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# Digital Image Processing with MATLAB

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Mahmut Sinecen

Additional information is available at the end of the chapter

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## Abstract

The chapter relates to the Image Processing Toolbox in MATLAB. We learn about its general information and some examples will be solved using it. After finishing this chapter, you can use MATLAB Image Processing Toolbox and write script for processing of images.

**Keywords:** MATLAB, digital, image, processing, Fundamental

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## 1. Digital image processing

The image may be defined as a two-dimensional visual information that are stored and displayed. An image is created by photosensitive devices which capture the reflection light from two-dimensional surface of object in the three-dimensional real world (Figure 1). Each image has intensity or gray value in  $x - y$  coordinate plane. If it is finite and discrete quantities, image is called digital image. In Figure 2, some digital images are shown.

Digital image processing (DIP) has the different techniques for processing of digital images. DIP has been applying many fields with technological advances, such as Medicine, Geographical Information Technologies, Space Sciences, Military Applications, Security, Industrial Applications.

### 1.1. Pixel

Pixels, which are called pel or picture elements, may be defined as the smallest addressable element in the digital image. Pixels of a color image have Red, Green, and Blue gray values (Figure 3).

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# Introduction To Digital Image Processing With Matlab

**Tobias Bleicker**



## **Introduction To Digital Image Processing With Matlab:**

This book delves into Introduction To Digital Image Processing With Matlab. Introduction To Digital Image Processing With Matlab is a crucial topic that needs to be grasped by everyone, ranging from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into Introduction To Digital Image Processing With Matlab, encompassing both the fundamentals and more intricate discussions.

1. This book is structured into several chapters, namely:
    - Chapter 1: Introduction to Introduction To Digital Image Processing With Matlab
    - Chapter 2: Essential Elements of Introduction To Digital Image Processing With Matlab
    - Chapter 3: Introduction To Digital Image Processing With Matlab in Everyday Life
    - Chapter 4: Introduction To Digital Image Processing With Matlab in Specific Contexts
    - Chapter 5: Conclusion
  2. In chapter 1, this book will provide an overview of Introduction To Digital Image Processing With Matlab. The first chapter will explore what Introduction To Digital Image Processing With Matlab is, why Introduction To Digital Image Processing With Matlab is vital, and how to effectively learn about Introduction To Digital Image Processing With Matlab.
  3. In chapter 2, the author will delve into the foundational concepts of Introduction To Digital Image Processing With Matlab. This chapter will elucidate the essential principles that must be understood to grasp Introduction To Digital Image Processing With Matlab in its entirety.
  4. In chapter 3, the author will examine the practical applications of Introduction To Digital Image Processing With Matlab in daily life. This chapter will showcase real-world examples of how Introduction To Digital Image Processing With Matlab can be effectively utilized in everyday scenarios.
  5. In chapter 4, this book will scrutinize the relevance of Introduction To Digital Image Processing With Matlab in specific contexts. This chapter will explore how Introduction To Digital Image Processing With Matlab is applied in specialized fields, such as education, business, and technology.
  6. In chapter 5, the author will draw a conclusion about Introduction To Digital Image Processing With Matlab. This chapter will summarize the key points that have been discussed throughout the book.
- The book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Introduction To Digital Image Processing With Matlab.

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