

Image Processing with MATLAB

OEM: MathWorks • Duration: 2 Days (16 hrs) • Code: MW-IMAGE-PROCESSING-WITH-MATLAB

COURSE MODULES & TOPICS

Day 1 of 2

Importing and Visualizing Images

- Importing, inspecting, and displaying images
- Converting between image types
- Visualizing results of processing
- Exporting images

Preprocessing Images

- Adjusting contrast
- Reducing noise with spatial filtering
- Equalizing inhomogeneous background
- Processing images in distinct blocks
- Measuring image quality

Color and Texture Segmentation

- Transforming between image color spaces
- Segmenting objects based on color attributes and color difference
- Segmenting objects based on texture using nonlinear filters
- Analyzing image texture using statistical measures like contrast and correlation

Improving Segmentation

- Using morphological operations to refine segmentation masks
- Segmenting images and refining results interactively
- Using iterative techniques to evolve segmentation from a seed

Day 2 of 2

Finding and Analyzing Objects

- Extracting and labeling objects in a segmentation mask
- Measuring shape properties
- Separating adjacent and overlapping objects with watershed transform

Detecting Edges and Shapes

- Detecting object edges
- Identifying objects by detecting lines and circles
- Performing batch analysis over sets of images

Spatial Transformation and Image Registration

- Applying geometric transformations to images
- Aligning images using phase correlation
- Aligning images using point mapping

Automating Image Registration with Image Features

- Detecting and extracting features
- Matching features to estimate geometric transformation between two images