

Lab 2 Report

Jialei Wang

1 Plotting Color Matching Functions and Illuminants

1. The plot of the $x_0(\lambda)$, $y_0(\lambda)$, and $z_0(\lambda)$ color matching functions.

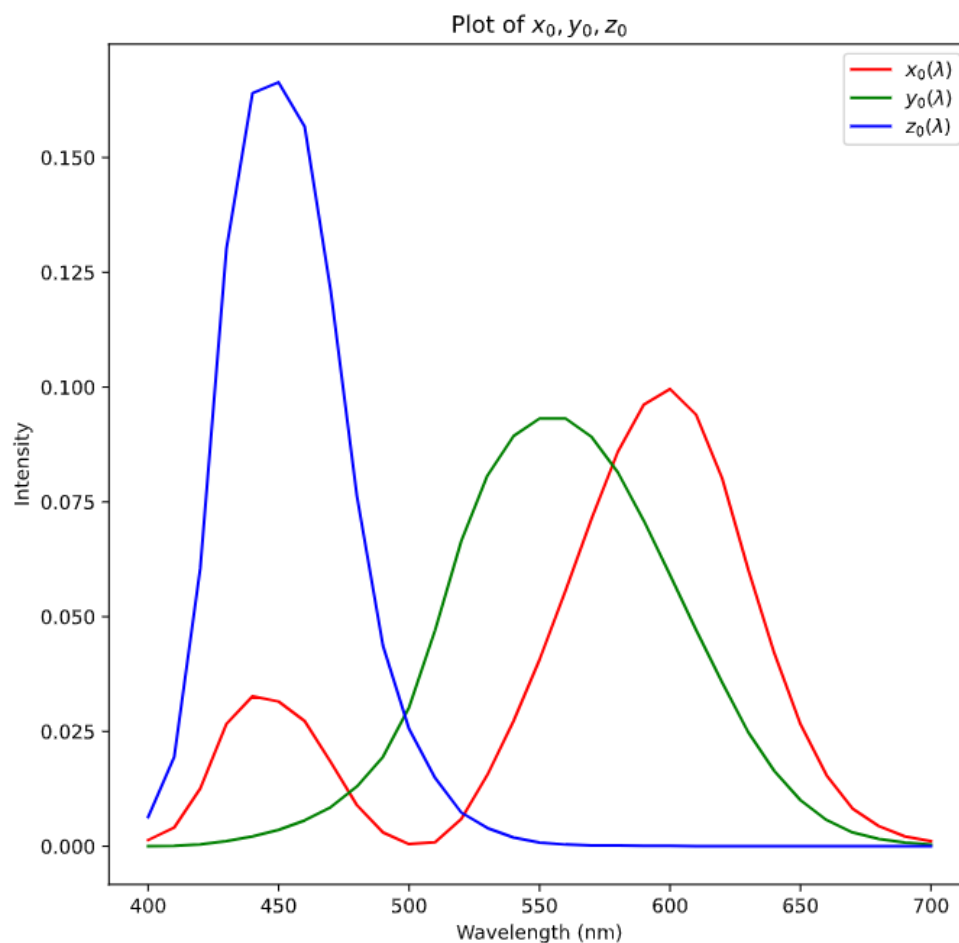


Figure 1: Plot of x_0, y_0, z_0

2. The plot of the $l_0(\lambda)$, $m_0(\lambda)$, and $n_0(\lambda)$ color matching functions.

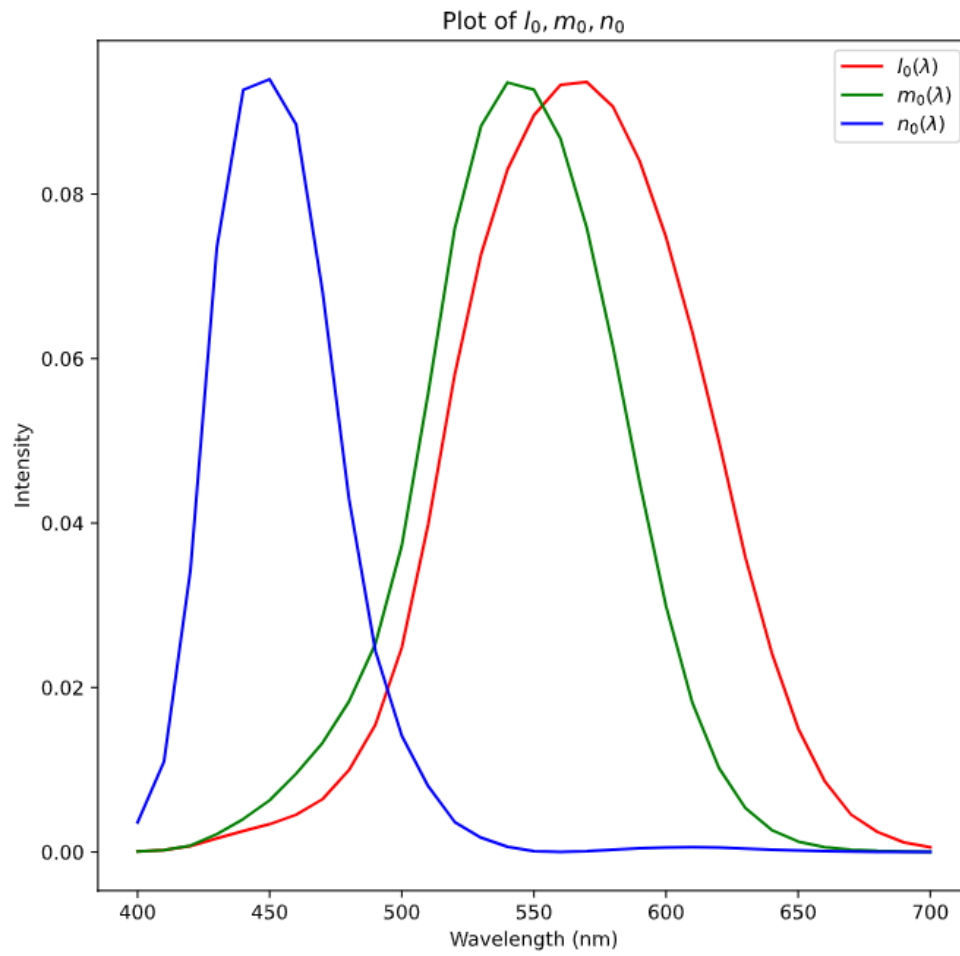


Figure 2: Plot of l_0, m_0, n_0

3. The plot of the D_{65} and fluorescent illuminants.



Figure 3: Plot of D_{65} and Fluorescent illuminants

2 Chromaticity Diagrams

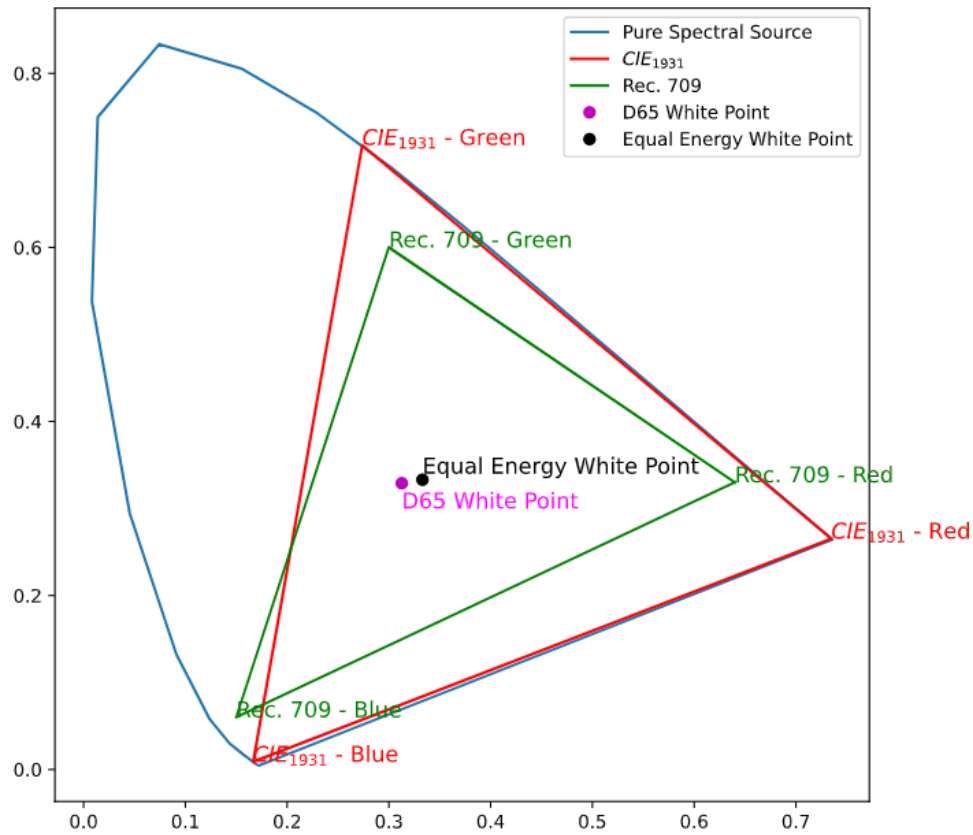


Figure 4: Chromaticity Diagram

3 Rendering an Image from Illuminant, Reflectance, and Color Matching Functions

1. The matrix M_{709D65} .

$$M_{709D65} = \begin{bmatrix} 0.4123908 & 0.35758434 & 0.18048079 \\ 0.2126390 & 0.71516868 & 0.07219232 \\ 0.0193308 & 0.11919478 & 0.95053215 \end{bmatrix}$$

2. The two images obtained from D_{65} and fluorescent light sources



Figure 5: Image obtained from D_{65} light source

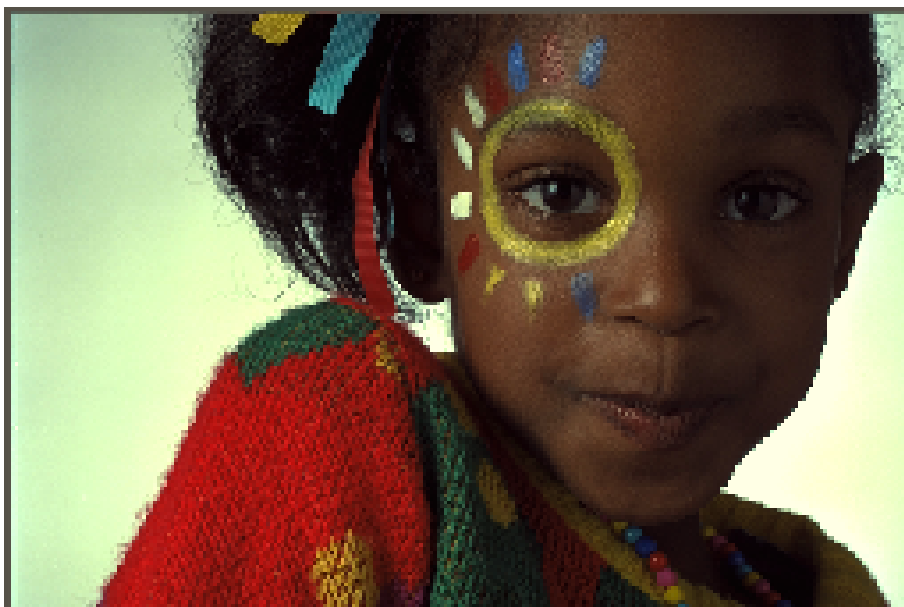


Figure 6: Image obtained from fluorescent light source

3. Comparison between the two images

The most noticeable difference between the two images is the background. The tone of the D_{65} image is colder than the image with fluorescent light source.

4 Color Chromaticity Diagram

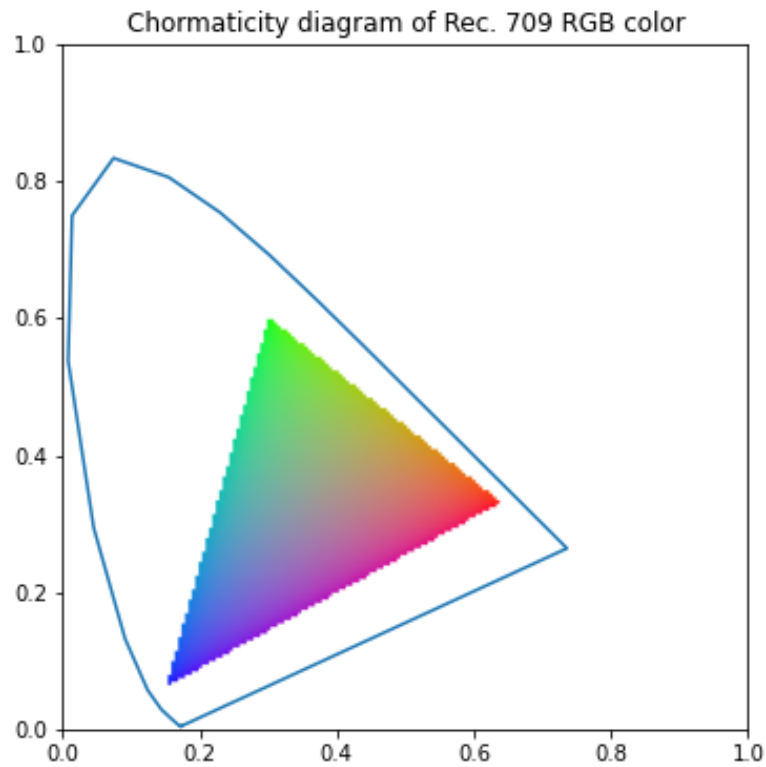


Figure 7: Chromaticity Diagram of Rec. 709 RGB color