



# **SNS COLLEGE OF ENGINEERING**

Kurumbapalayam (Po), Coimbatore – 641 107

**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A’ Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

## **DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**COURSE NAME : 19EC513 – IMAGE PROCESSING AND COMPUTER  
VISION**

**III YEAR / V SEMESTER**

**Unit III- IMAGE COMPRESSION AND IMAGE SEGMENTATION**

**Topic : Wavelet coding**

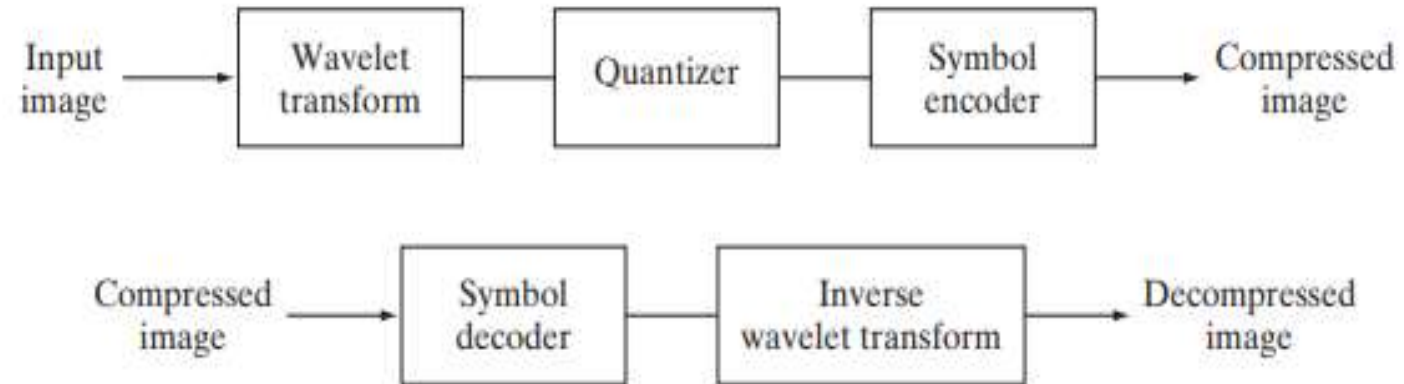


## Wavelength coding



- As with the transform coding techniques of Section 8.2.8, wavelet coding is based on the idea that the coefficients of a transform that decorrelates the pixels of an image can be coded more efficiently than the original pixels themselves.
- If the basis functions of the transform—in this case wavelets—pack most of the important visual information into a small number of coefficients, the remaining coefficients can be quantized coarsely or truncated to zero with little image distortion.
- Figure 8.45 shows a typical wavelet coding system. To encode a image, an analyzing wavelet, and minimum decomposition level, are selected and used to compute the discrete wavelet transform of the image. If the wavelet has a complementary scaling function the fast wavelet transform can be used.
- In either case, the computed transform converts a large portion of the original image to horizontal, vertical, and diagonal decomposition coefficients with zero mean and Laplacian-like probabilities.

FIGURE: A wavelet coding system: (a) encoder; (b) decoder.





# Image Segmentation

Segmentation subdivides an image into its constituent regions or objects. The level of detail to which the subdivision is carried depends on the problem being solved. That is, segmentation should stop when the objects or regions of interest in an application have been detected. For example, in the automated inspection of electronic assemblies, interest lies in analyzing images of products with the objective of determining the presence or absence of specific anomalies, such as missing components or broken connection paths. There is no point in carrying segmentation past the level of detail required to identify those elements.

Segmentation of nontrivial images is one of the most difficult tasks in image processing. Segmentation accuracy determines the eventual success or failure of computerized analysis procedures. For this reason, considerable care should be taken to improve the probability of accurate segmentation.

The focus of this section is on segmentation methods that are based on detecting sharp, local changes in intensity. The three types of image features in which we are interested are isolated points, lines, and edges



THANK YOU !!!