KRISHAI TECHNOLOGIES

Exploring Color Spaces

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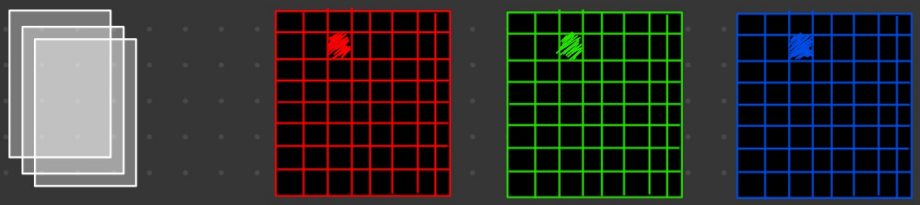
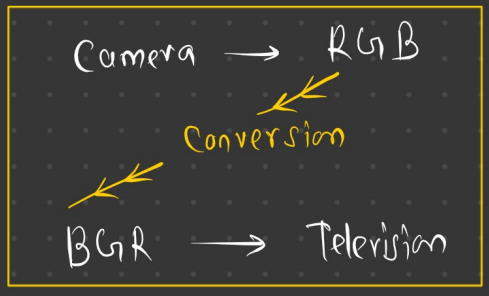
Color Spaces



Need for color space Conversion !



(1) RGB

(2) Grayscale

(3) HSV

(4) LAB

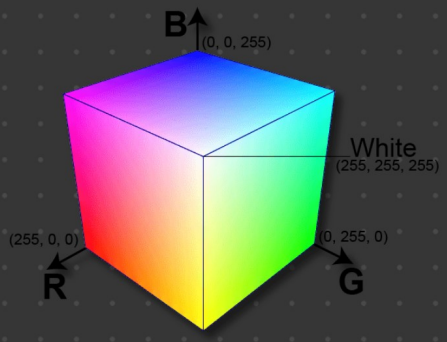
(5) BGR

(1) RGB → Additive model

0-255

Channel 1 → Red
Channel 2 → Green
Channel 3 → Blue

R, G, B
↓ ↓
0-255 0-255



white → R + B + G → (255, 255, 255)

(2) GrayScale

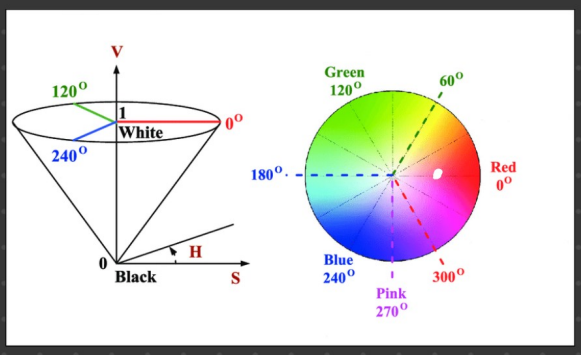
Channel 1 → Grey

0 - 255
↓ ↓
Black white

→ Computational Efficiency.
→ Simplification -
→ Saves space

(3) HSV

Channel 1 → Hue - The color type
Channel 2 → Saturation - purity of color
Channel 3 → value → The brightness of color

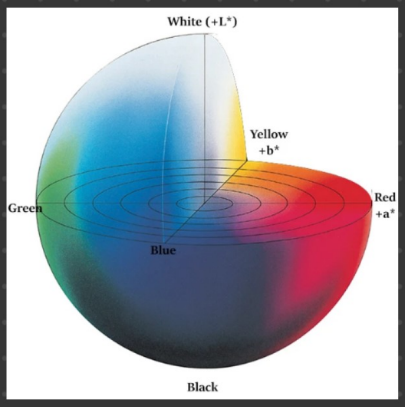


Hue → 0 - 360°
saturation - 0 - 100%.
value - 0 - 100%.

H → 0°
S → 50
value → 100%.

→ Use → segment image Based on Color.

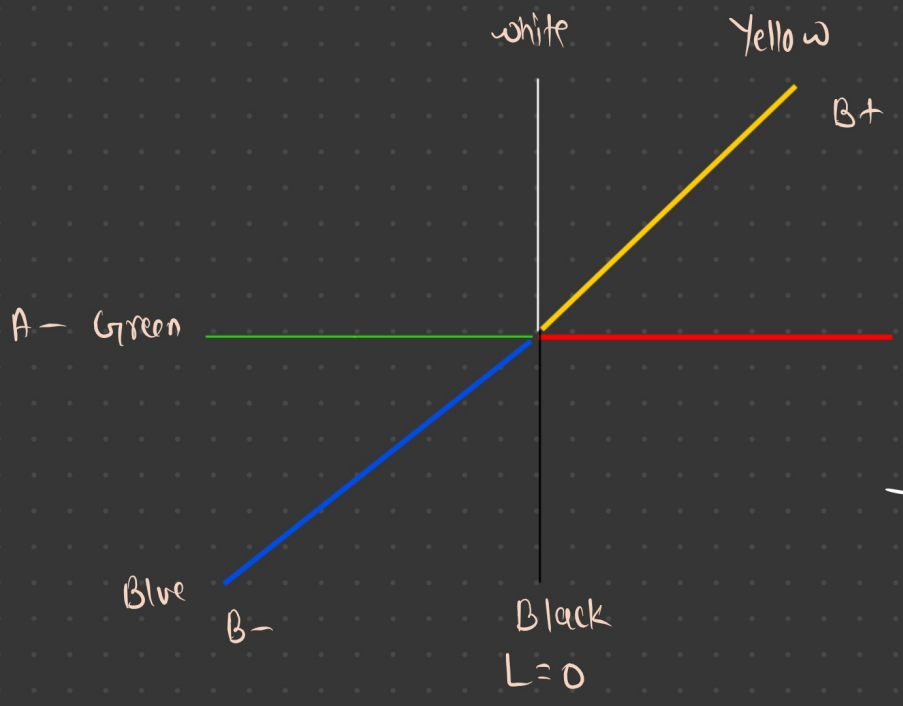
(4) LAB



Channel 1 → L → Brightness

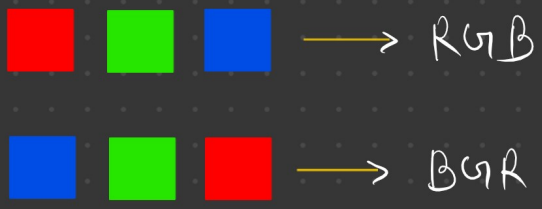
Channel 2 → A → green to red component

Channel 3 → B → Blue to yellow component



→ Color correction & adjustments.

(5) BGR



→ RGB

→ BGR

→ Default color space of OpenCV

→ Historical reason

→ Popularity among camera manufacturers & software providers.

BGR ⇄ RGB Conversion