# Digital Image Processing

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September 17, 2023



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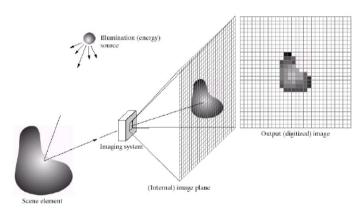
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What is Digital image

What is a digital image?



A digital image is a representation of a two dimensional image as a finite set of digital values, called picture elements or pixels



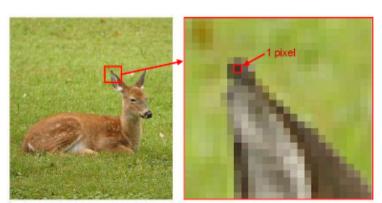
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Pixel values typically represent gray levels, colours, heights, opacities etc. Remember digitization implies that a digital image is an approximation of a real scene.



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#### Common image formats include:

- sample per point (B W or Grayscale)
- samples per point (Red, Green, and Blue)
- samples per point (Red, Green, Blue, and 'Alpha', a.k.a. Opacity)







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What is a digital image?

# What is Digital image processing



Digital image processing focuses on two major tasks

- Improvement of pictorial information for human interpretation
- Processing of image data for storage, transmission and representation for autonomous machine perception

Some argument about where image processing ends and fields such as image analysis and computer vision start.

The continuum from image processing to computer vision can be broken up into low-mid- and high-level processes.

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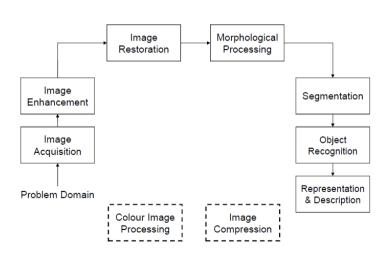
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Low Level Process Mid Level Process **High Level Process** Input: Image Input: Attributes Input: Image Output: Image Output: Attributes Output: Understanding Examples: Noise Examples: Object Examples: Scene removal, image recognition, understanding, sharpening seamentation autonomous navigation





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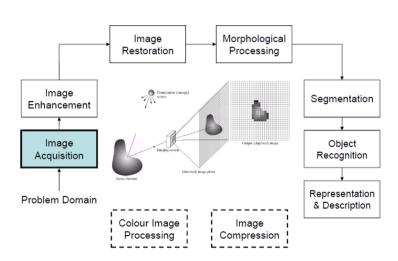
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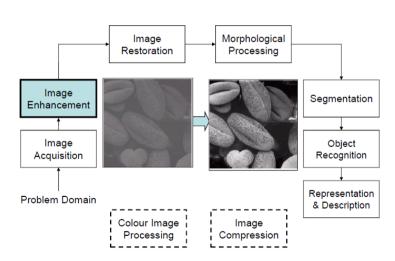
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## Image filtering and enhancement





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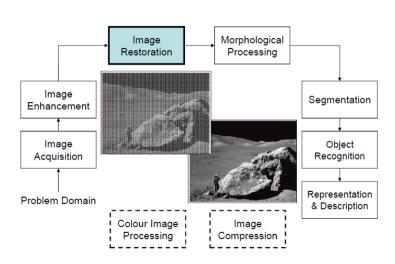
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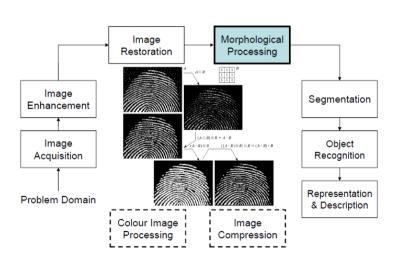
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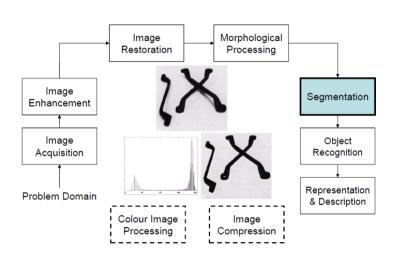
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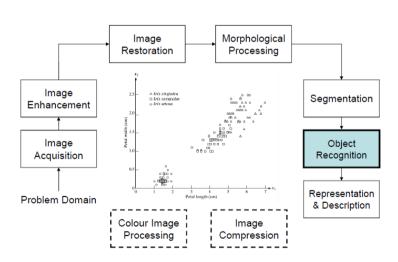
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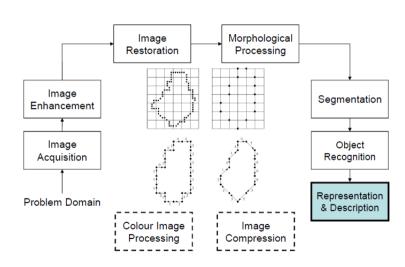
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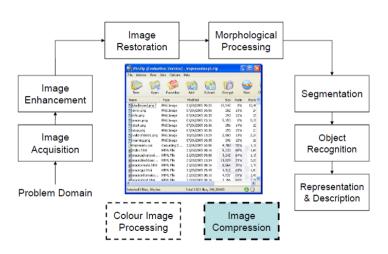
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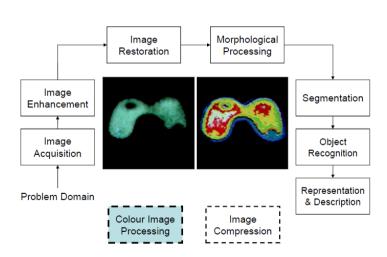
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