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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 in photography, much can be learned about the tonality and saturation that is produced.

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 most 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 screw-on infrared 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 infrared images that focus on the broad spectrum of infrared photography research:

The images included on this poster display the three steps of the infrared photography 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 composited 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 an older-bodied DSLR camera by removing its infrared sensor. This process would allow infrared light to be the only light to pass 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 composited to show the original visible light spectrum image, the straight out of camera infrared image, and the edited infrared image to exhibit these distinctions.

**REFERENCES**