Digital Picture to Analog Darkroom print

Originalartikel

Backup

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picky nature, I’m not impressed by the prints in black and white. Each time I put side to side a professional print with an old print I did in the dark room, I see a difference in tone. Perhaps it is because of the use of color paper event for black and white prints. But I’m using my film camera very rarely now, almost all my pictures from the last decade are digital. I know it can sounds heretic for true black and white film lovers, but I always had this in mind – how could we transfert a digital image onto a true analog sensitive black and white paper. Recent developments Some resin 3D printers uses a monochrome LCD screen. Monochrome because the UV light is not absorbed by the color filter of the usual color LCD. As there is now a small market for these kind of displays, we can now find rather large panels with high resolution. This is a 13″ LCD, monochrome, and 4K resolution. It means 3840 x 2160 pixels – more than 8 Megapixels – and a density of 330 pixel/inch (1 pixel is 76 micron). There is no back-light, and it connects easily to a computer HDMI port through an adaptation board. I bought it from Duobond Displays Shenzhen here. Usually 300 dpi (dot per inch) is used for prints. It could be more dense of course, but it is what I observe on the photographic prints I get from professionals. (See later for close up pictures). Make a protective frame The LCD panel is fragile, better to make a frame to handle it safely. <div class=„tiled-gallery type-rectangular tiled-gallery-unresized“ data-original-width=„625“ data-carousel-extra=„{"blog_id":58914234,"permalink":"https:\/\/pierremuth.wordpress.com\/2020\/04\/18\/digital-picture-to-analog-darkroom-print\/","likes_blog_id":58914234}“ itemscope=„itemscope“ itemtype=„http://schema.org/ImageGallery“><div class=„gallery-row c5“ data-original-width=„625“ data-original-height=„289“><div class=„gallery-group images-1 tiled-gallery-item tiled-gallery-item-small c2“ data-original-width=„194“ data-original-height=„289“><img data-attachment-id=„1350“

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full wp-image-1343“ src=„https://pierremuth.files.wordpress.com/2020/04/img_7281.jpg?w=625“ alt=„IMG_7281“ srcset=„https://pierremuth.files.wordpress.com/2020/04/img_7281.jpg?w=625 625w, https://pierremuth.files.wordpress.com/2020/04/img_7281.jpg?w=1250 1250w, https://pierremuth.files.wordpress.com/2020/04/img_7281.jpg?w=150 150w, https://pierremuth.files.wordpress.com/2020/04/img_7281.jpg?w=300 300w, https://pierremuth.files.wordpress.com/2020/04/img_7281.jpg?w=768 768w, https://pierremuth.files.wordpress.com/2020/04/img_7281.jpg?w=1024 1024w“ referrerpolicy=„no-referrer“ /> I removed the dust from the projector, get the 3 chemicals and black and white paper. I spent a bit of time to make the cave lightproof, but after all it is not very complicated. After the first test, I was happy to see that the LCD is perfectly able to block the light with black pixels and let enough light to pass through with white pixels. Making on the paper respectively white and black pixels. <div class=„tiled-gallery type-rectangular tiled-gallery-unresized“ data-original-width=„625“ data-carousel-extra=„{"blog_id":58914234,"permalink":"https:\/\/pierremuth.wordpress.com\/2020\/04\/18\/digital-picture-to-analog-darkroom-print\/","likes_blog_id":58914234}“ itemscope=„itemscope“ itemtype=„http://schema.org/ImageGallery“><div class=„gallery-row c12“ data-original-width=„625“ data-original-height=„535“><div class=„gallery-group images-1 tiled-gallery-item tiled-gallery-item-large c8“ data-original-width=„358“ data-original-height=„535“> <div class=„gallery-group images-2 c11“ data-original-width=„267“ data-original-height=„535“><div class=„tiled-gallery-item tiled-gallery-item-large“ itemprop=„associatedMedia“ itemscope=„itemscope“ itemtype=„http://schema.org/ImageObject“><img data-attachment-id=„1373“ data-orig-file=„https://pierremuth.files.wordpress.com/2020/04/motif.png“ data-orig-size=„547,547“ data-comments-opened=„1“ data-image-meta=„{"aperture":"0","credit":"","camera":"","caption":"","created_timestamp":"0","copyright":"","focal_length":"0","iso":"0","shutter_speed":"0","title":"","orientation":"0"}“ data-image-title=„motif“ data-image-description=„“ data-medium-file=„https://pierremuth.files.wordpress.com/2020/04/motif.png?w=300“ data-large-file=„https://pierremuth.files.wordpress.com/2020/04/motif.png?w=547“

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/> Using time to generate grays As a friend advised me, the solution is to use the exposure time to generate smooth gray values: like resin 3D printers do with each layers, here exposing an area longer will give darker tones. I made a small program to expose square tiles of the paper with different times. The idea is to get a calibration curve.   After several attempts I got a curve: time in function of darkness. It appears that another phenomenon should be taken in account: the paper takes 1 or 2 seconds to react. Then it is very sensible for the first 15 seconds, then it gradually looses reactivity, so it takes longer to have a slightly darker black. The next step is to make a program that translate the tone value into time, and generate the animation.

See below the famous Big Buck Bunny as an example (the time between each values is constant on the GIF, but not when generated with the program) :   Comparisons and outlook It is indeed quite hard to show with pictures the different feelings of prints. Below, on the left is a professional print with their tunings and on the right is the black and white Ilford paper with my own settings (less contrast and less digital sharpening). <img data-attachment-id=„1348“ data-permalink=„https://pierremuth.wordpress.com/2020/04/18/digital-picture-to-analog-darkroom-print/img_7292/“ data-orig-file=„https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg“ data-orig-size=„1280,1026“ data-comments-opened=„1“ data-image-meta=„{"aperture":"5.6","credit":"","camera":"Canon EOS 5D Mark II","caption":"","created_timestamp":"1587218064","copyright":"","focal_length":"28","iso":"800","shutter_speed":"0.008","title":"","orientation":"0"}“ data-image-title=„IMG_7292“ data-image-description=„“ data-image-caption=„“ data-medium-file=„https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=300“ data-large-file=„https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=625“ class=„alignnone size-

full wp-image-1348“ src=„https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=625“ alt=„IMG_7292“ srcset=„https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=625 625w, https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=1250 1250w, https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=150 150w, https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=300 300w, https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=768 768w, https://pierremuth.files.wordpress.com/2020/04/img_7292.jpg?w=1024 1024w“ referrerpolicy=„no-referrer“ /> There is still room for improvements, especially on the light tones, but I prefer the true blacks of the b&w paper. It is difficult to see, and I’m very picky, but the professional print is a bit greenish. On the other hand, the black and white paper is by definition unable to produce colors. To come back on the resolution, here is some close up of these prints : Pixels are visible on both prints and are about the same size. However, the LCD leaves tiny vertical lignes. I let you make your own conclusions. But I can give you my feelings. I think it is a good solution to get digital pictures printed on a true black and white paper. It will not be better than a print from a film or high quality prints from a professional. However it gives good result in roughly 6 min. One minute for exposure, 2 minutes revelation bath, 1 minute stop bath, and 2 for the fixing bath. Rinse with water, et voilà 😉 <img data-attachment-id=„1374“ data-permalink=„https://pierremuth.wordpress.com/2020/04/18/digital-picture-to-analog-darkroom-print/img_7286-2/“ data-orig-file=„https://pierremuth.files.wordpress.com/2020/04/img_7286-2.jpg“ data-orig-size=„1280,1280“ data-comments-opened=„1“ data-image-meta=„{"aperture":"5.6","credit":"","camera":"Canon EOS 5D Mark II","caption":"","created_timestamp":"1587217583","copyright":"","focal_length":"28","iso":"200","shutter_speed":"0.04","title":"","orientation":"0"}“ data-image-title=„IMG_7286-2“ data-image-description=„“ data-

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