

## Lesson 5

**Histogram Equalization:** Implement histogram equalization on an image to improve its contrast.

**Morphological Transformations:** Write code to apply morphological operations like opening, closing, top hat, and black hat transformations on binary images.

**Feature Extraction from Images:** Implement an algorithm to extract features such as corners, edges, and blobs from images.

**Perspective and Geometric Transformations:** Develop a script to perform operations like rotation, translation, scaling, skewing, and perspective warping on images.

**Implementing Convolution from Scratch:** Write a Python script that manually implements the convolution operation on images using different types of kernels, such as those for blurring, sharpening, and edge detection.

**Understanding and Applying Convolutional Layers:** Utilize Python libraries like TensorFlow or PyTorch to create a convolutional neural network layer, explore the effect of changing parameters like filter size, stride, and padding on the output.