Status Report:
Object Detection using SURF algorithm

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Overview

Expected delivery

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Recent progress

- Exploring SIFT & SURF Algo
- Understanding Opencv library

Biggest risk

Detection of partially visible objects.

Abstract

Object Detection using SURF Algorithm

Object detection is a computer technology related to computer vision and image processing. It deals with detecting instances of semantic objects in digital images and videos. The features extracted from an image are converted into grey image and matched with exciting image features and finally detecting the object using SURF algorithm. It is also used to find the object in various orientations and angles.

Introduction

About SURF Algorithm

Speeded Up Robust Features (SURF) is a local feature detector and descriptor that can be used for tasks such as object recognition or registration or classification or 3D reconstruction. It is partly inspired by the scale-invariant feature transform (SIFT) descriptor.This technique ensures that the points of interest are scale invariant.

Progress - SURF Algorithm

Accomplishment 1

- Analyzing the underlying principle of SURF Algo.
- Applying Gaussian smoothing to detect scale invariant feature points.

Accomplishment 2

- Understanding the Hessian matrix which can be used as a blob detector.
- Understanding the significance of integral image.

Next steps

Assignment 1

Scale space representation and location of points of interest using Gaussian filter.

Assignment 2

Implement the ideas into a real application using MATLAB and Opencv.

Goals for next meeting

1. MATLAB application to be initiated.
2. Applying Gaussian filter and smoothing.
3. Detect strong features and points of interest.