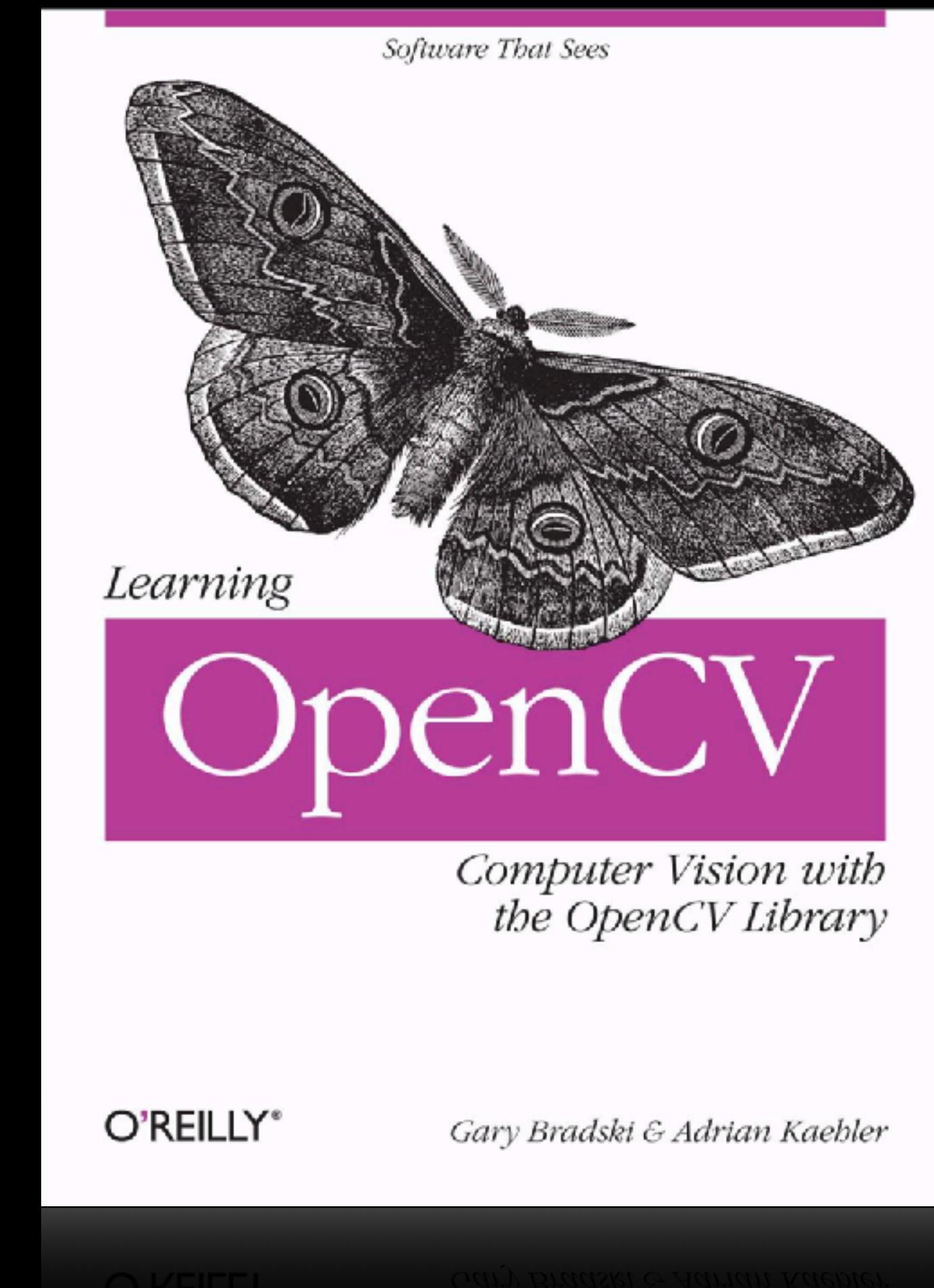
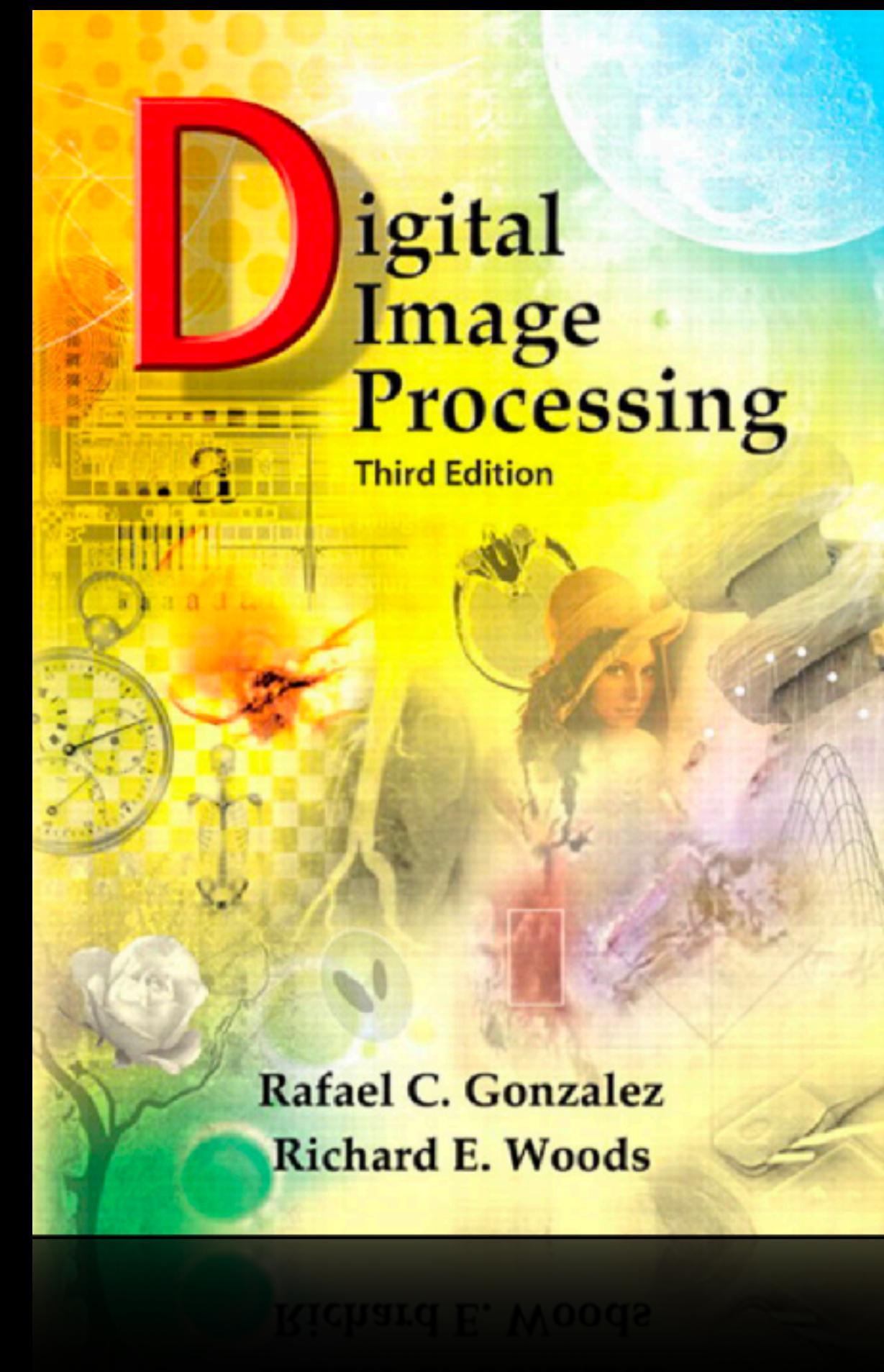
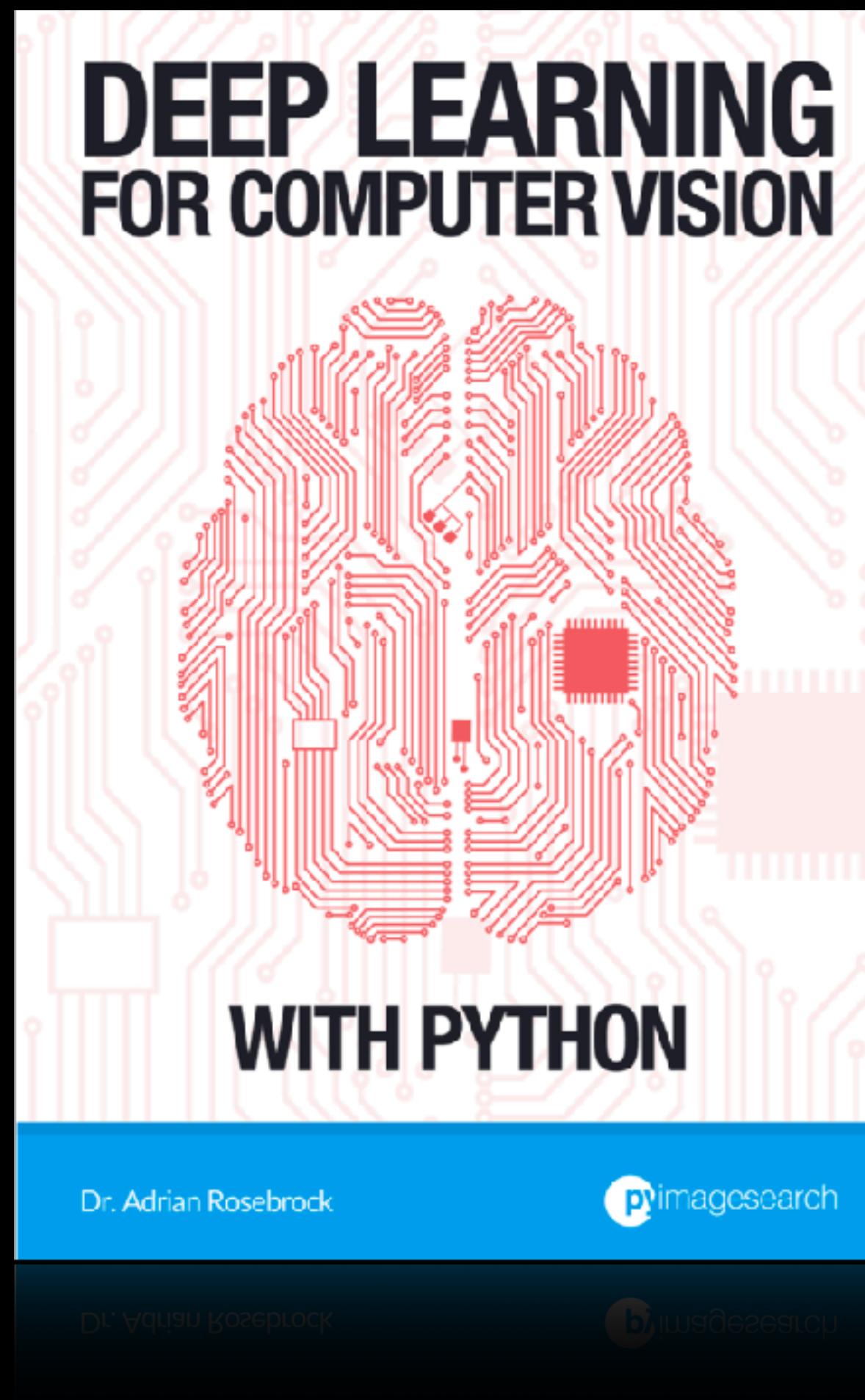


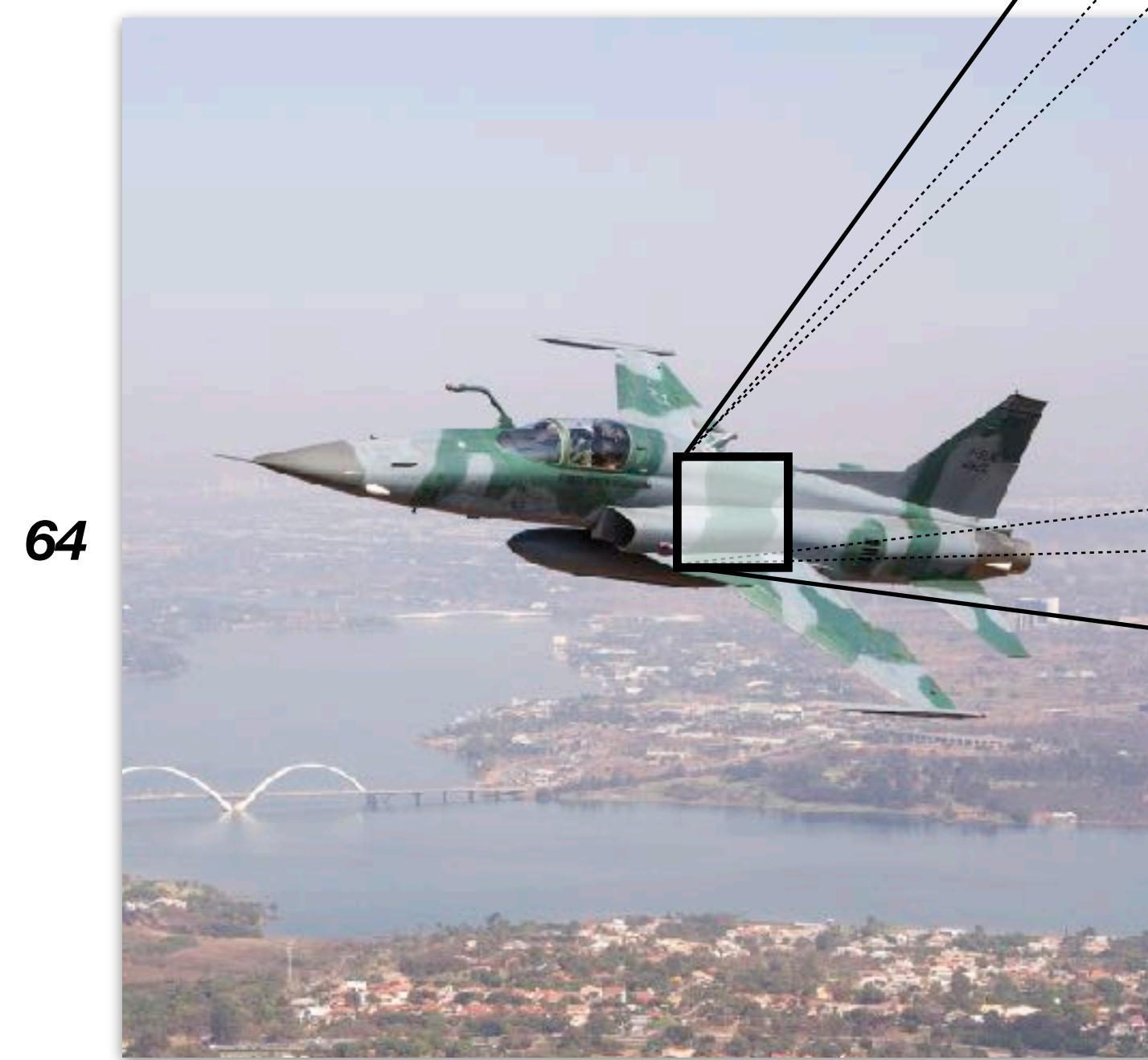
**DE 0 A 255 TONS DE CINZA**



# REFERÊNCIAS BIBLIOGRÁFICAS



# **PIXELS: OS TIJOLOS**



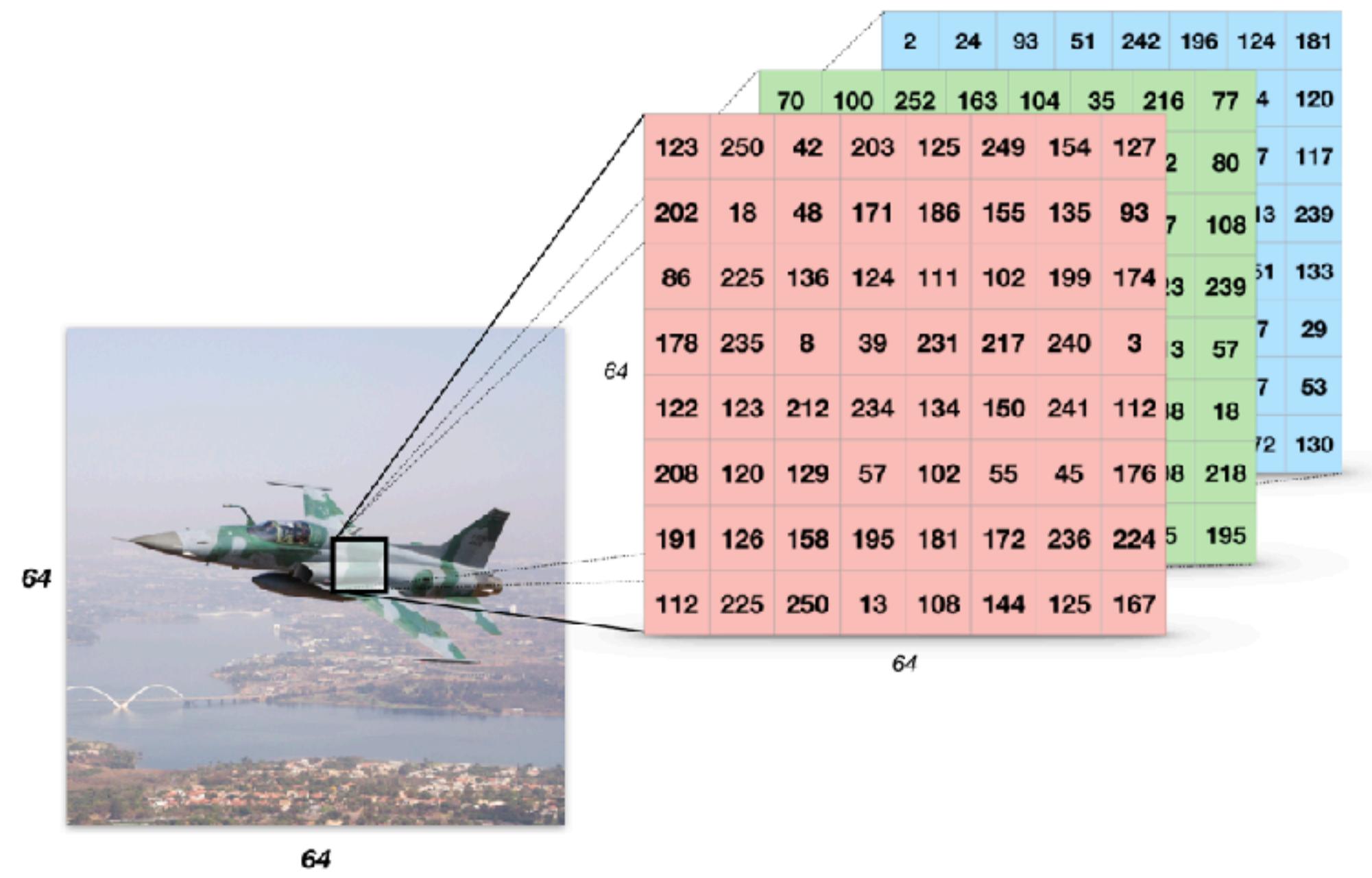
64

4096 PIXELS

64

64

					2	24	93	51	242	196	124	181	
				70	100	252	163	104	35	216	77	4	120
123	250	42	203	125	249	154	127			2	80	7	117
202	18	48	171	186	155	135	93			7	108	13	239
86	225	136	124	111	102	199	174			3	239	51	133
178	235	8	39	231	217	240	3			3	57	7	29
122	123	212	234	134	150	241	112			8	18	7	53
208	120	129	57	102	55	45	176			8	218	72	130
191	126	158	195	181	172	236	224	5		5	195		
112	225	250	13	108	144	125	167						



$$x = \begin{bmatrix} 123 \\ 250 \\ \vdots \\ 70 \\ 100 \\ \vdots \\ 127 \\ 2 \\ 80 \\ 7 \\ 117 \\ 202 \\ 18 \\ 48 \\ 171 \\ 186 \\ 155 \\ 135 \\ 93 \\ 7 \\ 108 \\ 13 \\ 239 \\ 86 \\ 225 \\ 136 \\ 124 \\ 111 \\ 102 \\ 199 \\ 174 \\ 3 \\ 3 \\ 57 \\ 7 \\ 29 \\ 178 \\ 235 \\ 8 \\ 39 \\ 231 \\ 217 \\ 240 \\ 3 \\ 3 \\ 57 \\ 7 \\ 53 \\ 122 \\ 123 \\ 212 \\ 234 \\ 134 \\ 150 \\ 241 \\ 112 \\ 18 \\ 18 \\ 72 \\ 130 \\ 208 \\ 120 \\ 129 \\ 57 \\ 102 \\ 55 \\ 45 \\ 176 \\ 18 \\ 218 \\ 191 \\ 126 \\ 158 \\ 195 \\ 181 \\ 172 \\ 236 \\ 224 \\ 5 \\ 195 \\ 112 \\ 225 \\ 250 \\ 13 \\ 108 \\ 144 \\ 125 \\ 167 \end{bmatrix}$$

$$y = 1$$

$$n_x = 64 \times 64 \times 3 = 12288$$

$$m = 1$$



$$x^{(1)} = \begin{bmatrix} 12 \\ 122 \\ \vdots \\ 163 \end{bmatrix} \quad \xrightarrow{\text{---}} \quad x^{(2)} = \begin{bmatrix} 231 \\ 146 \\ \vdots \\ 0 \end{bmatrix} \quad \xrightarrow{\text{---}} \quad X = \begin{bmatrix} 12 & 231 & 22 \\ 122 & 146 & 13 \\ \vdots & \vdots & \vdots \\ 163 & 0 & 89 \end{bmatrix}$$

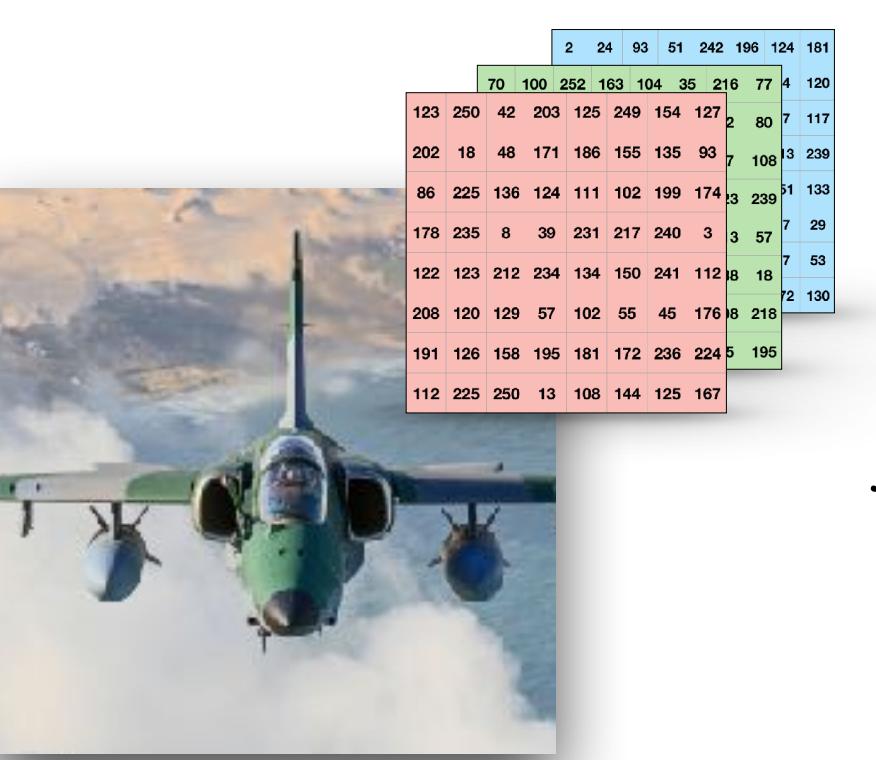
$$Y = [1,0,1]$$



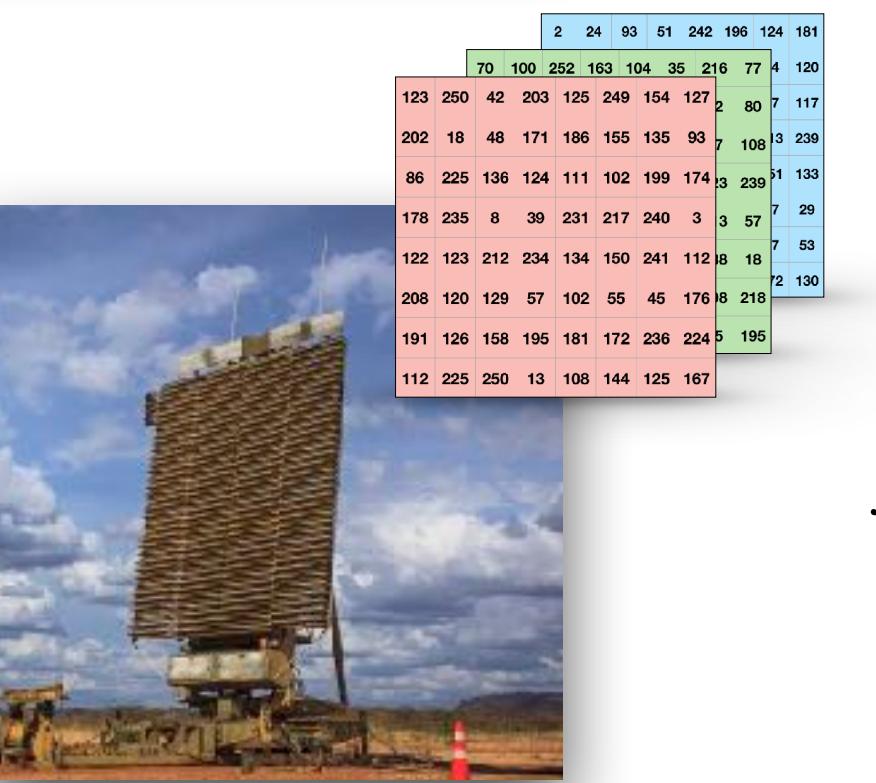
$$x^{(3)} = \begin{bmatrix} 22 \\ 13 \\ \vdots \\ 89 \end{bmatrix} \quad \xrightarrow{\text{---}}$$

$$n_x = 12288$$

$$m = 3$$



$$x^{(1)} = \begin{bmatrix} 12 \\ 122 \\ \vdots \\ 163 \end{bmatrix}$$

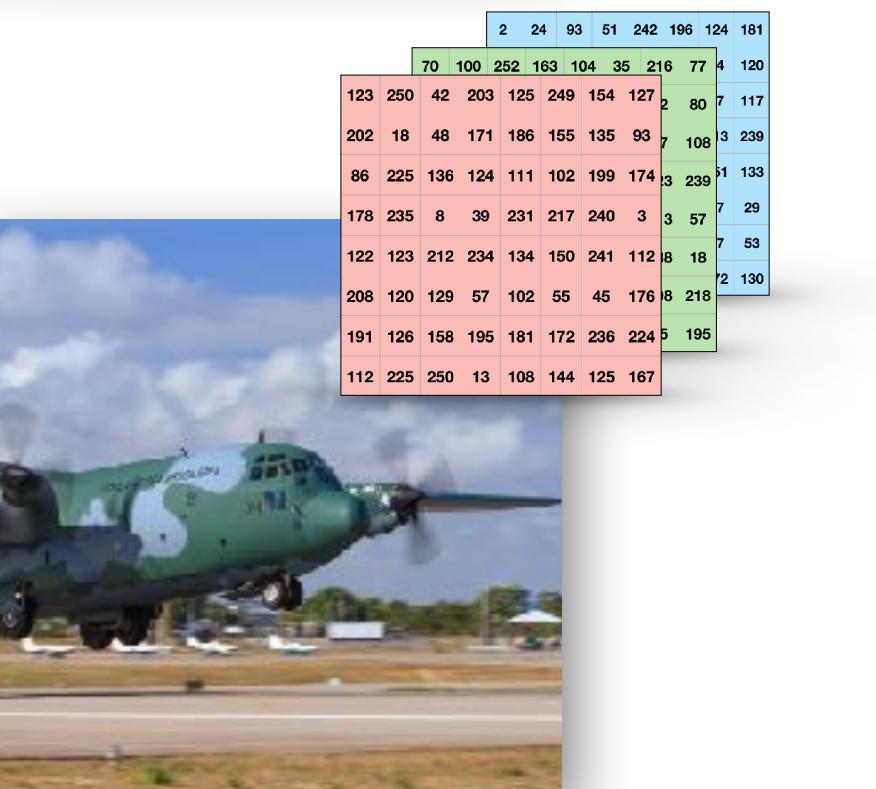


$$x^{(2)} = \begin{bmatrix} 231 \\ 146 \\ \vdots \\ 0 \end{bmatrix}$$

→

$$X = \begin{bmatrix} 12 & 231 & 22 \\ 122 & 146 & 13 \\ \vdots & \vdots & \vdots \\ 163 & 0 & 89 \end{bmatrix}$$

$$Y = [1,0,1]$$



$$x^{(3)} = \begin{bmatrix} 22 \\ 13 \\ \vdots \\ 89 \end{bmatrix}$$

$$n_x = 12288$$

$$m = 3$$



**2048 X 1151=2.357.248 pixels**

**largura**    **altura**



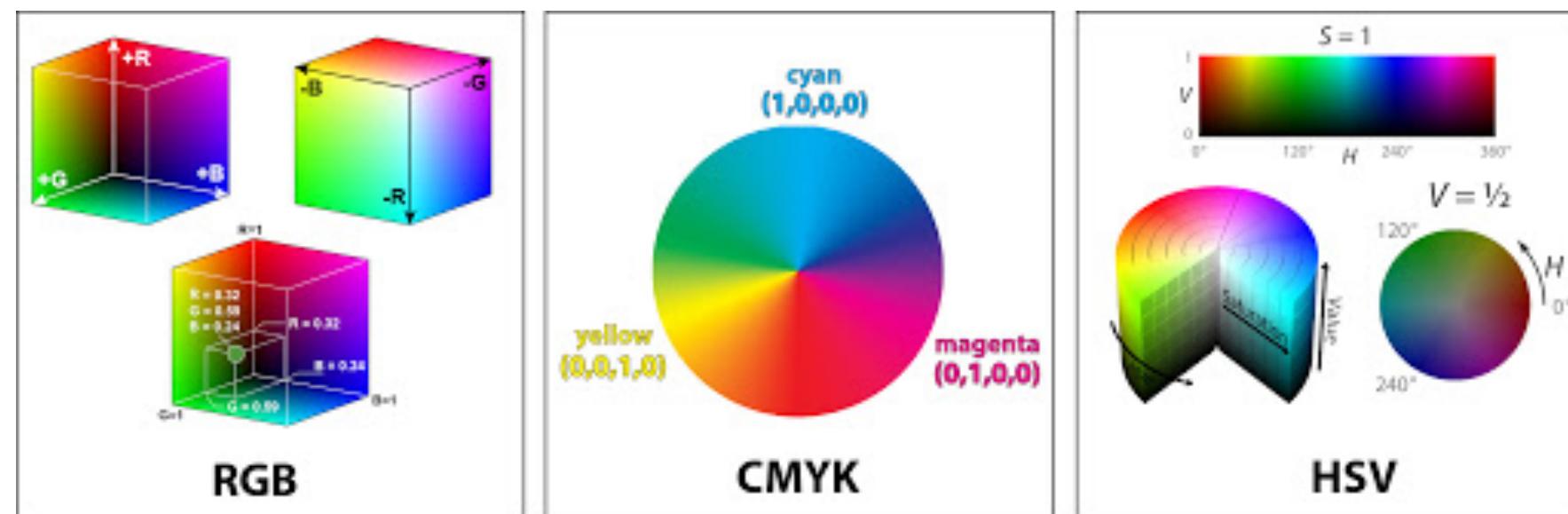
**2048 X 1151=2.357.248 pixels**

**2.357.248 valores**

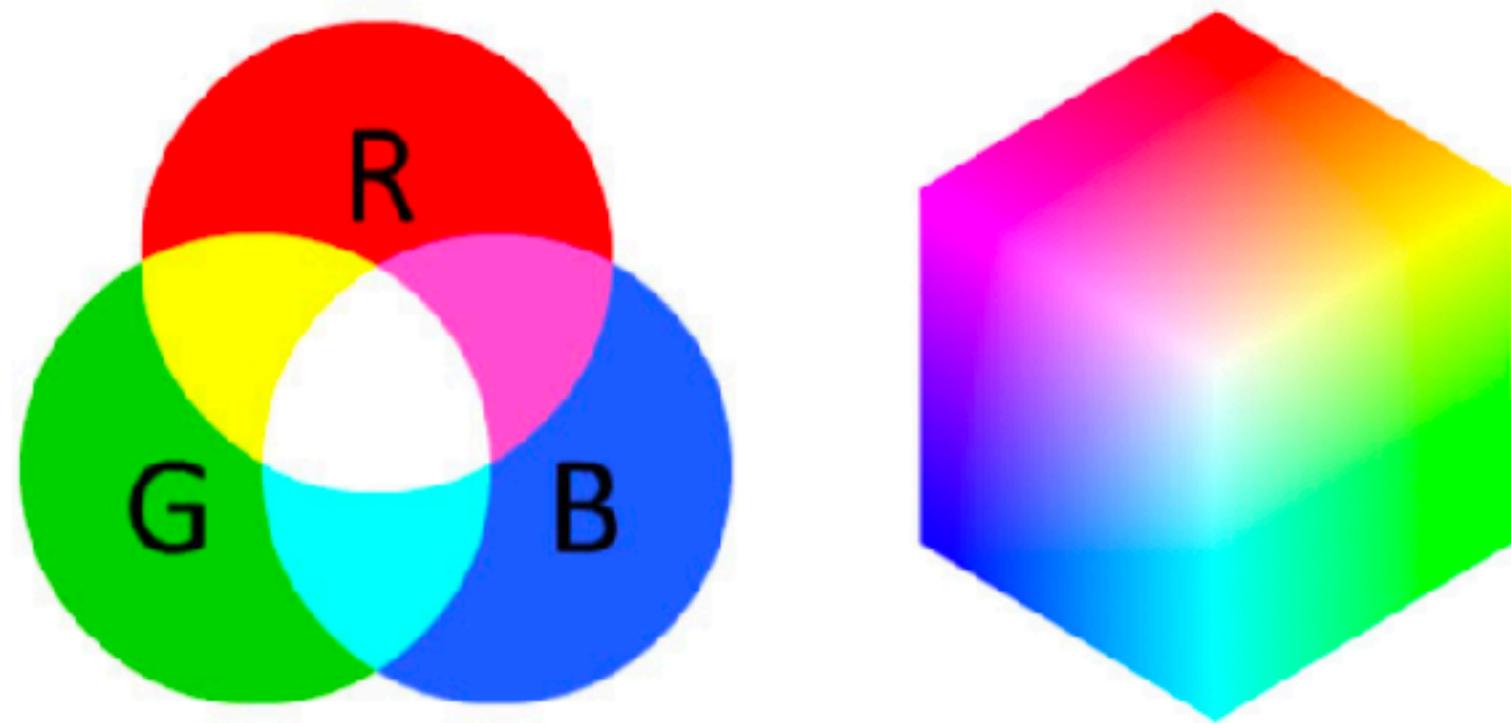
0 255



**2048 X 1151=2.357.248 pixels  
7.071.744 valores (RGB)**



# COLOR SPACE



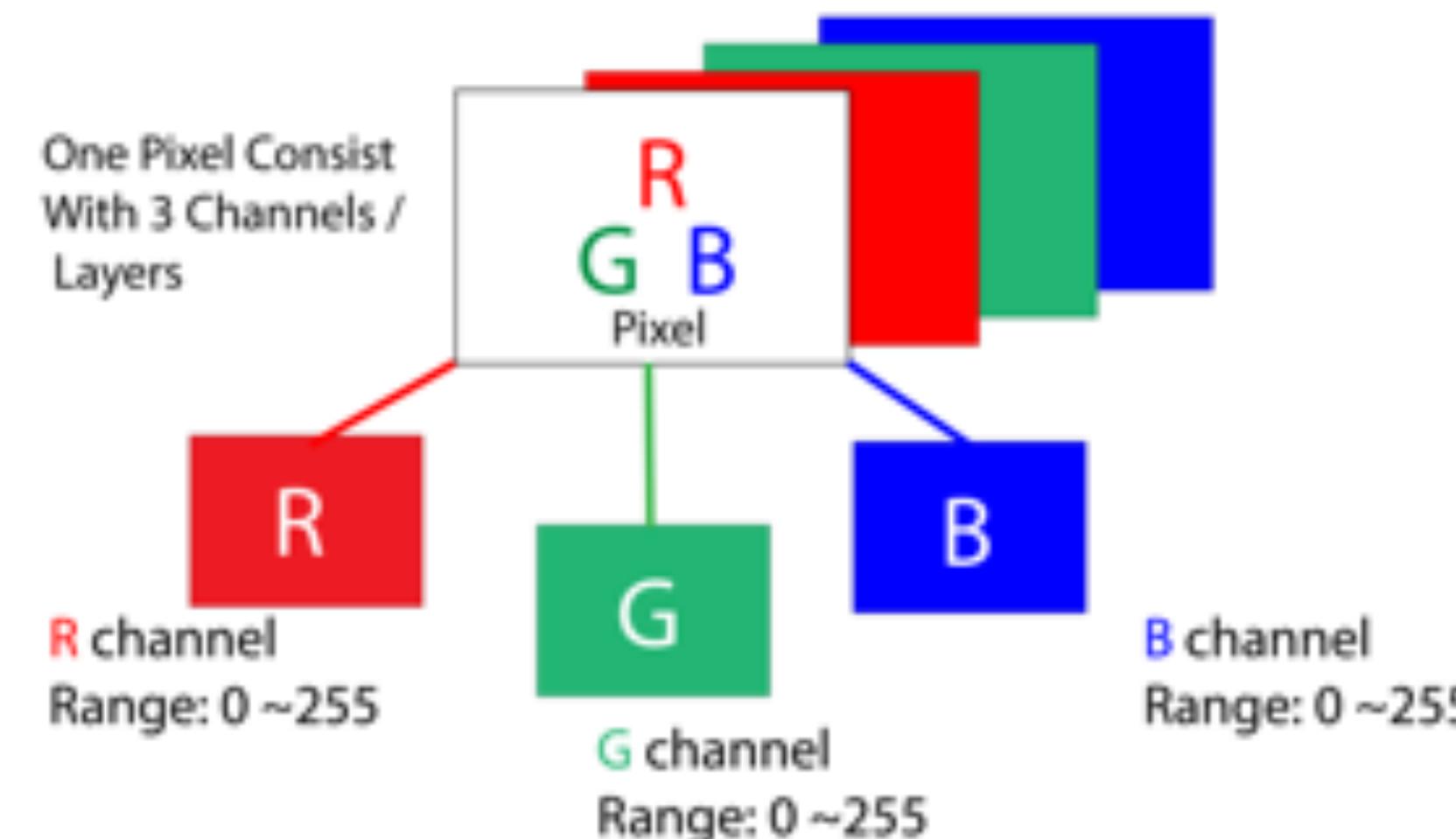
**23 x 22 = 506 Pixels**



Each pixel coordinate ( $x, y$ ) contains 3 values ranging for intensities of 0 to 255 (8-bit)

- Red - Green - Blue

Mixing different intensities of each color gives us the full color spectrum.



$$252 + 198 + 188 = \text{[Red Circle]}$$
$$22 + 159 + 230 = \text{[Blue Circle]}$$



RGB



G



B



R



Red



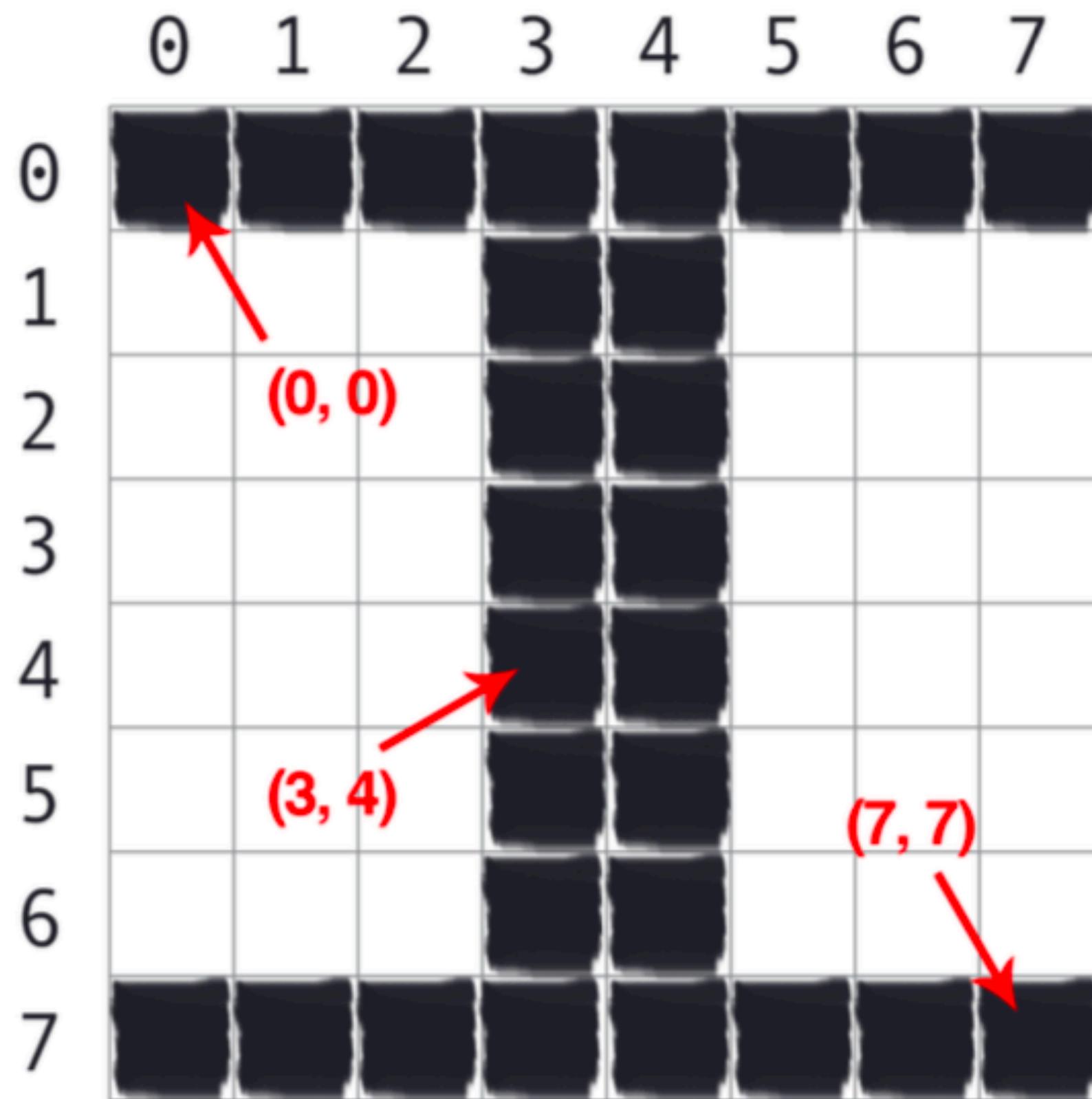
Green



Blue

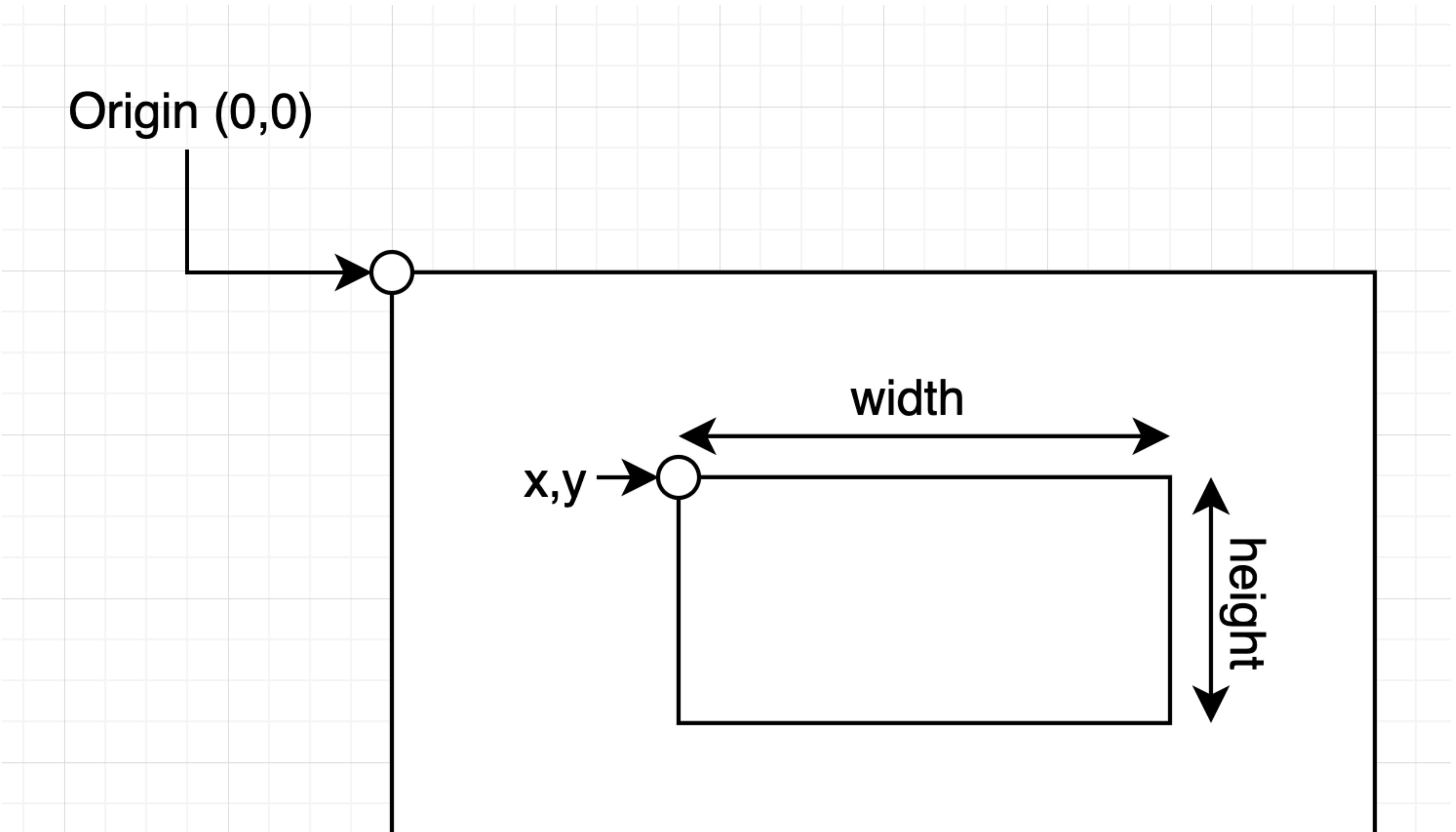


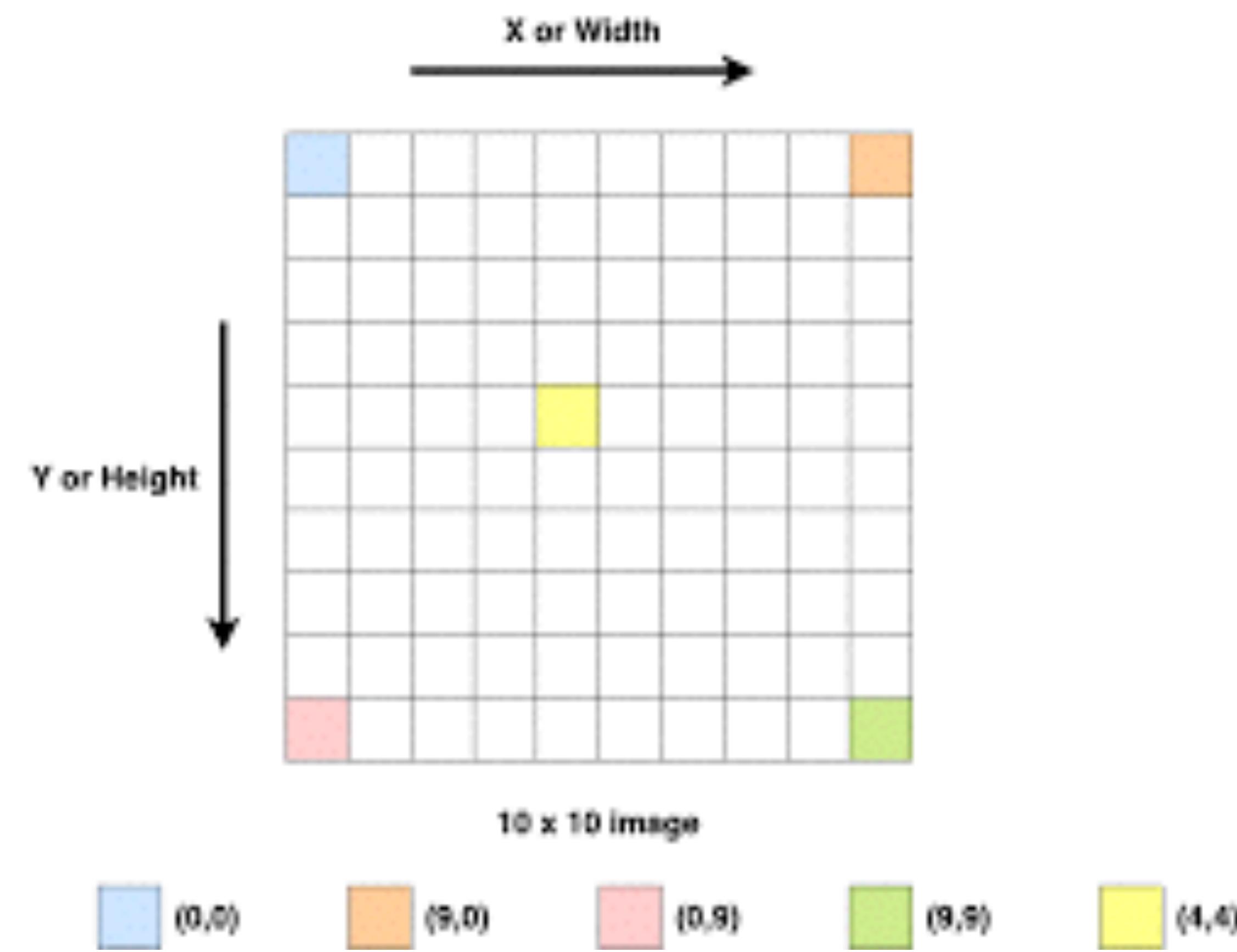
# COORDENADAS DAS IMAGENS





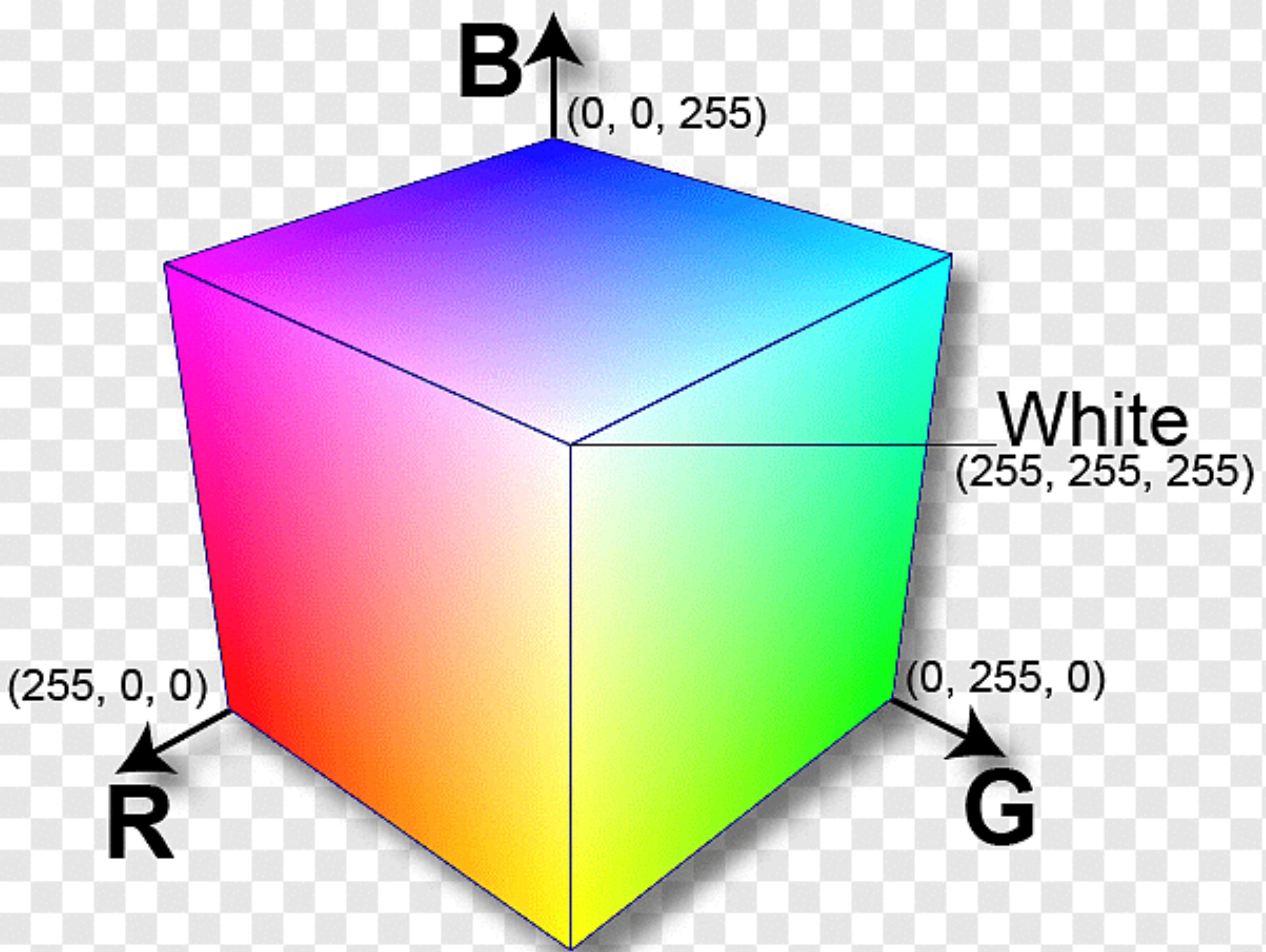
**Origin (0,0)**

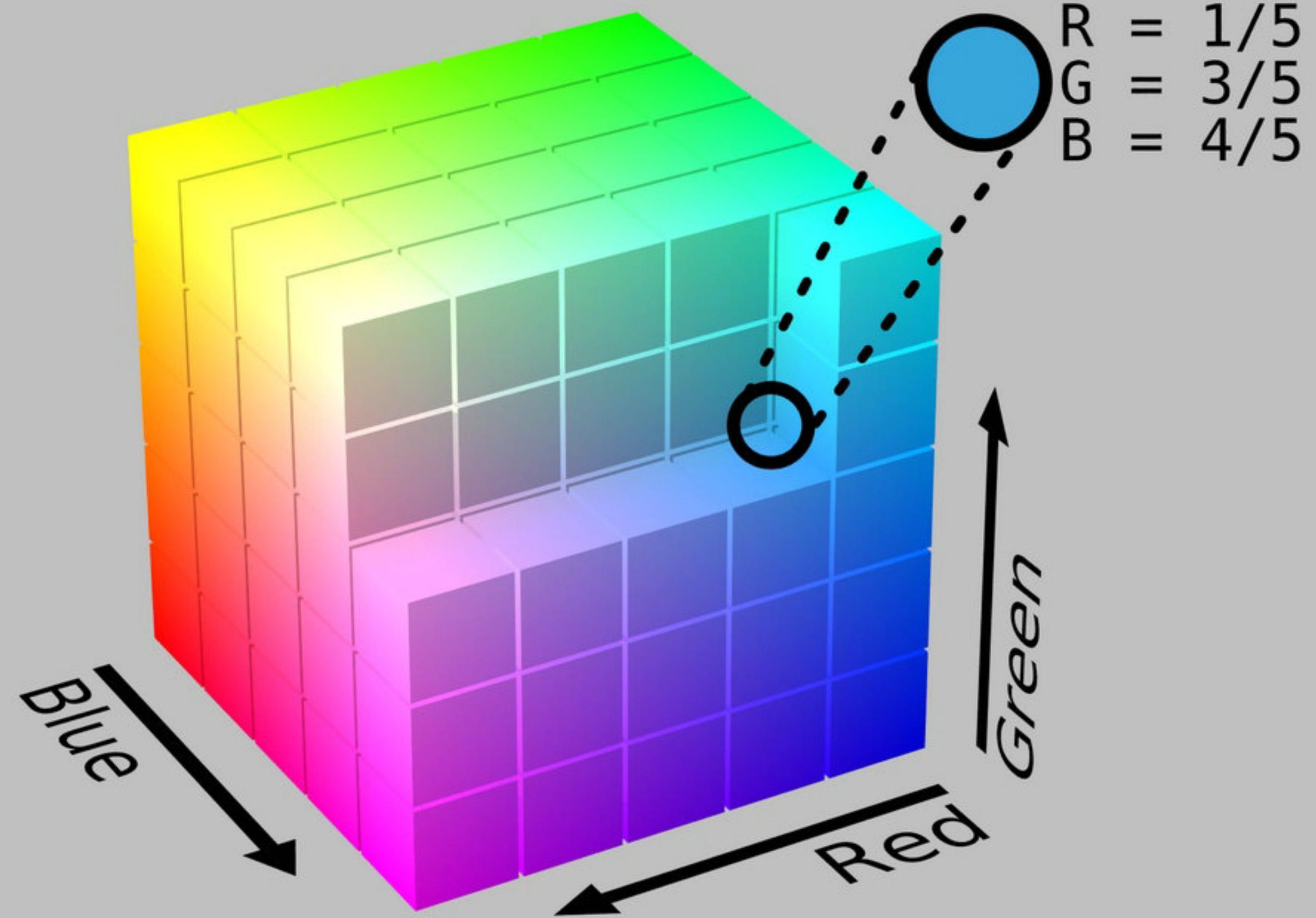






	A	B	C	D	E	F	G	H	I	J	K	L
1		1	2	3	4	5	6	7	8	9	10	
3	Google palette name	1	black	dark grey 4	dark grey 3	dark grey 2	dark grey 1	grey	light grey 1	light grey 2	light grey 3	white
4	Hex color		#000000	#434343	#666666	#999999	#b7b7b7	#cccccc	#d9d9d9	#efefef	#f3f3f3	#ffffff
5	Google palette name	2	red berry	red	orange	yellow	green	cyan	cornflower blue	blue	purple	magenta
6	Hex color		#980000	#ff0000	#ff9900	#ffff00	#00ff00	#00ffff	#4a86e8	#0000ff	#9900ff	#ff00ff
7	Google palette name	3	light red berry 3	light red 3	light orange 3	light yellow 3	light green 3	light cyan 3	light cornflower blue 3	light blue 3	light purple 3	light magenta 3
8	Hex color		#e6b8af	#f4cccc	#fce5cd	#fff2cc	#d9ead3	#d0e0e3	#c9daf8	#cfe2f3	#d9d2e9	#ead1dc
9	Google palette name	4	light red berry 2	light red 2	light orange 2	light yellow 2	light green 2	light cyan 2	light cornflower blue 2	light blue 2	light purple 2	light magenta 2
10	Hex color		#dd7e6b	#ea9999	#f9cb9c	#ffe599	#b6d7a8	#a2c4c9	#a4c2f4	#9fc5e8	#b4a7d6	#d5a6bd
11	Google palette name	5	light red berry 1	light red 1	light orange 1	light yellow 1	light green 1	light cyan 1	light cornflower blue 1	light blue 1	light purple 1	light magenta 1
12	Hex color		#cc4125	#e06666	#f6b26b	#ffd966	#93c47d	#76a5af	#6d9eeb	#6fa8dc	#8e7cc3	#c27ba0
13	Google palette name	6	dark red berry 1	dark red 1	dark orange 1	dark yellow 1	dark green 1	dark cyan 1	dark cornflower blue 1	dark blue 1	dark purple 1	dark magenta 1
14	Hex color		#a61c00	#cc0000	#e69138	#f1c232	#6aa84f	#45818e	#3c78d8	#3d85c6	#674ea7	#a64d79
15	Google palette name	7	dark red berry 2	dark red 2	dark orange 2	dark yellow 2	dark green 2	dark cyan 2	dark cornflower blue 2	dark blue 2	dark purple 2	dark magenta 2
16	Hex color		#85200c	#990000	#b45f06	#bf9000	#38761d	#134f5c	#1155cc	#0b5394	#351c75	#741b47
17	Google palette name	8	dark red berry 3	dark red 3	dark orange 3	dark yellow 3	dark green 3	dark cyan 3	dark cornflower blue 3	dark blue 3	dark purple 3	dark magenta 3
18	Hex color		#5b0f00	#660000	#783f04	#7f6000	#274e13	#0c343d	#1c4587	#073763	#20124d	#4c1130





# RGB É INVERTIDO NO OPENCV!

