

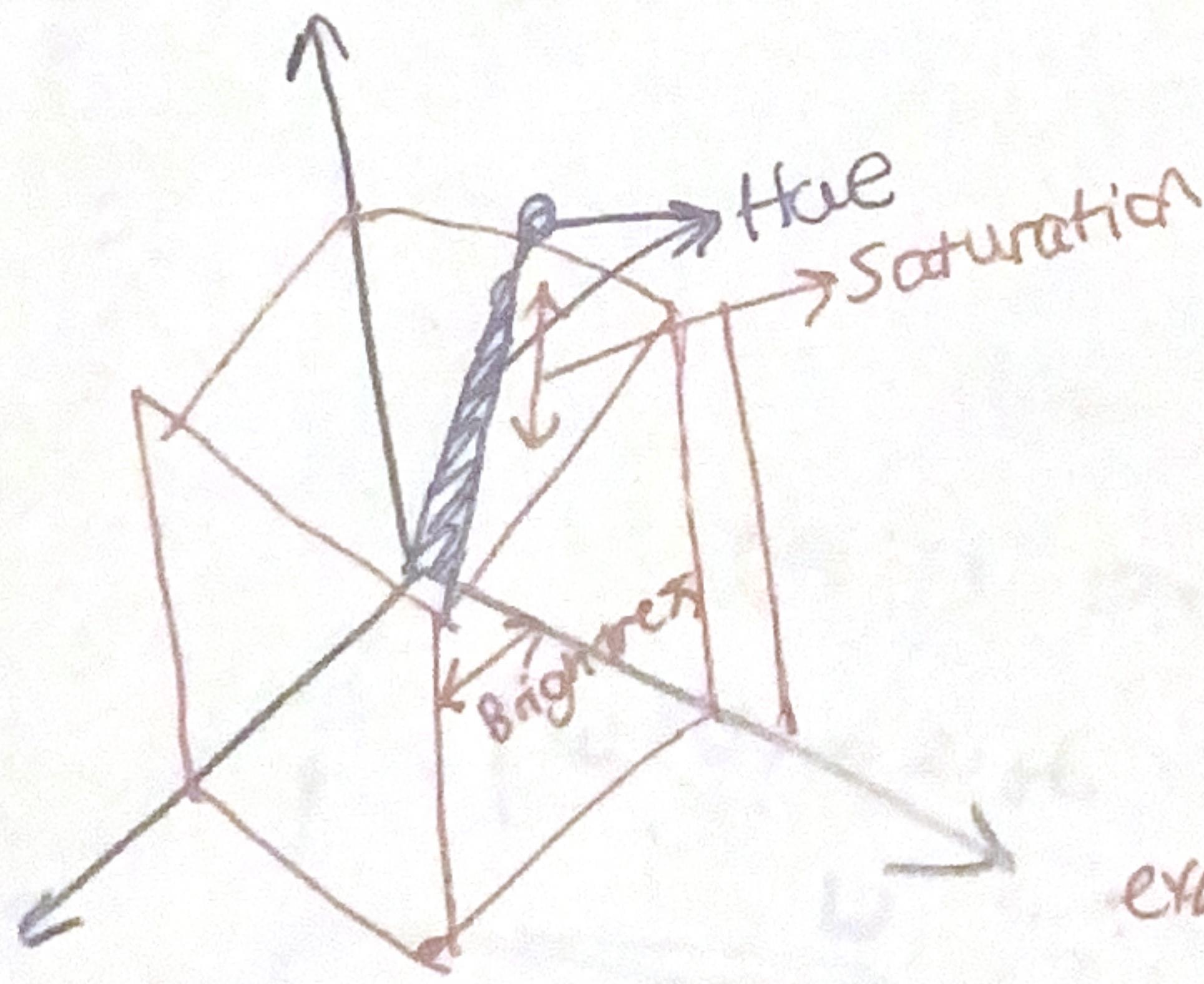
$$\text{if } \begin{bmatrix} R \\ G \\ B \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} \text{ then } \begin{bmatrix} C \\ M \\ Y \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}$$

HSI / HSV Color Model

Suitable for humans.

- * Hue → Pure color (RGB CMYK)
- * Saturation → Measure of purity, degree of which a pure color is diluted by white light
- * Luminance / Value / Intensity → Brilliance of color

HSI Geometric Representation



→ Choose color, then saturation then brightness.

$$I_{HSV} = RGB2HSV(I)$$

$I_{HSV}(:, :, 1)$ (hue)
↑ colors, red is at the end

$$[m \ n \ c] = size(I)$$

for $i=1:m$
for $j=1:n$

$$\text{if } (I_{HSV}(i, j, 1) < 0.95$$

$$I_{new}(i, j, 1) = 0;$$

ex1

if $I_{HSV}(i, j, 1) < 0.90$:

$$I(i, j, :) = \frac{I(i, j, 1) + I(i, j, 2) + I(i, j, 3)}{3}$$

→ convert to grayscale
(everything but red)

ex1

→ brightness

$$I_{HSV}(:, :, 3) = I_{HSV}(:, :, 3) - 0.5 \rightarrow \text{becomes darker}$$

$$I_{new} = HSV2RGB(I_{HSV})$$