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Computer Graphics Research paper

Film vs digital photography

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Abstraction

Film and digital cameras were always rivals in the photography world, even though they serve the same functionality. The goal of this paper is to find out when photographers prefer one camera to another and the reason for their choices. The analyzes have been done by comparing technical features of each type, and it has been concluded that those people who prefer film thinks that nothing could compare to its photo quality, while on the other hand, people who choose digital one consider it is much convenient and easier to use.

Introduction

When it comes to photography, there are always a lot of discussions around film and digital cameras. Even though film photography is much older that digital, a lot of people still love taking pictures with their old school Kodak camera because it creates a unique vintage effect. Those effects became so popular that a lot of mobile apps these days, such as VSCO and Instagram, are trying to replicate. On the other hand, other photographers consider this technique is outdated and prefer using digital camera more. This is an interesting topic to analyze because we get to know why professionals prefer film to digital and vice versa, and what are advantages and disadvantages of each kind.

State of the art review

Film Photography

Film cameras have been around for more than 100 years already. In order to produce photos, these cameras use films – a transparent strip of plastic, coated on one side with a gelatin emulsion, that contains small light-sensitive silver halide crystals. Each time a photo is taken, the shutter opens and gets the light strikes the emulsion, followed by a chemical reaction that rearranges those silver halide crystals.

There are several factors that makes film photography such appealing. First of all, film cameras are really good at capturing higher resolution images. Therefore, film is preferred for photos that contain a lot of textures and in big sizes, such as landscapes. Another plus is that a film camera has high dynamic range - an ability to retain highlights. This feature helps photos to blend colors much better and keep the balance between brightness and shadows, especially if the photo is overexposed. Additionally, film cameras have a larger sensor that creates a shallow depth of field. A small aperture number creates a great bokeh effect on pictures. Finally, pictures that were taken by a film camera have a nice, smooth grain on them, due to the high sensitivity in films.

Digital Photography

Unlike film cameras, digital cameras use an array of electronic photodetectors to capture an image, which is get stored as a digitized version on a memory card and can be viewed, printed and edited right away without developing.

As opposite to film cameras, digital are very sensitive to exposure due to low dynamic range. They don't produce much thermal noise on images as most digital cameras apply noise reduction to long exposure photos. Most cameras even offer an autofocus feature using face or contrast detection to find an object, which is very convenient because the user does not have to adjust the lens manually. However, sometimes it gets focused to a wrong object and it's very painful to adjust it.

While a lot of digital cameras can't reproduce as high quality images as film cameras, it is still possible to get something really close by investing in high-end DSLRs, such as Canon 5D or Nikon D810. Only these cameras can achieve a bokeh effect that has been seen in photos taken by a film camera, due to the availability of fast lenses with a minimum aperture of f/2.8. For example, there is a USSR lens brand Helios that used to produce lenses for SLR cameras, but

due to the popularity of DSLR cameras, they started to make the same type of lenses for digital cameras as well.

DSLR Film

Discussions

After analyzing individual's preferences on film and digital cameras, it has been examined that there are two major factors determine user's choice: price and development process. While film cameras are not expensive in general, it has significant drawbacks in terms of ongoing expenses on films. As the number of photos that can be taken on of each film roll is not much, it is not advisable to take pictures spontaneously and waste each frame. The last minor point is that photos are not viewable until films get scanned in a lab. Digital cameras, on the other hand are very convenient, but there is a tradeoff: in order to get a good digital camera, one have to invest thousands of dollars on equipment, that includes not only body but various lenses as well. Cheaper digital cameras have an infinite number of depth of field, which is impossible to create macro or bokeh effect in general.

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