

IMAGE PROCESSING USING MATLAB MASTERCLASS

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The Complete Image Processing using MATLAB program that can start even without no prior knowledge.

KEY DESCRIPTION:

Image processing in MATLAB refers to the manipulation and analysis of digital images using MATLAB, a high-level programming language and environment designed for numerical computing. MATLAB provides a comprehensive set of functions and tools for image processing tasks, making it a popular choice for researchers, engineers, and scientists working in fields such as computer vision, medical imaging, remote sensing, and more.

Medical Imaging:

MATLAB is extensively used in medical imaging for tasks such as image reconstruction, segmentation, and feature extraction. Future advancements may involve more sophisticated algorithms for disease detection, treatment planning, and image-guided interventions.

Remote Sensing and Earth Observation:

MATLAB is commonly employed in processing satellite imagery for applications like environmental monitoring, agriculture, urban planning, and disaster management. As satellite technology advances, there will be a growing demand for advanced image processing techniques to extract meaningful information from the vast amounts of data collected.

Artificial Intelligence and Machine Learning:

MATLAB provides tools and libraries for developing and deploying machine learning models for image classification, object detection, and semantic segmentation. Future applications may involve more advanced deep learning architectures and techniques for solving complex image processing tasks.

Augmented Reality and Virtual Reality:

MATLAB is used in developing augmented reality (AR) and virtual reality (VR) applications for gaming, education, training, and simulation. Future advancements may involve more immersive experiences and real-time processing of high-resolution imagery for enhanced realism.

IMAGE PROCESSING USING MATLAB:

- 1 - Introduction to image processing & its applications
- 2 - MATLAB Fundamentals & Tools Box
- 3 - GUI, Graphs & Plots in MATLAB
- 4 - Graphical User Interface (GUI - I) in MATLAB
- 5 - Graphical User Interface (GUI - II) in MATLAB
- 6 - Command, Control Statements & Loops in MATLAB
- 7 - Basic Image Manipulation
- 8 - Morphological Image Pre-processing Techniques - Blurring, De Blurring
- 9 - Morphological Image Pre-processing Techniques - Erosion, Dilution & Fusion
- 10 - De Noising Images
- 11 - Filters in Images
- 12 - Image Compression - DWT & SWT Based
- 13 - Image Compression - SWT & Watermarking
- 14 - Feature Extraction in Images
- 15 - Feature Extraction using GLCM
- 16 - Image Segmentation - K Means
- 17 - Image Segmentation - APP
- 18 - Image segmentation - Otsu thresholding
- 19 - Clustering of Images - Region based Segmentation
- 20 - Image segmentation-watershed
- 21 - Texture segmentation using Gabor filter
- 22 - Edge Detection in Images
- 23 - Face detection using HAAR cascade
- 24 - Image Encryption - AES Algorithms
- 25 - RSA Algorithm based Image Encryption
- 26 - Image Pattern Recognition

27 - Training Datasets in Images

28 - Neural Networks in Images

29 - Project Demo - I

30 - Project Demo - II