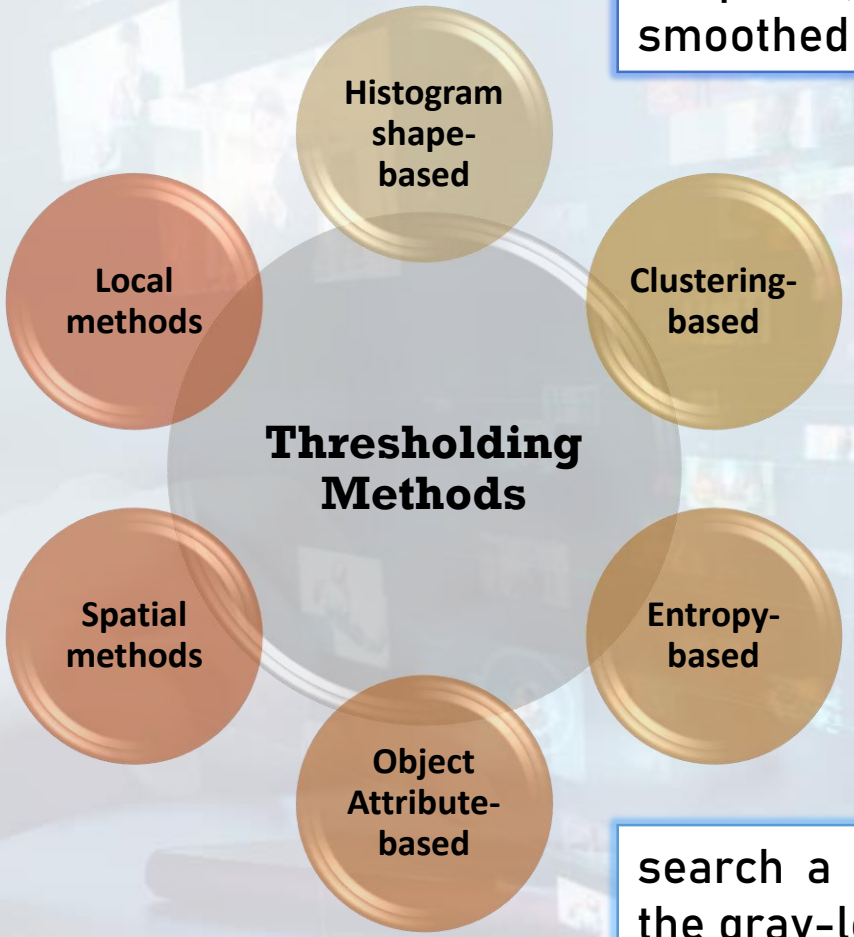
Threshold Based

- **Partitioning an image region that are similar according to a set of predefined criteria**
- Set those pixels to **white whose value is above** a given **threshold**, and **others to black**
- **Grayscale image** by thresholding can be used **to create binary images**.

✓ SIMILARITY BASED



the peaks, valleys and curvatures of the smoothed histogram are analyzed

the gray-level samples are clustered in two parts as background and foreground

use the entropy of the foreground and background regions

search a measure of similarity between the gray-level and the binarized images.

use higher-order probability distribution between pixels.

adapt the threshold value on each pixel to the local image characteristics.

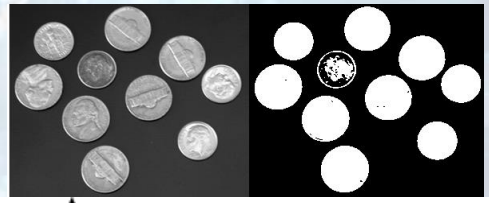
General expression of thresholding: **T = T[(x, y), p(x, y), f(x, y)]**

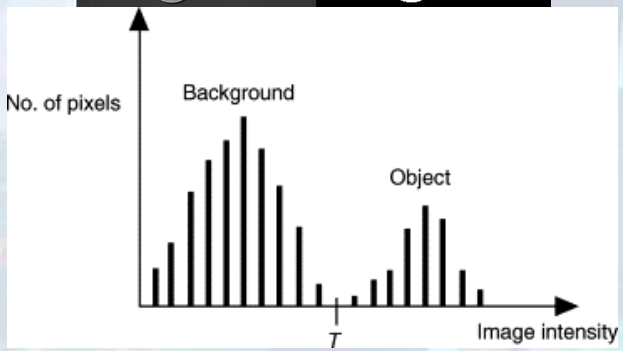
When,

- T = T[f(x, y)] threshold is **global**
- T = T[(x, y), f(x, y)] threshold is **local**
- T = T[(x, y), p(x, y), f(x, y)] threshold is **dynamic or adaptive**

Global Thresholding

- **Same threshold** is applied over an entire image
- **Two clear peaks** in the histogram, one for **foreground** and other from **background**





Adaptive Thresholding

- Is **not affected by uneven illumination**
- Divide the **original image into sub-images**
- Utilize a **different threshold to segment each image**