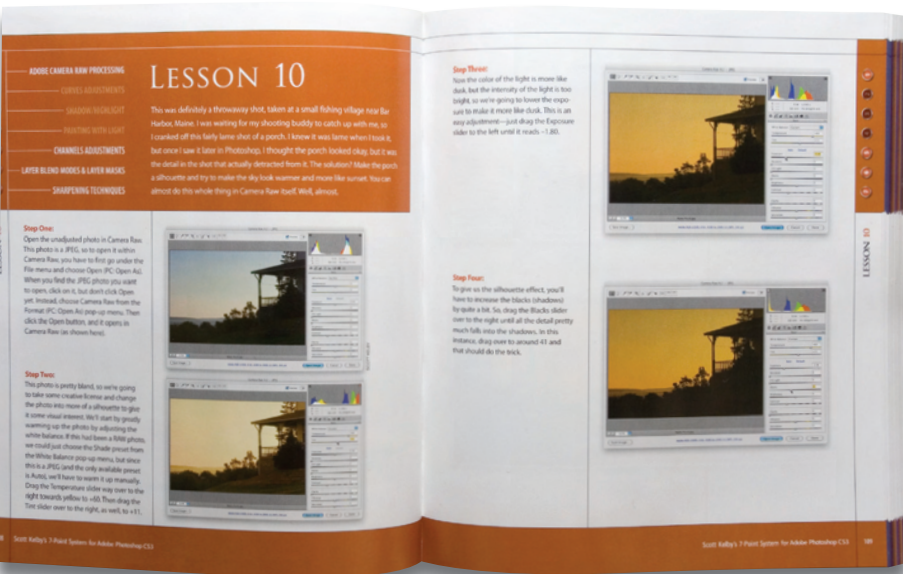
Macintosh expert Tom Wolsky is the host of a new, interactive training DVD. The disc features a 1.5-hour course aimed at users who are new to Mac OS X. In the training, Wolsky walks you through the basic aspects of using the operating system including using the Dock, Finder, System Settings, Spotlight, Safari, Apple Mail, iLife, and more. This is a terrific companion for users who are unfamiliar with the basics of Mac OS X Leopard. B&H# CLIT, \$29.95





Digital Video Hacks: Tips & Tools for Shooting, Editing, and Sharing

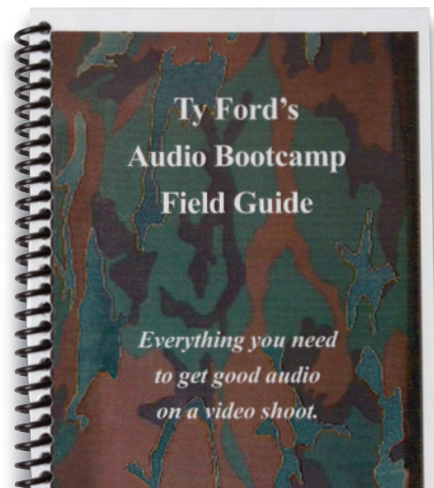
In this all-in-one book, designed for video makers at all levels, more than a dozen writers weigh in with 100 inexpensive solutions that give your movie a more professional look. Whether you're PC- or Mac-based, edit with Avid, Vegas, or FinalCut Pro, the "hacks" provided in this richly illustrated, easy-to-follow book will make your production quality seem well beyond its budget. Eight chapters cover everything from making a homemade dolly, mounting your camera to a car, shooting with blue screen (or in "bullet-time!") and cleaning audio, to making DVD menus, encoding video, and even building your own Internet TV station. This essential toolbox of tips and tricks makes a great companion to O'Reilly's more general Digital Video Pocket Guide. B&H# ORDVH, \$29.95



Ty Ford's Audio Bootcamp Field Guide

Veteran voice-over talent and audio guru Ty Ford has written a sleek, hands-on guide to audio recording in the field. Students and seasoned pros alike will benefit from Ford's emphasis on the practical, while he minimizes the technical. The topics covered include microphone types and applications, mixer function, connection and calibration, and high-quality, roadworthy gear. There's also a Q&A chapter based on his extensive professional experience as an engineer, a list of reliable equipment rental houses, and an Anti-Panic audio checklist to help you stay calm and focused while dealing with technical problems on location.

B&H# TYTFABCFG, \$24.95



Scott Kelby's 7-Point System for Adobe Photoshop CS3

Why read another Photoshop epic novel, when all you need is a short story? Scott Kelby's new Photoshop book employs his own "7-point system" work flow that eliminates the need for those exhaustive 500-page Photoshop bibles. Kelby's systematic and simple approach doesn't focus on the minute details of each Photoshop tool. Instead, it emphasizes the tools in combination with one another to achieve an optimal image. He drills in his concepts with 21 chapters and examples that encompass a variety of possible scenarios. Think of his method in terms of a ramped-up "Cliff Notes" for Photoshop.

Keep the 7 points in mind and you'll inevitably create a professional image every time. B&H# PESK7PSAPCS3, \$49.95

Behind the Shot



“I spent New Year’s Eve in New York’s Times Square, and found

there was a certain social cohesion to this event: waiting together for hours to acknowledge the moment when one year passes into the next, and then celebrating that moment with hundreds of thousands of strangers as a ball drops from the sky. I have been photographing holidays for the past year, creating a portrait of collective memory based on an event or rituals specific to each holiday. I saw this scene moments after midnight, as the police stood ready to control the departing crowds. It depicts the celebratory aspect of the holiday—as well as the order that confines it.”

Julia Gillard is a recent graduate of the International Center of Photography school in New York City. See more of her work at juliagillard.com.

Camera
Mamiya 7 II

Aperture
f8

Shutter
1/60th

Flash
Nikon SB 800

Film
Kodak Portra
NC 400

HDNA

High Definition. It's in our DNA.



It moves you away from the viewfinder.

The perfect first DSLR – 10.2 MP, Live Preview that links you and your subject, super-quick AF, Super SteadyShot® in-camera image stabilization.

DSLR-A300X
 α (alpha) DSLR Camera

The slim little camera with the big widescreen.

The ultra-slim Sony® Cyber-shot® DSC-T700 combines Optical SteadyShot™ and Smile Shutter™ technology with convenient photo album features and a dazzling 3.5" touch-screen LCD display.

- 4GB internal memory, you can carry your photos with you wherever you go.

DSC-T700
 Sony® Cyber-shot®



Capture smiles the moment they happen.

With Sony's Smile Shutter™ technology you can capture smile the moment they happen. The sleek and enviable, compact body features 7.2 megapixel resolution, Carl Zeiss® 4x optical zoom lens, and Sony's Double Anti-Blur solution for crisp, clear images.

DSC-W120
 Cyber-shot® Digital Still Camera



For great shots, start out right.

With Sony's Face Detection technology, the DSC-S750 detects up to three faces and optimizes focus and exposure for accurate, natural photos of family and friends.

DSC-S750
 Cyber-shot® Digital Still Camera

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- Stay in touch with family and friends with the integrated email application



Your Media |

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- Easily access online content with the ARCHOS Media Club

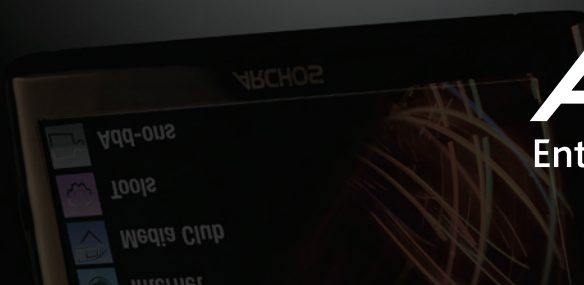


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