

# Infrared Photography in the Digital Age

Mike Nelson

Bill Woody

# We will discuss

- What infrared (IR) photography is
- Why photograph in IR
- What the world looks like in IR
- How to modify a digital camera for IR
- Taking IR images
- Processing IR images
  - Mike Color Swap Faux Color
  - Bill B&W Monochrome

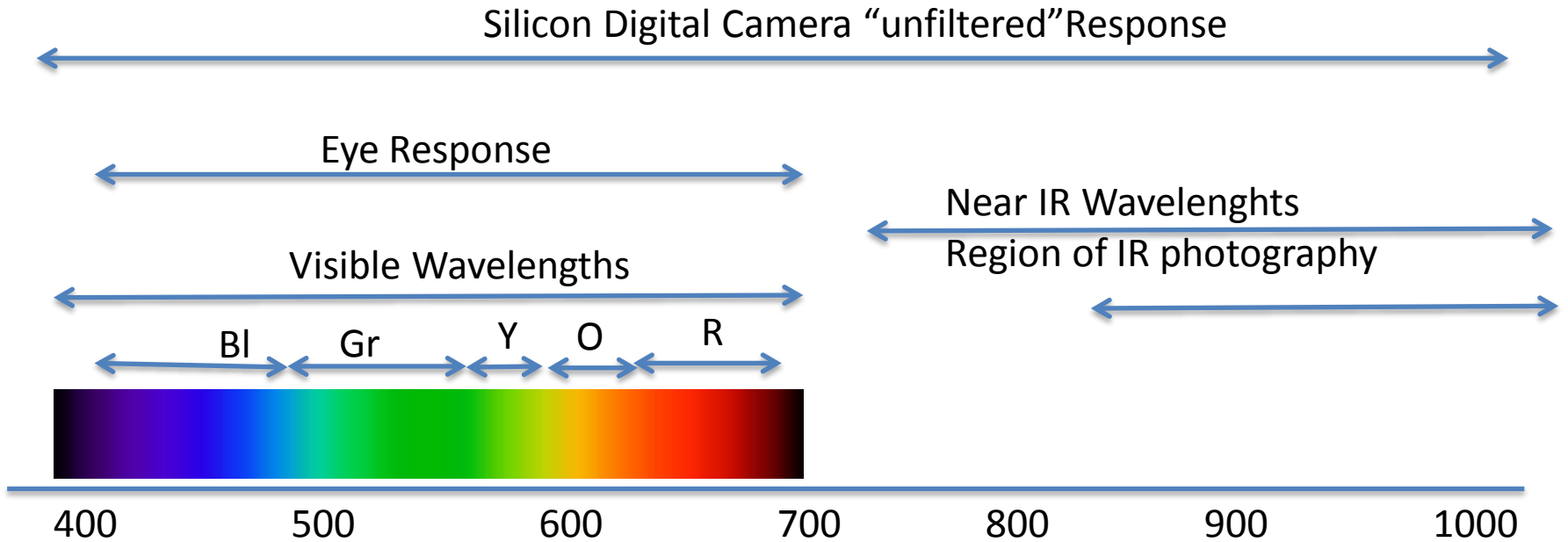
Looking at some examples!

<https://www.lifepixel.com>

# What is IR Photography?

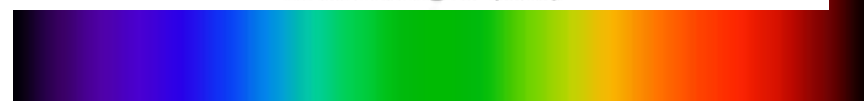
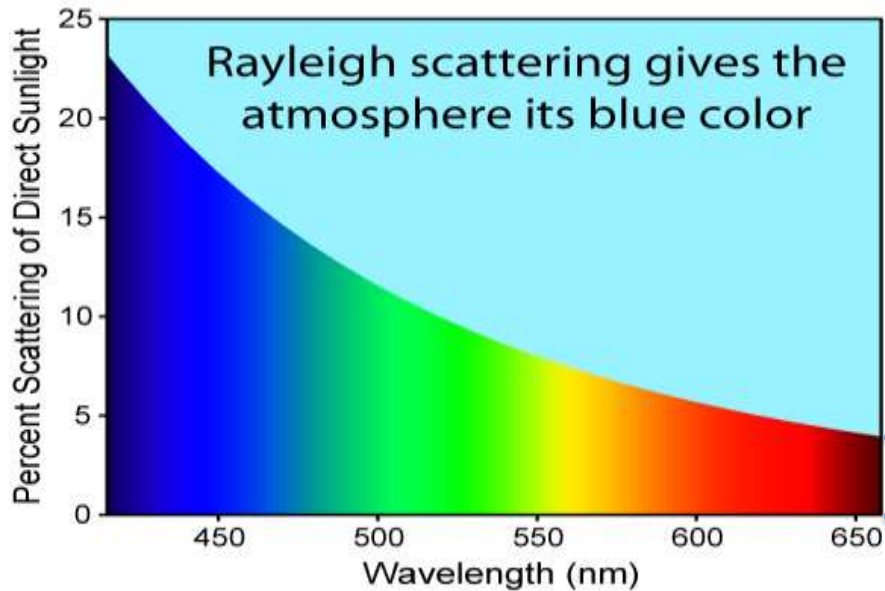
- Infrared is a part of the light spectrum that the human eye cannot see
- Most cameras can't see IR either
- IR photography = taking photos in only IR illumination

# Color and Wavelengths



# Color and Wavelengths

## About the light & Scatter



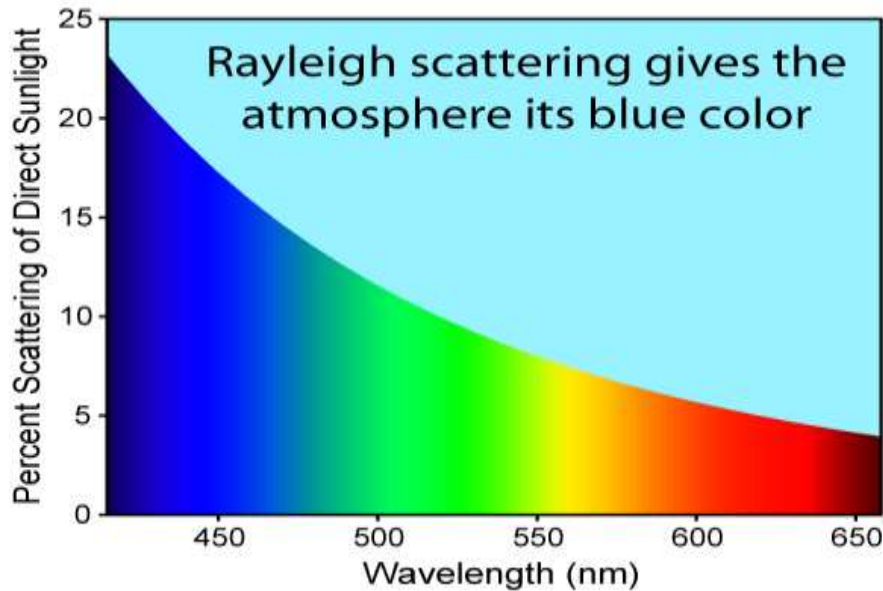
400                      500                      600                      700                      800                      900                      1000

For (Historical) B&W Photography  
Scenics often were photographed with  
Yellow or Red filters  
Think Ansel Adams

Yellow filter ~ 2x reduction in total light  
Red filter ~ 4 x reduction in total light

But both gave increase in Contrast  
by reducing Haze  
and also "Darkened" the sky

# Color and Wavelengths About the light & Scatter



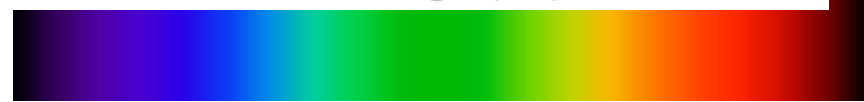
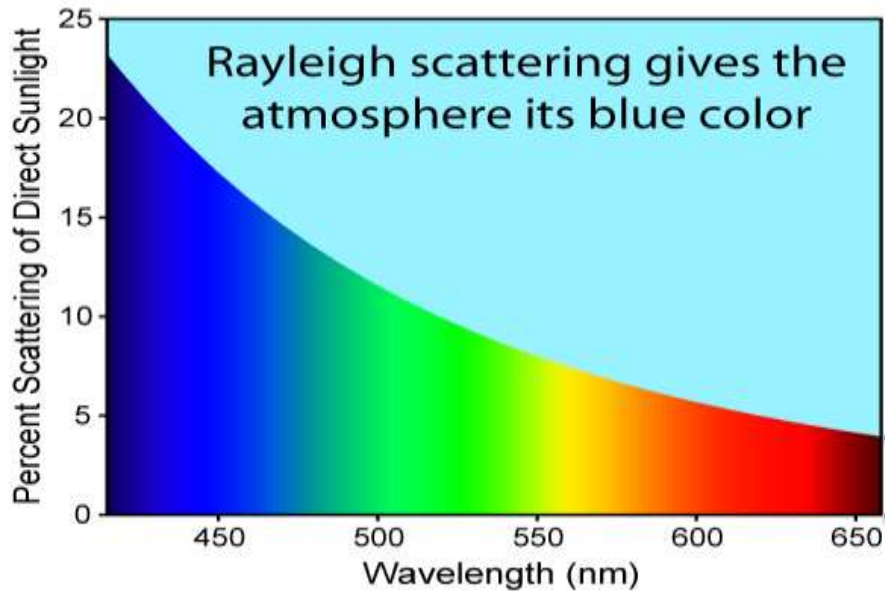
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# Color and Wavelengths about IR SKYs



400                      500                      600                      700                      800                      900                      1000

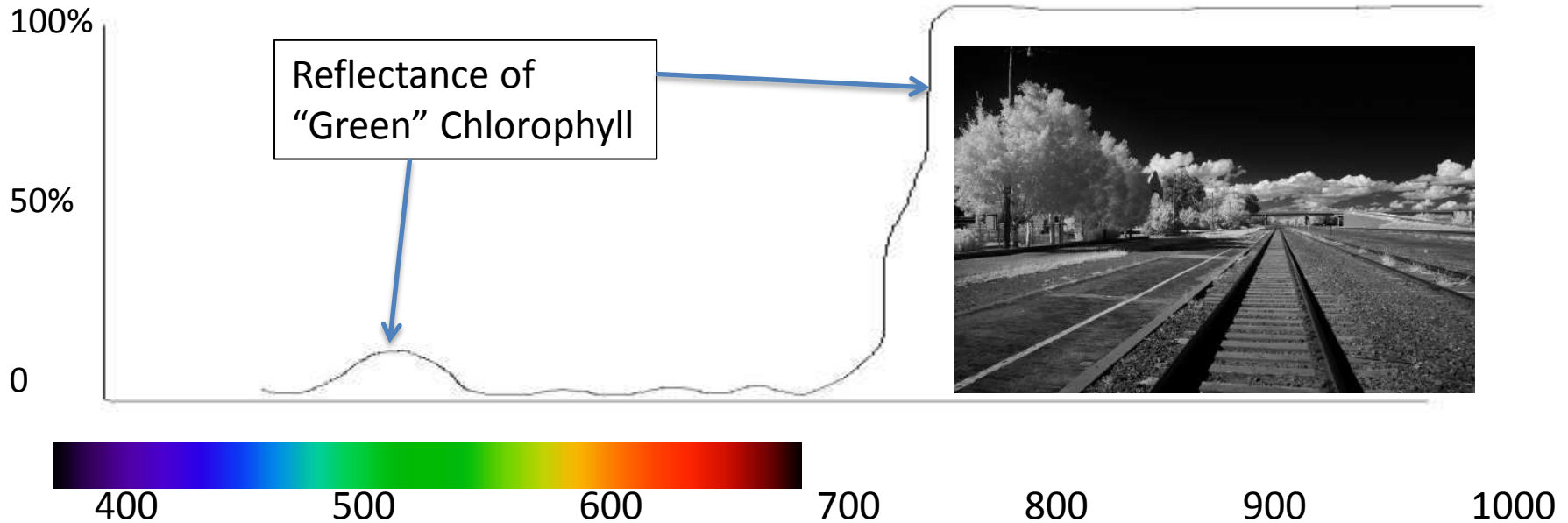


Near IR Monochrome Photography  
Skys get darker by Eliminating MORE  
Visible and Blue light  
And increase the Contrast of the image

# Color and Wavelengths

## About the growing stuff - chlorophyll

Need IR photo



Near IR Monochrome Photography  
Skys get darker by Eliminating MORE  
Visible and Blue light  
And increase the Contrast of the image

720 IR Filter

820 IR Filter



The “Near IR” Image  
Dark Skies – White Trees -- High contrast sometimes

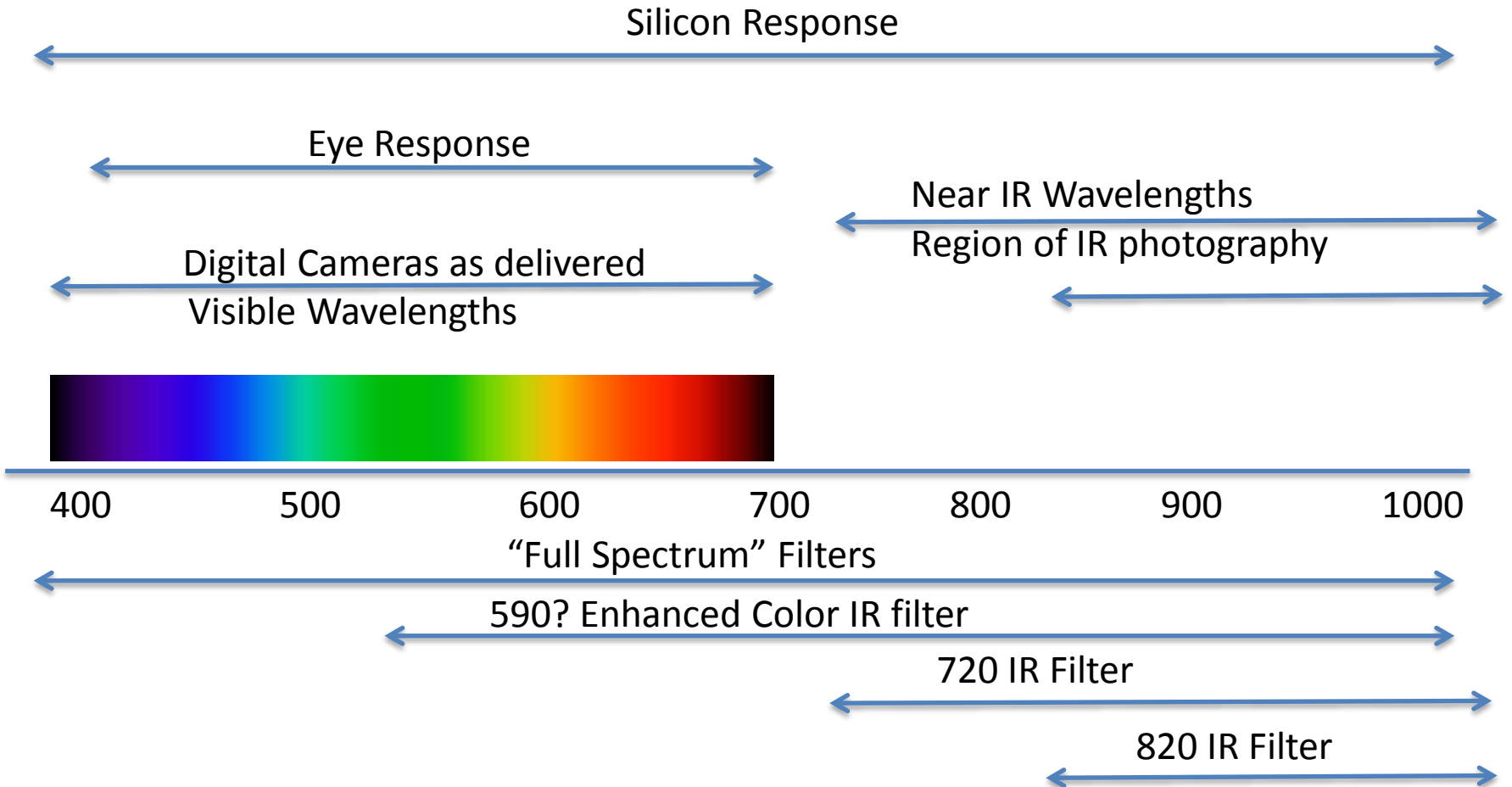


# How do I get my camera to “see” IR? A Modified Camera is Required

- Remove IR blocking filter from front of sensor
- Option 1-Replace it with a specific IR filter
- Option 2-replace it with plain glass
  - Then use IR filter of choice - On the front of the camera Lens
  - & Use visual bandpass filter for visible light
- Commercial filter removal/replacement costs ~ \$300
- External filters cost ~\$75

# Color and Wavelengths

4 common filters to cover the sensor  
TRANSMITTED Wavelengths shown



# Camera Options

<https://www.lifepixel.com>

<http://www.spencerscamera.com>

A Google search will yield many others, including do-it-yourself Instructions!!

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Camera Type	Point and Shoot	Mirrorless	DSLR Without live view	DSLR With Live view
Examples	Canon G-series	Olympus Micro 4/3	Your older DSLR	Your older DSLR
	Many other	Fuji APS Sony APS/or FF	Or a really cheap one from anywhere	Or a cheap one from anywhere
Pros/Cons	LCD Display	BEST viewing options	Poorest viewing options	LCD Display
	Good viewing		Cannot see IR reponse until photo is made	Good viewing option
			Cannot see exposure until after exposure is made	Can see both effect and exposure!
Expense	Variable \$	Most \$	Can be cheap	Can be as expensive
Conversion	\$200+	\$250+	\$300+	\$350+

# IR filters Placement

## Internal IR Filter

- Advantages
  - Most your lenses will work
  - If you have live view or EVF, you can focus normally
  - Camera is always ready for IR
- Disadvantages
  - Camera can only be used for IR
  - Only one IR filter available

## External IR Filter

- Advantages
  - You can use any IR filter
  - You can use visible bandpass filter for “normal” photography
- Disadvantages
  - Must add/remove filters
  - More sensitivity to lens flare

# Mike says: so, why photograph in IR?

- Mike loves “Faux Color”
- IR lends itself to shooting in bright daylight
  - No worries about golden light
- IR images are different, as we will show you
- Since you are shooting “invisible” light,
  - You can get a different view of the world
  - You can create lots of interesting post-processing effects
- Demonstration of Faux Color processing

# Bill says: so, why photograph in IR?

- As a black and white photographer,
  - Moving out of visible reduces haze
    - Haze is Blue
    - In classic B&W – move to red
    - Now it is easy to – move to “near” Infrared
      - Even less blue haze
  - AND!!!
    - Trees are White!!! Ethereal?

# Summary

- Other issues:
  - Custom White Balance should be set in the camera
  - Not all lenses work well in the IR (Hot Spots)
  - What you see may be surprising
    - Have fun
- Links:
  - <https://www.lifepixel.com>
    - Many examples
    - Identifies lenses which work well in the IR
    - Detailed instructions on setting “in-camera” White Balance
  - <http://www.spencerscamera.com>
  - <https://infraredatelier.wordpress.com/ir-galleries/infrared-image-gallery/>



Some Surprises – Often  
People are lovely – soft, Clear Skin / Clothes are surprising

