



Tutorial

Samples for WINalyze and WINalyze-Player

Before you start analyzing your own sequences you may have a look at the samples which we have already analyzed and put on the CD in the folder "Tutorial". This should give you a first impression of the software package WINalyze.

Tracking

The main feature is the automatic tracking of certain objects in the sequence. The automatic tracking is done by a template matching process. Following three functions of the software are necessary for successful tracking.

1. The Template

The template is a part of the image which can be chosen by setting an object (coloured point) in the first image. This template is searched for in the following images and the position is stored (template matching). The success of the template matching depends on how characteristic the template is in comparison to the surrounding. This is necessary to identify the template in each image.

Creating a characteristic template you have several possibilities:

a) Before recording

Using markers is the common way. By putting markers on the skin or clothes of the human body or the surfaces of machines the software can identify the objects very easily. The markers should be very rich in contrast: dark markers on light background, light markers on dark background.

Certainly you can use other objects as markers: Stroke on clothes, screws and other machine parts.

b) After recording

Every feature can be used for sequences with and without markers and is used for creating a characteristic template.

c) Filtering

By filtering the sequence you can modify the whole sequence.

d) Size and shape

You can modify the size and shape of it: as a circle or rectangle.

2. Limits

The limits describe the area of the image in which the software searches for the template. Searching within the whole image takes an enormous amount of time and it could be impossible to track correctly by using identical templates (e.g. markers). The limits should be as small as possible but as large as necessary referring to the movement that has happened from one image to the next image.

3. Tracking algorithm

For the automatic tracking you can choose between four algorithms:

1. **SSD-Correlation** (Sequential Similarity Detection)
SSD-Correlation is the most useful and fastest algorithm. It is useful for any kind of object.
2. **Cross-Correlation**
Cross-Correlation is useful for sequences with changing lights.
3. **Texture tracking**
Texture Tracking is useful for tracking markers.
4. **Manual tracking**
Using the manual tracking you have to move to every object in every single image with the mouse and store the position by a mouseclick. For setting a point of reference you also take this algorithm, as by this means you obtain an absolutely fixed point without pixel jitter.

Every sample is analyzed with a different combination of the above-mentioned features. Should an object nevertheless get lost, just move back to the frame where it happened and set the software marker anew to its right position. Then perform the tracking process from this point on again.

Follows a short description, how to use the Sample files:

1. Open **WINanalyze** by choosing it from programs in your Windows Start menu or double-clicking the **WINanalyze** shortcut on the desktop.
2. With **File/Load Image Sequence** you now open an image sequence from the sample files.
3. With the **Objects/Load** command all objects and object sequences belonging to the current image sequence in the active window are loaded and the objects that were saved in the last session of WINanalyze with the current image sequence are displayed.

More detail information for loading sequences and other commands please see manual: how to use.

After working with these samples you should have a quite good feeling of how to use WINanalyze.

For further questions please contact info@mikromak.com or call +49-30-42022402