Enhancing and Colorizing Infrared Images in Low Light Conditions

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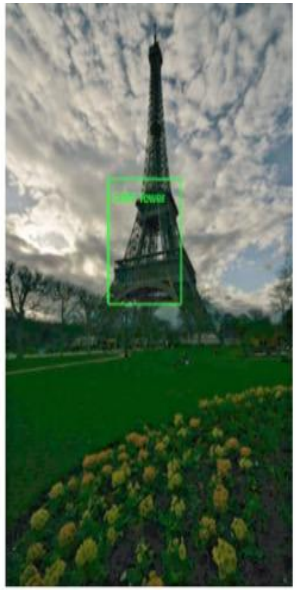
Problem statement



Landmark	93%
Sky	93%
Historic Site	85%
Tourist Attraction	85%
Grass	78%
Cloud	77%
Tower	73%
National Historic Landmark	70%

Sky	97%
Cloud	93%
Landmark	91%
Spire	83%
Darkness	81%
Atmosphere	79%
Dusk	78%
Dawn	77%

Dehazing Algorithm

Brightness Preserving Dynamic Histogram Equalisation

Our suggested method

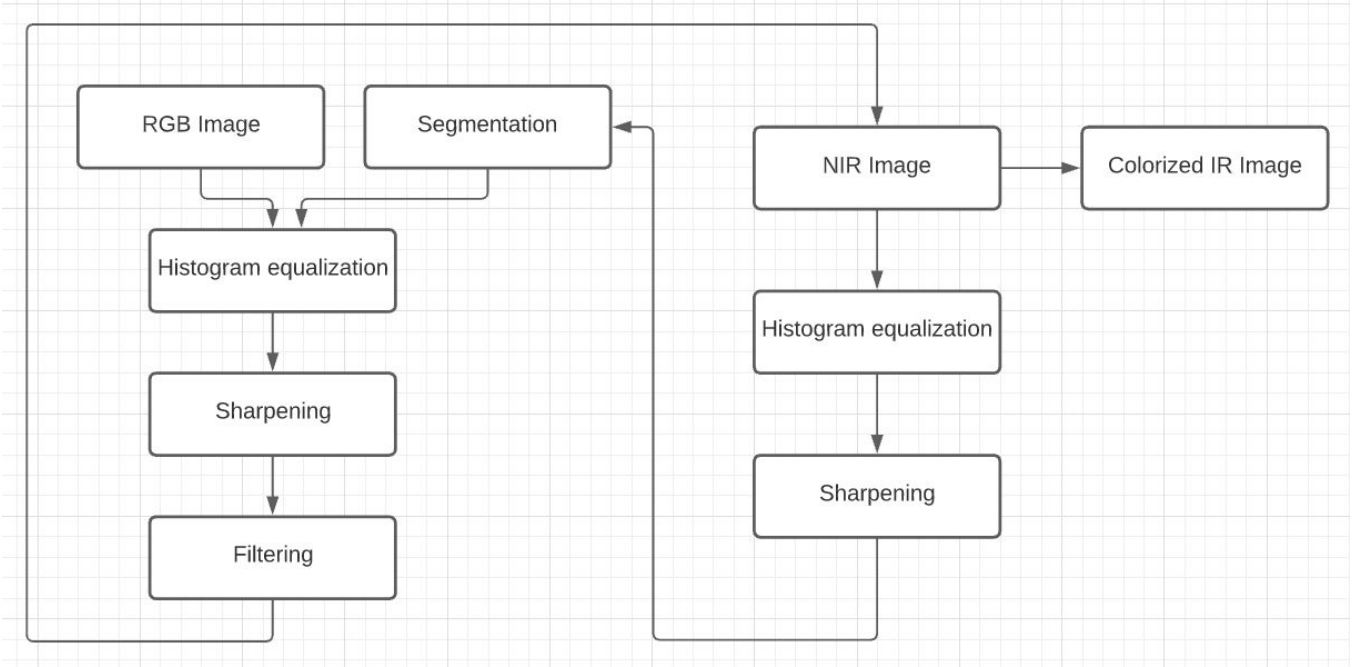
What is Infrared Image?

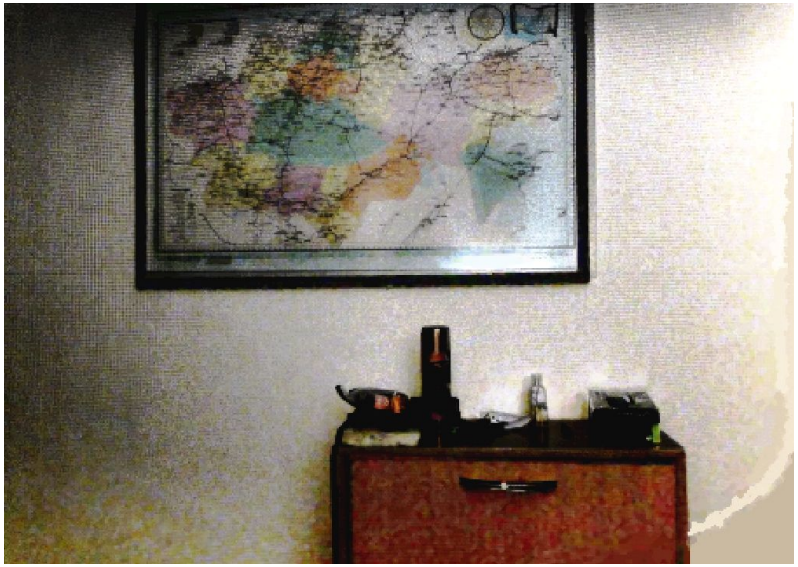
NIR is a subset of the infrared band of the electromagnetic spectrum, covering the wavelengths ranging from 0.7 to 1.4 microns, which is outside the range of what humans can see. NIR is very close to human vision but removes the color wavelengths, which result in grayscale images

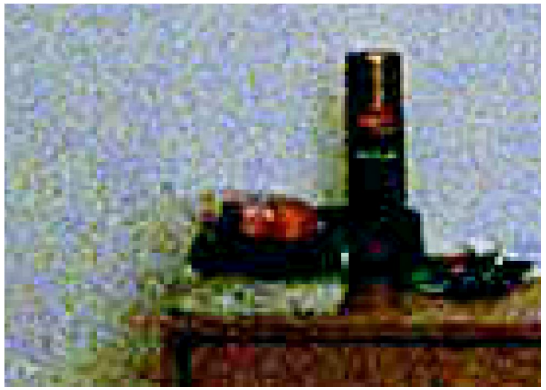
Setup used

Intel realsense D435

Near-infrared Image Colorization







Dehazing

BDPHE

RGB enhancement

NIR colorization