Lesson 1: Introduction to Computer Vision

Description:
This lesson introduces the basics of computer vision, guiding you through the core steps of image analysis and preprocessing. It sets the foundation for working with visual data in AI applications.

1. Introduction to Computer Vision

Computer Vision is a field of AI that enables machines to interpret and make decisions based on visual data such as images or videos. Common applications include facial recognition, self-driving cars, and medical imaging. This section covers the scope, goals, and evolution of computer vision.

2. Image Analysis (Fundamental Steps)

Image analysis typically follows these key steps:

- Image Acquisition: Capturing the image using sensors or cameras.
- Preprocessing: Enhancing image quality or removing noise.
- Segmentation: Dividing an image into regions of interest.
- Feature Extraction: Identifying important patterns like edges or textures.
- Classification/Interpretation: Assigning labels or making sense of the features.

3. Image Preprocessing

Preprocessing is crucial for improving image quality and ensuring better analysis. Techniques include:

- Grayscale Conversion: Reducing the image to a single channel.
- Noise Reduction: Removing unwanted data using filters like Gaussian blur.
- Histogram Equalization: Enhancing contrast in images.
- Resizing and Normalization: Standardizing image dimensions and pixel values.

4. Outro

A short recap of what you've learned:

- What computer vision is.
- The essential steps in image analysis.
- How to prepare images using preprocessing techniques.
  Get ready to dive deeper into practical applications in the next lesson!