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Seeing What is Not There: The Art and Process of Infrared Photography

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“SEEING WHAT IS NOT THERE”

The Art and Process of Infrared Photography

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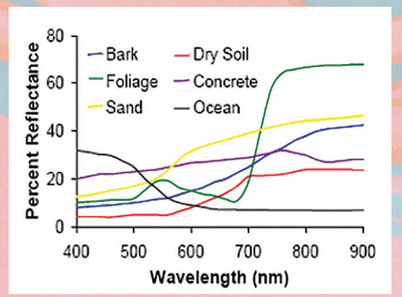
INTRODUCTION

Infrared photography is a seldom-explored photographic technique, as the concept of infrared is one that continues to elude many individuals. Infrared light falls outside of the perception of the human eye. That which can be seen by the human eye is known as the visible spectrum, and the spectrum known as infrared, or rather the photography term of “near-infrared” used by Bob Vishneski, is a range of 700-1200 nanometers that falls outside of this visible spectrum. A visual representation of this difference between the visible spectrum and the infrared spectrum can be seen in *Figure 1* from J. Andrzej Wrotniak. The height of curves between 400-600 nanometers is an example of how bright the substances are according to the visible spectrum. But from 700-900 nanometers, these substances change in brightness, showing the difference of the infrared spectrum. Therefore, when the infrared spectrum is applied to photography, much can be learned about the tonality and surrealism that is produced.

Figure 1



Capturing infrared images allows humans to view the best example of near-infrared light, as the human eye can see only a few nanometers into the infrared spectrum, hence the term “near-infrared”. This process can be done in a multitude of ways, but using a lens filter is one of the more practical and affordable avenues to pursue. Many professional photographers completely convert cameras to be infrared specific, and this was a process first attempted by the researcher. However, with an old camera body and less experience, this conversion was unsuccessful, therefore leading to the application of a lens filter. After examining many reviews on infrared filters, the researcher came to the decision for the Hoya R72 infrared filter. According to Bob Vishneski, the Hoya R72 infrared filter is not only more affordable, but also produces high quality infrared images that focus on the broad spectrum of infrared. This high accuracy was found to be true and resulted in unique editing processes of the straight out of camera images that made them more aesthetically pleasing while also providing a glimpse into a world that is normally unseen.

PURPOSE

The purpose of this study is to accurately capture near-infrared light, providing viewers with an example of infrared colors that fall outside of the spectrum of what can normally be seen. In this process, an alternative artistic product is provided for those in the design industry. The research conducted started with the conversion of a DSLR camera but became a focus on the capabilities of the Hoya R72 infrared filter as applicable to a larger population of photographers, as the camera conversion is expensive when done correctly.

Visible Spectrum, Straight out of Camera

Near-Infrared, Straight out of Camera

Near-Infrared, Edited

Visible Spectrum, Straight out of Camera

Near-Infrared, Straight out of Camera

Near-Infrared, Edited

Visible Spectrum, Straight out of Camera

Near-Infrared, Straight out of Camera

Near-Infrared, Edited

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MATERIALS/METHODOLOGY

Research was conducted by first attempting to convert an older-bodied DSLR camera by removing its infrared sensor. This process would allow infrared light to be the only light filtered through the camera as opposed to only allowing visible light rays. After this was found to be unsuccessful, a Hoya R72 58mm screw-on infrared filter was purchased and used on a Canon Rebel T6 DSLR camera to capture the near-infrared images. Alex Morrison’s article explaining the process of shooting infrared without expensive costs outlines the methods that the researcher implemented in their initial attempts at infrared photography. One of the largest obstacles was the long exposure required when shooting with the Hoya R72 infrared filter. Due to this necessary long exposure, a tripod was used in the capturing process with many before and after images being included. Once the photographs were taken, the process of editing them for comparison was done using Adobe Photoshop and Adobe Lightroom. The images were then composed to show the original visible light spectrum image, the straight out of camera infrared image, and the edited infrared image to exhibit these distinctions.

RESULTS/CONCLUSIONS

The first step of this research was to attempt the conversion of a older-bodied DSLR camera from once restricting infrared light to then allowing only infrared light. The process of attempting this on an older camera was done in order to provide a revitalization of a camera no longer used and avoid breaking the researcher’s primary camera. This process was also attempted in order to avoid the expensive cost of sending the camera to a conversion company, but was found unsuccessful. A newer model of camera with more accessible parts could potentially lend itself to the successful infrared conversion. Using additional funds to send the camera to a professional conversion company could be another option to achieve the conversion.

After the failed conversion, the researcher instead utilized a Hoya R72 infrared lens filter on a Canon Rebel T6 DSLR camera to take the infrared images. This filter provided an affordable approach to capturing infrared images and still produced high quality images that showed the near-infrared lighting. The minor learning curve that comes with trying a new product was worthwhile for the use of the Hoya R72 infrared filter and therefore comes recommended from the researcher.

The initial infrared images straight out of camera displayed near-infrared lighting that otherwise is outside of the visible spectrum for human eyes. The resulting near-infrared images, which consisted mainly of red to purple coloring, then provided a new artistic quality when it came to the editing process. The process used to edit these images was in reference to infrared photographer Noe Alonzo’s process as demonstrated in his tutorial titled “How to Edit Infrared Photos in Lightroom.” The researcher’s straight out of camera images were processed first in Lightroom to reduce the image temperature before opening in Photoshop. Once in Photoshop, the images were channel swapped in their respective red and blue colors before final editing touches were done in Lightroom. To finalize this post-processing, the hue, saturation, and luminance of the images were adjusted to produce surrealistic color features and improved tonalities. Final images after post-processing therefore had a new and aesthetically pleasing look, while providing insight into the visuals of infrared lighting.

The images included on this poster display the three steps of the infrared photography research:

1. The visible spectrum digital image
2. The straight out of camera near-infrared image
3. The edited infrared image