CSE/EE 576
Computer Vision
Spring 2010

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Introduction

• What IS computer vision?

the analysis of digital images by a computer

• Where do images come from?
Applications: Medical Imaging

CT image of a patient’s abdomen

liver

kidney

kidney
Visible Man Slice Through Lung
3D Reconstruction of the Blood Vessel Tree
Slice of a Chicken Embryo’s Inner Ear
CBIR of Mouse Eye Images for Genetic Studies
Robotics

- 2D Gray-tone or Color Images

“Mars” rover

- 3D Range Images

What am I?
• Robot Soccer
Image Databases:

Images from my Ground-Truth collection:
http://www.cs.washington.edu/research/imagedatabase/groundtruth

• retrieve images containing trees
Some Features for Image Retrieval

Original Images | Color Regions | Texture Regions | Line Clusters
---|---|---|---
![Original Images](image1.jpg) | ![Color Regions](image2.jpg) | ![Texture Regions](image3.jpg) | ![Line Clusters](image4.jpg)

![Original Images](image5.jpg) | ![Color Regions](image6.jpg) | ![Texture Regions](image7.jpg) | ![Line Clusters](image8.jpg)

![Original Images](image9.jpg) | ![Color Regions](image10.jpg) | ![Texture Regions](image11.jpg) | ![Line Clusters](image12.jpg)

![Original Images](image13.jpg) | ![Color Regions](image14.jpg) | ![Texture Regions](image15.jpg) | ![Line Clusters](image16.jpg)
Science

Classification Results:

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Surveillance: Event Recognition in Aerial Videos

Original Video Frame

Color Regions

Structure Regions
Face Detection (and Recognition)
Graphics: Special Effects

Andy Serkis, Gollum, Lord of the Rings
3D Reconstruction and Graphics Viewer
Object Recognition from “Parts”