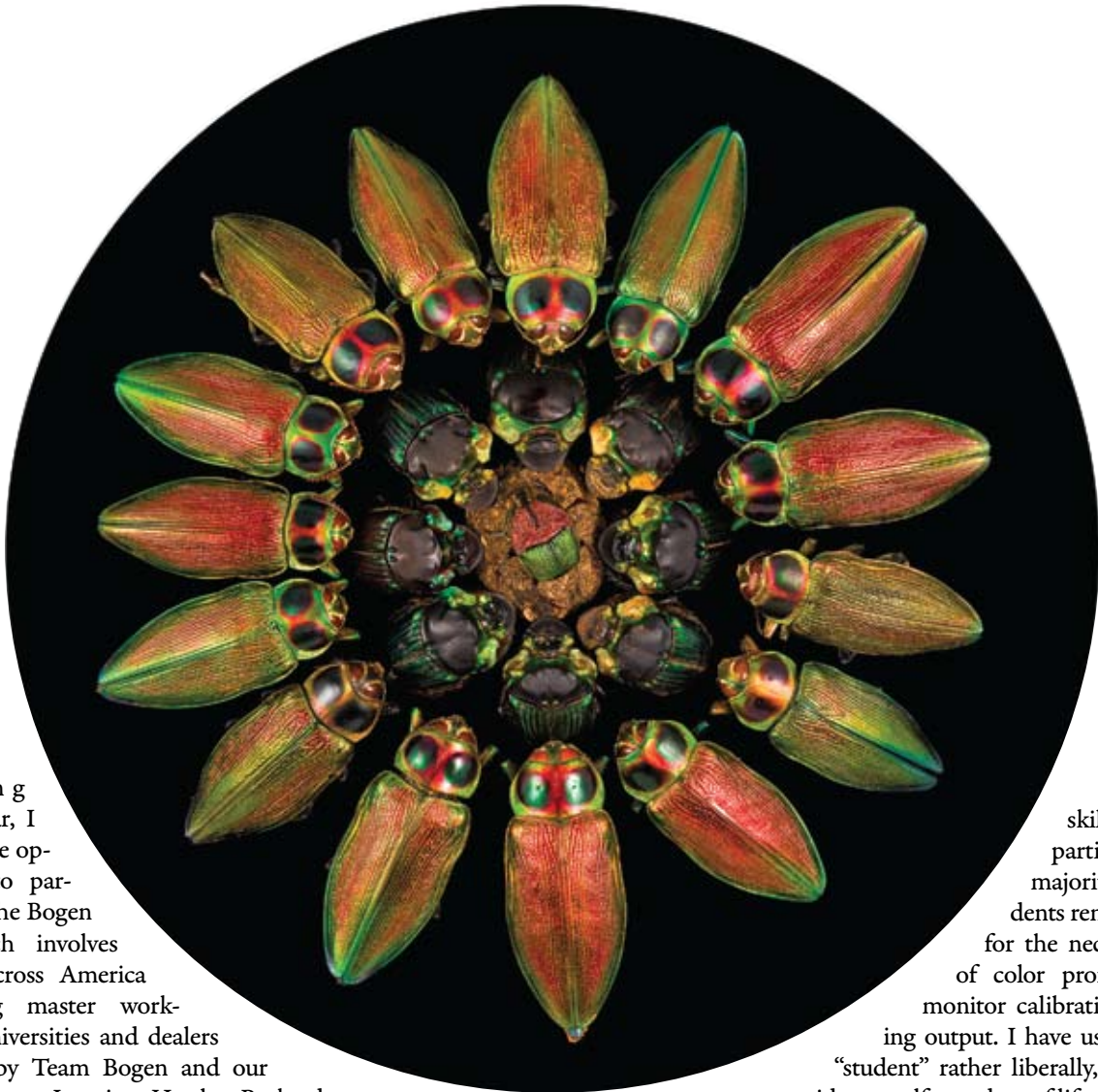


ICC Profiling From After Capture to Output (Part 1)



During the last year, I have had the opportunity to participate in the Bogen Café, which involves traveling across America and giving master workshops at universities and dealers supported by Team Bogen and our sponsors, Bogen Imaging, Hewlett Packard, Adobe, Hahnemühle, Wacom, LensBabies, Datacolor and *Rangefinder* magazine. With 40 workshops already finished for the 2007–2008 academic year, it is safe to say that I have seen, heard and responded to numerous life situations while in the field and classroom. Whether the workshops took us to a women’s halfway house, an animal rescue shelter, the Special Olympics or a children’s adoption agency, the Bogen Café has given students the opportunity to interact with subject matter that they would ordinarily avoid, while using some of the industry’s finest photographic equipment. Observing such visual stimulation has not only provided me with memorable images that will always be etched in my mind, but has given me the opportunity to participate in today’s photographic community.

Despite the skill level of the participants, the majority of students remain at a loss for the necessary tasks of color profiling—from monitor calibration to printing output. I have used the term “student” rather liberally, since I still consider myself a student of life, pushing myself to find an equilibrium between art and technology.

I never considered that a ColorVision Spyder 3 or an X-Rite Eye-One Spectrophotometer would be included in this photographer’s camera bag, but do the math; 20 schools, 20 dealers, numerous projectors, and different viewing environments all create a nightmare for image viewing.

Ever since I bought my first Apple G4—with a 23-inch Apple Cinema Display, Sony Artisan CRT monitor and Adobe Photoshop 7—I’ve struggled to get both monitors to match. There, I’ve said it; you’ve been at this longer than I have. And here I am pleading with you to start taking responsibility for what you love: creating, taking and making photographs. Even after I replaced the G4 with a G5, accompanied with a 30-inch Apple Cinema

Display and an Eizo CG221 display, I was still disappointed I couldn't get both displays to mirror each other in brightness and color, despite my X-Rite Eye-One and dual video inputs.

A few years ago, I met Derrick Brown, founder of Integrated Color Corporation and a developer of ColorEyes Display Pro, at WPPI. He proceeded to tell me about the second coming. I assumed I knew everything, because it took me another year to finally install his software. Brothers and sisters, I became a true believer. I insist that you run, don't walk to your desktop and install a trial version, especially if you have two monitors that don't want to accurately communicate with each other. Because both monitors are extremely close in calibration, I would inadvertently become involved with my editing workflow on the Apple Cinema Display, awakened by a feeling that there is something wrong in the air. The Eizo CG221 monitor is truly that much better, and for a brief period that I was without it, my output suffered from pixel editing, soft proofing and sharpening.

When incorporating ColorEyes, the program enables the user to select the LUTs values (Look Up Tables) already installed in the CG221. These values are slots of memory that remain constant and accessible when creating profiles. [Note: LUTs provide the possibility of monitor "linearization," avoiding aggressive corrections on brightness and contrast within the video card, thus reducing harsh signal edits.]

As a result, the RGB signal is cleaner, providing a smoother gradient in Eizo's 16-bit Adobe color environment. Aside from profiling your monitor(s), ColorEyes allows you to calibrate your viewing box (in this case a JUST Normlicht Image Pro 5000) through its ambient light application, closing the gap between monitor calibration, printer output and observation.

So you have spent all of this money on the latest and greatest camera gear, and you still aren't able to calibrate your monitor, regardless of what brand you have. The perfect remedy is to buy another lens or get that new bass fishing boat, but by no means should you buy a colorimeter. I'm sure your significant other wants to hear you complain about color management. I know that my wife loves to hear about the new X-Rite ColorMunki instead of a trip to Australia, Cuba, or Omaha, NE. Hey, I can joke about Omaha; I was born there!

I incorporate the Datacolor Spyder 3 Print, and X-Rite i1XT PCT into my workflow. Space doesn't allow for a review or a digital shootout between these products, especially with the new X-Rite ColorMunki (review to follow) on the block. For most of you, I believe price will determine your selection, but regardless of one's budget, there is a product available for everyone who takes their work seriously. Your consideration should also be based upon whether you will be creating many profiles over the course of your photographic career. The X-Rite i1XT provides an all-in-one solution for calibrating scanners, monitors, cameras and projectors. This specific combination has a suggested price of \$2695, but the newly developed ColorMunki also provides profiling for monitors, printers and projectors for a suggested price of only \$499.

Unlike the X-Rite, the Datacolor's Spyder 3 Print is a spectroradiometer and not a true spectrophotometer. At this year's Imaging USA, I used the Spyder 3 Print to create profiles for a portfolio of my work used by Lexjet, which was 48x72 inches to 48x120 inches, both black-and-white and color, mounted on both sides of a 12x16-foot display located in a trade show environment, and

polluted with mixed lighting. The results were "stunning" (not my words, but attendees). The Spyder 3 Print allows users to create monitor, printer and projector profiles for an MSRP of \$499. Those of you who primarily print black-and-white will enjoy Spyder 3 Print's additional grayscale test target nested within the color profile. This configuration allows subtle changes to be made on the fly without printing additional test targets, provided you are using the same substrata.

Both X-Rite and Datacolor have spent a considerable amount of time making help and accompanying tutorials easy to follow and understand. But there will continue to be those of you who will never read the instructions. I can't tell you how long I continued to build those model airplanes with the wings glued on backwards, only to figure out I should start to read the instructions

I have spent my whole life making images, and now is not the time to abandon my craft, accepting a poor compromise because of profile mismanagement.

Next time you are in front of your monitor (in my case, an Eizo Color Edge CG221), look at the various canned profiles that are in the color folder (ICC profiles built from a sampling of the same products from the same model). Open your monitor application, select and verify its ability to "see" your image correctly after capture. Now imagine what it would be like knowing that you are seeing your image correctly after you have created a custom ICC profile based upon your own display and printer.

instead of looking at the picture on the front of the box.

While the above-mentioned products multitask, the X-Rite i1iSis (XL for A3+ stock) is based upon X-Rite's i1's technology, and is only capable of reading printer test targets. But targets it reads (2500 squares printed on A3 stock) as effortlessly as scanning the imprinted barcode, providing an automated workflow, while creating multiple profiles with Profile Maker 5. Drag and drop creates a tungsten profile, a D65 profile and a D50 profile, in less than a minute. The iSis also calibrates for OBs (optical brighteners) as well, and gives the user the option of neutral gray or paper gray. This is the gold standard in the world of printer profiling, but at a price, especially when packaged with the Profile Maker 5; its MSRP is \$8000, depending on the software configuration.


My digital darkroom is located in our guesthouse, part of the historic Spanish home my wife and three dogs live in. This space houses the computers, X-Raid and Epson 7800, 9800 and Canon IPF 5000 printers. I have tried to keep the environment relatively neutral, despite the Mexican floor tile, and Knoll furniture I bought on eBay for my computer(s) station. I covered the French doors and windows with neutral gray Hunter Douglas shades that filter out about 75% of the light while I am still able to see the outside world. If you are in the need of casements, use a neutral fabric that won't produce a color cast. When the shades are pulled down, my ambient lux (Lumens per square foot) value is 3 where anything below 32 lux is considered ideal. At these lower light levels, the rod-shaped, light-sensitive receptor cells of the retina function in dim light and darkness, unable to determine color. Hence the color cast that previously occurred above 32 lux is eliminated due to the physiology of our eyes. That being said, my perfect environment exists in a 17x22-inch viewing booth. No worries about lux values, mahogany desktop or terracotta floors producing a color

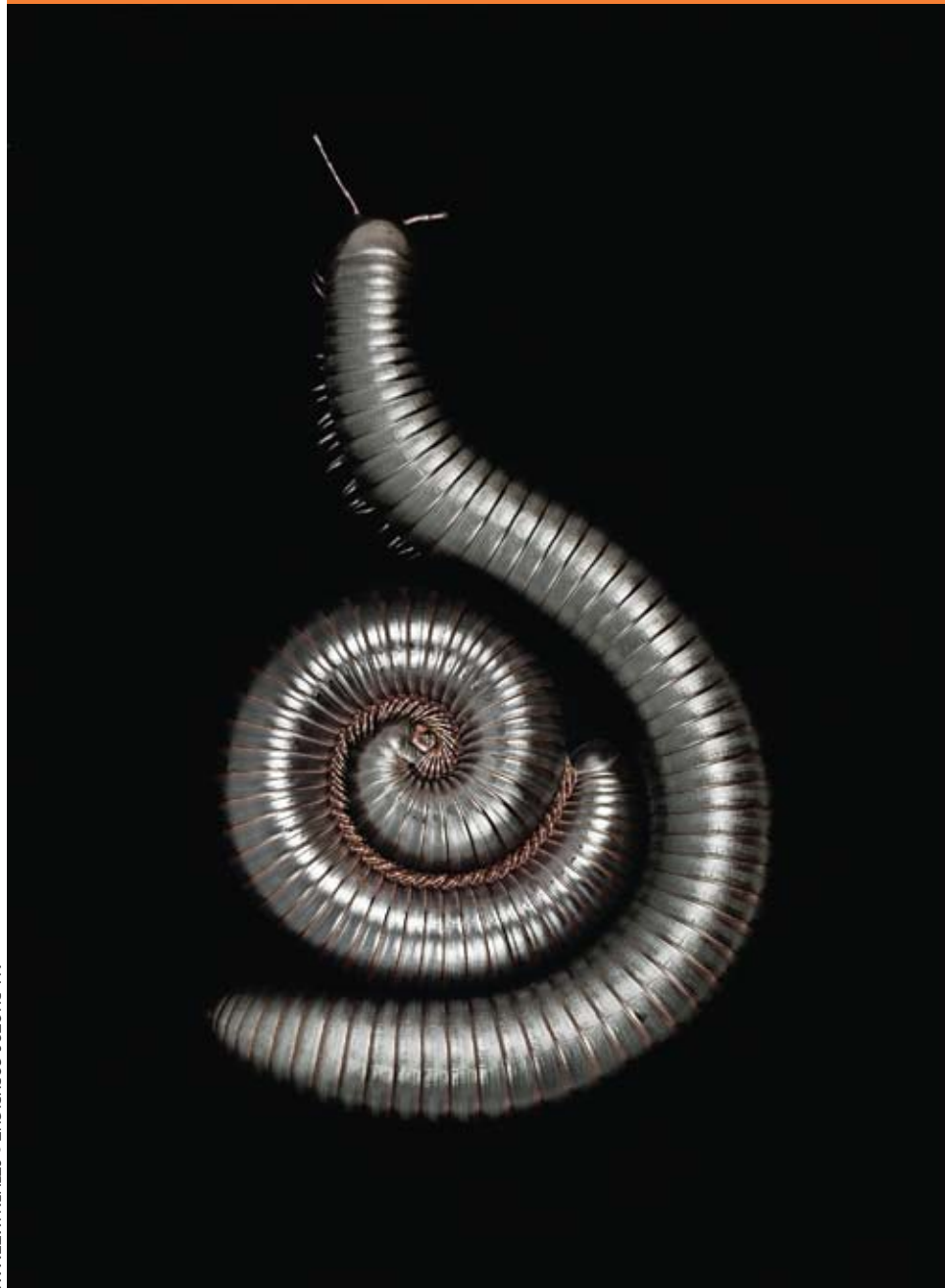
Creating these profiles provides a cross platform of color management, enabling the printer to see what the monitor does. Without these profiles, each of these devices would produce their own dependent color behavior, creating a recipe for disaster.

\$65 for 250 pounds of scrap, I realized there was no turning back.

It took a month for all of the dark to finally leave the old darkroom, installing two more French doors, Grip-a-strips (www.advantus.com) on the walls for critical print viewing, FLO modular carpet squares, and SoLux track (www.solux.net) lighting providing even illumination on two switches, one for color correction (4700k lamps) and one for black-and-white viewing (4100k lamps), all in a neutral light gray environment.

Imagine walking into a 250 square-foot lightbox. Regardless of lamp choice, the SoLux light is clean and brilliant, while maintaining a constant color temperature. The lightroom also houses an HP Z3100 44-inch printer, Epson 11880 60-inch printer and a Canon IPF 6100 24-inch printer (review to follow), all connected to CAT6 Ethernet and managed by Image Print.

Like our monitor, the printer is another dependent device with its own unique behavior, requiring ICC profiles creating a cross platform format that will describe the printers behavior in a predictable and repeatable manner with other dependent devices (monitor, camera, scanner). What you see is what you get is the anthem of fine art printing. Just as you must practice, practice, practice to get to Carnegie Hall, the same holds true with printing. A Ph.D. in printing doesn't stand for "push here dummy," but instead stands for one's individual efforts being validated in a controlled environment with color management guiding the post-visualization of the creative process. 



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Even though we spend considerable time creating profiles for monitor and printer calibration, many photographers ignore the necessity to integrate additional profiles for color management in the printing world. There is nothing more disheartening than seeing your work, perhaps published for the first time, assume an unfamiliar color cast, creating a different interpretation and representation of the actual work itself. Take responsibility for your output.

cast in my work environment. Whether you have the luxury of a light box or not, try to create a controlled environment where lux values remain constant.

After a few years of standing idle, my present darkroom recently became an additional lightroom. Anyone interested in an 8x10 Devere enlarger? I hate to admit it, but the decision to convert was a rather traumatic event. When I took the custom 12-foot stainless steel sink to the recycling plant and they handed me

Steven Katzman (aka the Ripster), a self-taught photographer, established Steven Katzman Photography, LLC in 1990. He has received numerous awards including: Kodak Professional Photography Division Corporate Grant, Polaroid Corporation Artist Grant, and

an Ilford Corporate Grant. Mr. Katzman has exhibited his photographs in numerous galleries and museums in the United States and internationally. His recent book, The Face of Forgiveness, Salvation and Redemption was featured in The New York Times Book Review, as well as Katzman being interviewed on CNN. PBS did a documentary on his current project, "A Portrait of Newtown," an African-American community in Sarasota, FL. Mr. Katzman has been on the faculty at the Ringling School of Art and Design since 2003, where he is currently teaching Advanced Digital Photography and Medium and Large Format Techniques. He is a Lexar Elite Photographer, a Gretag Influencer and is sponsored by Bogen Imaging. Visit his website at www.stevencatzmanphotography.com.