Image Analysis

Image analysis or **imagery analysis** is the extraction of meaningful information from images;
mainly from digital images by means of digital image processing techniques.[1] Image analysis tasks
can be as simple as reading bar coded tags or as sophisticated as identifying a person from their
face.

Computers are indispensable for the analysis of large amounts of data, for tasks that require
complex computation, or for the extraction of quantitative information. On the other hand, the human
visual cortex is an excellent image analysis apparatus, especially for extracting higher-level
information, and for many applications — including medicine, security, and remote sensing — human
analysts still cannot be replaced by computers. For this reason, many important image analysis tools
such as edge detectors and neural networks are inspired by human visual perception models.

Digital Image Analysis or Computer Image Analysis is when a computer or electrical device
automatically studies an image to obtain useful information from it. Note that the device is often a
computer but may also be an electrical circuit, a digital camera or a mobile phone. It involves the
fields of computer or machine vision, and medical imaging, and makes heavy use of pattern
recognition, digital geometry, and signal processing. This field of computer science developed in the
1950s at academic institutions such as the MIT A.I. Lab, originally as a branch of artificial
intelligence and robotics.

It is the quantitative or qualitative characterization of two-dimensional (2D) or three-dimensional (3D)
digital images. 2D images are, for example, to be analyzed in computer vision, and 3D images in
medical imaging. The field was established in the 1950s—1970s, for example with pioneering
contributions by Azriel Rosenfeld, Herbert Freeman, Jack E. Bresenham, or King-Sun Fu.