Different Image Formats

Different Image Formats

- Grayscale Images
- RGB Images
- RGBA Images
- MRI Images

Grayscale Image

Grayscale Image

- Stored as a 2D matrix

Grayscale Image

- Stored as a 2D matrix
- Matrix Shape = Height x Width

Grayscale Image

- Stored as a 2D matrix
- Matrix Shape = Height x Width
- Range of Pixel Values: 0-255

Grayscale Image

- Stored as a 2D matrix
- Matrix Shape = Height x Width
- Range of Pixel Values: 0-255
- 0 represents black and 255 represents white

RGB Images

RGB Images

- Stored as a 3D Matrix

RGB Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel

RGB Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel
- 3 channels - Red, Green, Blue

RGB Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel
- 3 channels - Red, Green, Blue
- Three 2D matrix are stacked together

RGB Images

141	142	143	144	145
151	152	153	154	155
161	162	163	164	165

R

35	36	37	38	39
45	46	47	48	49
55	56	57	58	59
65	66	67	68	69
75	76	77	78	79
85	86	87	88	89

G

31	32	33	34	35
41	42	43	44	45
51	52	53	54	55
61	62	63	64	65
71	72	73	74	75
81	82	83	84	85

B

RGB Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel
- 3 channels - Red, Green, Blue
- Three 2D matrix are stacked together
- Pixel values range between 0 - 255

RGBA Images


RGBA Images

- Stored as a 3D Matrix

RGBA Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel

RGBA Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel
- 4 channels - Red, Green, Blue, **Alpha**

RGBA Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel
- 4 channels - Red, Green, Blue, **Alpha**
- Alpha denotes transparency

RGBA Images

- Stored as a 3D Matrix
- Shape of Matrix : Height x Width x channel
- 4 channels - Red, Green, Blue, **Alpha**
- Alpha denotes transparency
- Range of alpha = (0, 255)

RGBA Images

Alpha = 10

RGBA Images

Alpha = 10

Alpha = 150

RGBA Images

Alpha = 10

Alpha = 150

Alpha = 200

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MRI Images

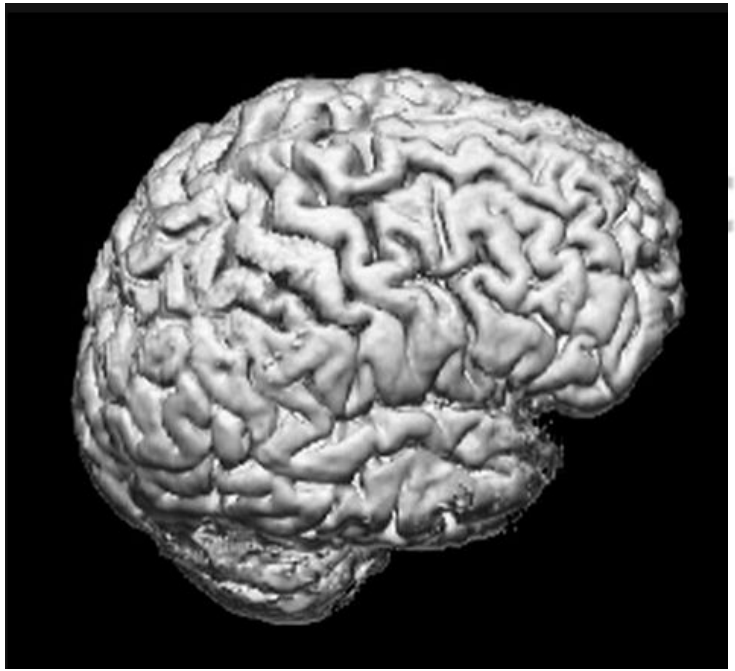
MRI Images

- Stored as a 4D Matrix

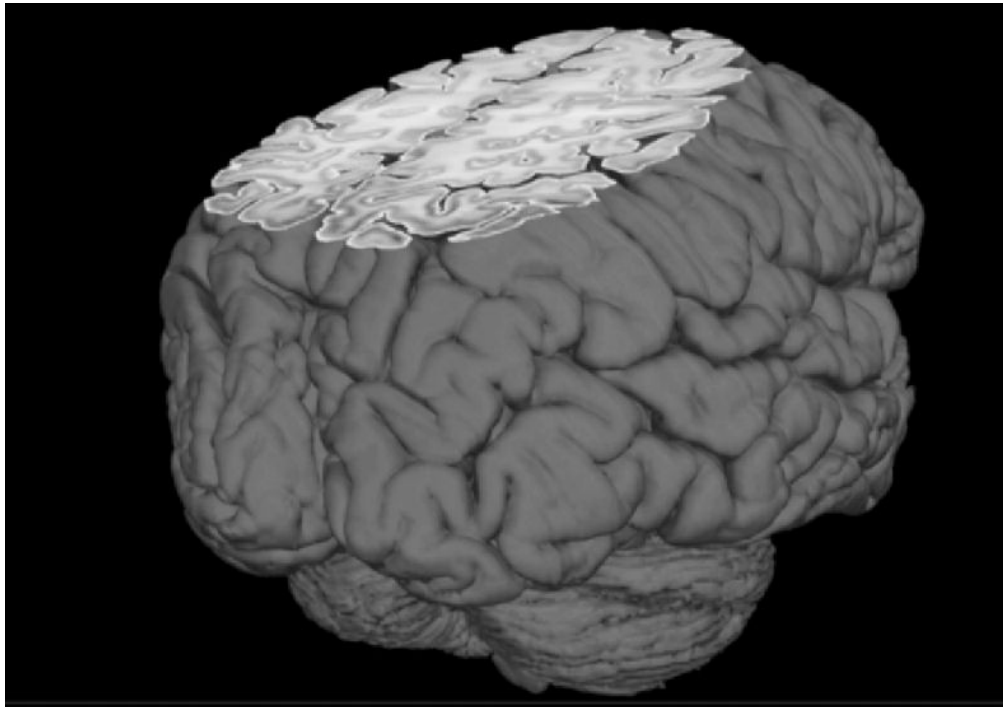
MRI Images

- Stored as a 4D Matrix
- Matrix shape represents : Height x Width x ***slices*** x channel

MRI Images



MRI Images



MRI Images

- Stored as a 4D Matrix
- Matrix shape represents : Height x Width x ***slices*** x channel
- Popular example - CT scans, MRI

MRI Images

- Stored as a 4D Matrix
- Matrix shape represents : Height x Width x ***slices*** x channel
- Popular example - CT scans, MRI
- Multiple images stacked together

Thank You!

3- Dimensional Image: HSV and HSL

3- Dimensional Image: HSV and HSL

- 3 Dimensional Image : Height x Width x channel

3- Dimensional Image: HSV and HSL

- 3 Dimensional Image : Height x Width x channel
- HSV has 3 channels - hue, saturation, value
- HSL has 3 channels - hue, saturation, lightness

3- Dimensional Image: HSV and HSL

- 3 Dimensional Image : Height x Width x channel
- HSV has 3 channels - hue, saturation, value
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