Robin Myers Imaging

Chromaxion™

Welcome to the first RM Imaging Newsletter

You are probably wondering what is this strange title, Chromaxion?

Anyone familiar with the works of Richard Buckminster Fuller, the inventor of the geodesic dome, might remember that he used a term, Dymaxion, which was composed from the term ***dy***namic ***max***imum tens***ion***. In that same sense I use the word *Chromaxion*™ to signify utilizing color in ways to get maximal results. It seemed very fitting for the title of this newsletter.

For many years I have been training and educating people on various topics in imaging; photography, scanning, color, spectroscopy, light and more. Recently I realized that many imaging subjects very important to the daily lives of those involved in imaging are not being covered in the current crop of newsletters, websites, conferences, seminars, etcetera; so I decided to start this newsletter.

This newsletter will cover topics in digital photography, color, scanning, color science, light and many other subjects, all related to imaging.

Join In!

A newsletter is only useful if it informs, aids or improves things for its readers. You, the reader can help by sending me your questions, comments, suggestions, even gripes. They will be gratefully received, even the gripes.

Contents

Industry News

New X-Rite Profiling Software

X-Rite has just announced a new profile generation program, i1Profiler. This new product will replace ProfileMaker, Monaco Profiler and i1Match. Scheduled to appear in Q4 2010, purchasers of an i1Xtreme, ProfileMaker or Monaco Profiler between April 1, 2010 and the shipment date for the new i1Profiler will receive a free software upgrade. Check www.xrite.com/i1Profiler for more information.

X-Rite's New Photography Website

Recognizing the importance of digital photography, X-Rite has started a new website xritephoto.com. This website features products and information for the photographic community. There are also links to recognized photo experts known as the Coloratti.

Not all the Coloratti are pictured on the site. Robin Myers has been one of the Coloratti from the start, although his image does not appear. It might have something to do with wanting to attract, rather than repel, customers. Regardless of the reason, if you need a Coloratti, Robin is fully qualified and available.

New Color Charts

Passport

Late in 2009 X-Rite released the ColorChecker Passport, the latest member of the venerable ColorChecker family of color charts. A technical report on the Passport is available here.

Golden Thread

Released last year from Image Science Associates is the Golden Thread system for fine art reproduction. Golden Thread consists of two targets and software to analyze the resulting images. A review is available here.

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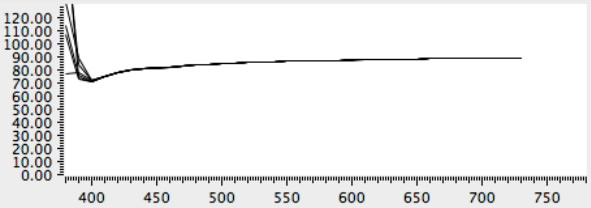
LabCoate Files

The Case of the Strange UV Measurements

A fellow called the lab recently to find out why his ColorSage™ program was rejecting spectral measurements of a Foam-Cor® board being used for flat-fielding his fine art images. No matter how many times he remeasured the Foam-Cor®, ColorSage™ refused to accept the spectral data. So he filed a formal complaint and Teck LabCoate was assigned to the case.

Grilling the user under hot D50 lights resulted in his confessing the measurements were made with SpectraShop™ 3.0.10 and an i1 Pro equipped with a UV-Cut filter. A search of the user's computer produced the Foam-Cor® spectral data causing the problem for ColorSage™. The evidence was collected and taken back to the lab for analysis.



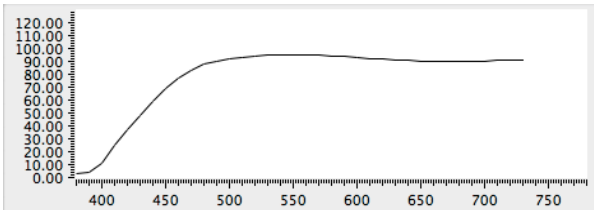
Comparing several measurements in one graph with the SpectraShop™ crime lab showed the data from 380 to 400 nm seemed to be varying randomly, abnormal behavior for Foam-Cor®. Re-enacting the crime using a similar i1 Pro UV-Cut measuring white paper produced similar results. The game was definitely afoot!

The UV-Cut filter is factory installed in the i1 Pro so it could not be arrested and hauled in for questioning. Since the i1 Pro took over the territory from Spectrolino, the previous boss, and Spectrolino had removable filters, a Spectrolino UV-Cut filter was exhumed and autopsied for clues.

The autopsy showed the UV-Cut filter to have two parts; a yellow outer portion used to filter the instrument's light source and a center blue part to filter the light reflected from the specimen before it enters the spectrometer.

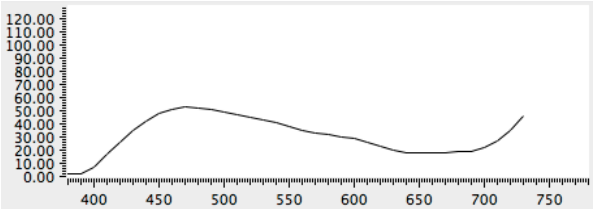
The suspect filter parts were placed in a spectral lineup.

Yellow filter



ColorSage™ is a profile generator for fine art reproduction sold by Better Light, a digital scanning camera manufacturer. ColorSage™ uses spectral measurements of the artwork, camera, lights and a white card, with images of the artwork and white card to create a profile specifically adjusted for reproducing that artwork. The libraries used for the spectral matching were developed by HP and require an HP Z3200 printer be connected to the computer for ColorSage™ to operate.

Blue filter



LabCoate noticed both filters allow almost no light through in the 380 to 400 nm region.

Checking product rap sheets he found both the Spectrolino and the i1 Pro use a tungsten-halogen bulb for the light source. Tungsten-halogen light sources are notorious for producing very low illumination in this same spectral region.

Teck remembered a tip from a confidential informant that X-Rite uses an algorithm to extrapolate the data in this part of the spectrum.

Teck put all the clues together and a warrant was issued for the arrest of the extrapolation algorithm as the culprit.

At the trial it was disclosed that since the light source produces very little light at the suspected wavelengths and the filters remove almost all of this little bit, the only thing left to feed the algorithm was mainly noise, which is mostly random in nature, so it produced results that changed as randomly as the noise.

With the case solved, the user was released from custody. LabCoate was about to send the user a bill for all the gumshoe effort but it occurred to him, what prevents this from happening again?

To prevent similar occurrences, the SpectraShop program code was changed in version 3.0.11. When an i1 Pro or a Spectrolino is equipped with a UV-Cut filter, SpectraShop sets the spectral data below 400 nm to zero to prevent any harm to innocent spectra.

Color Charts for Fine Art Imaging

Targets for fine art imaging (FAI) come in two basic flavors; ones primarily for checking the physics of the system, and ones for checking each image capture.

System targets can get information of the imaging device (camera or scanner), the optics involved, the system alignment, the processing of the image information, and more.

Artwork targets are imaged with the artwork and answer questions about the quality of the image and the conditions used to make the image.

In the sidebar you can see some of the items a system level target is expected analyze, along with a list of questions an artwork target is expected to help answer.

A **survey report** is now available which lists the various targets currently in use for system and artwork imaging. In this report you will find evaluations of how well the targets perform various analysis tasks.

Items analyzed for each system

OECF (tonal reproduction function)

Neutral balance

Noise

Color accuracy

Geometric distortion

Uniformity

Resolution

Spatial frequency response

Color registration

Dynamic Range

Banding

Questions to be answered for each artwork image

Was the image in focus?

What tone curve was used for the image (OECF)?

Was the image capture neutral balanced?

Was the sensitivity set too high?

Are the colors accurately reproduced?

Is there any distortion in the image?

Was the image flat-fielded (lens and lighting falloff)?

Was the image plane parallel to the artwork?

Was polarized lighting used?

Was the image free of observer metamerism failure?

In what directions were the lights?

Was the exposure set properly?

Was veiling glare controlled?

Free Stuff!

X-Rite has just released a new program for managing DNG profiles. This program, called DNG Profile Manager (I guess the cute product name person was laid off), is now available for free (well, almost) for anyone that registers their ColorChecker Passport. All it costs is the time it takes to register.

During the registration process you will be asked for the Passport's serial number. As far as it can be determined (since X-Rite does not tell anyone where to find this), it is the number in the lower-left corner of the Passport page with the Quality Guarantee. This is the page inside the back cover. The serial numbers are the six digits following the text "MSCCPP-".

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Universal Test Target

Now available from Image Engineering is the Universal Test Target. The product of a collaboration between the National Library of the Netherlands, Image Engineering and Fachverband für Multimediale Informationsverarbeitung e.v., this target is designed for a variety of photographic tests. A review is available at here