Color Image Augmentation Methods

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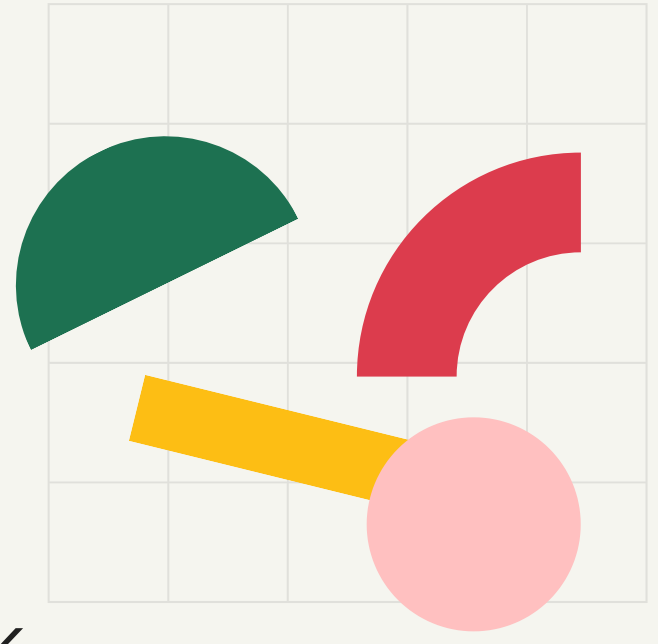

- Augmentation Intro
- Types of Augmentation
- Color Augmentation
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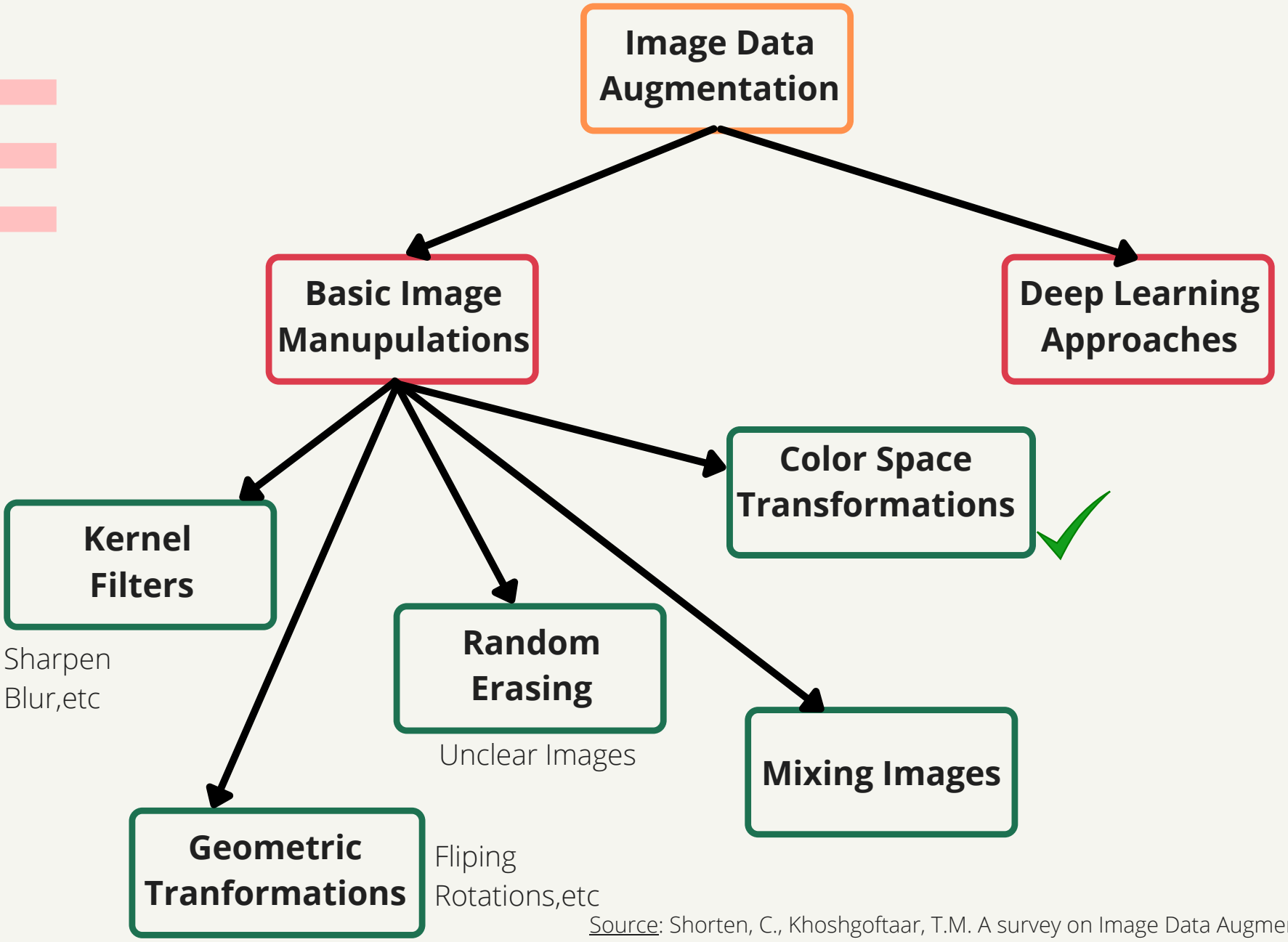
Augmentation

- Transforming of data.
- Generate new variations of existing data
- Improve Results and prevents Overfitting
- Computationally expensive process



Source: Shorten, C., Khoshgoftaar, T.M. A survey on Image Data Augmentation for Deep Learning. J Big Data 6, 60 (2019). https://doi.org/10.1186/s40537-019-0197-0

Color Augmentation

Image =

Tensor (height x width x color channels)

- Isolating single colour from R, G, B
- Brightness, Contrast , HSV, RGB ✓
- Changing colour histogram intensity values (advance)
- To Grayscale ✓

Popular Libraries

1. Albumentations ✓
2. ImageDataGenerator , Keras
3. OpenCV ✓
4. PIL
5. Scikit-Image

BenchMark

	albumentations 1.1.0	imgaug 0.4.0	torchvision (Pillow-SIMD backend) 0.10.1	keras 2.6.0	augmentor 0.2.8
HorizontalFlip	**10220**	2702	2517	876	2528
VerticalFlip	**4438**	2141	2151	4381	2155
Rotate	**389**	283	165	28	60
ShiftScaleRotate	**669**	425	146	29	-
Brightness	**2765**	1124	411	229	408
Contrast	**2767**	1137	349	-	346
BrightnessContrast	**2746**	629	190	-	189
ShiftRGB	**2758**	1093	-	360	-
ShiftHSV	**598**	259	59	-	-
Gamma	**2849**	-	388	-	-
Grayscale	**5219**	393	723	-	1082

Source: https://github.com/albumentations-team/albumentations#benchmarking-results

CODE DEMONSTRATION