

# Image Feature Extraction: Edge & Corner Detection



## Edge Detection

Boundaries where intensity changes sharply

### Detection Operators:

Sobel

Prewitt

Canny



## Corner Detection

Points where edges intersect or change direction rapidly

### Detection Method:

**Harris Corner Detector:** Identifies distinctive points for matching



## Feature Hierarchy

Low-level features (edges, corners) are fundamental for higher-level understanding

Foundation for object detection and image matching



Robust to illumination changes



Resilient to minor transformations



## Visual Examples



### Edge Detection - Building Example

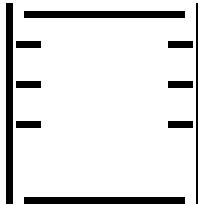
Original Image

Sobel/Canny Edge

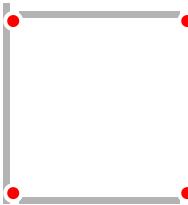
Harris Corner



Full color building with texture and details



Outlines extracted - object boundaries detected



Key points identified - useful for matching



## Use Cases

### Object Recognition



Edge detection helps identify object boundaries for classification and recognition

### Image Matching



Corner points serve as landmarks for matching images across different views

### Motion Tracking



Corners are stable features that can be tracked across video frames