Master or Diploma Thesis:

3D Object Tracking using Microsoft Kinect Sensor

Object tracking in image sequences has various applications ranging from human-computer interaction, security and surveillance, video communication to augmented reality.

The goal of object tracking is to find a target object within different images, either with or without explicit usage of temporal correlations. This problem is especially challenging when the object is fast moving and partially or totally occluded in a couple of images.

There are several state-of-the-art methods which are able to robustly track objects in videos according to their visual appearance.

The aim of this thesis is to develop and evaluate a software system that includes 3D information into the tracking task. The Microsoft Kinect Sensor shall be used for this purpose, since it enables the combined exploitation of radiometric 2D- and geometric 3D-information in (near-)real time applications.

Keywords: Kinect, Object Tracking

Involved Tasks:
– Literature Research
– Implementation of object tracking framework
– Evaluation and comparison to classical approaches

(Recommended) Requirements:
– Good knowledge about automatic image analysis (e.g. attendance in lecture AIA)
– Knowledge about photogrammetric computer vision (e.g. attendance in lecture PCV)
– Good programming skills (C++)