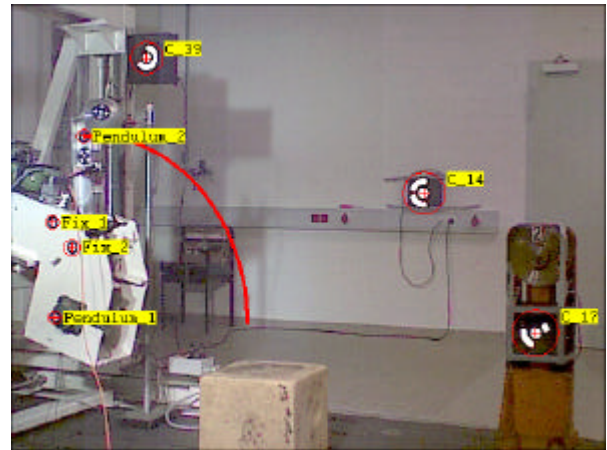
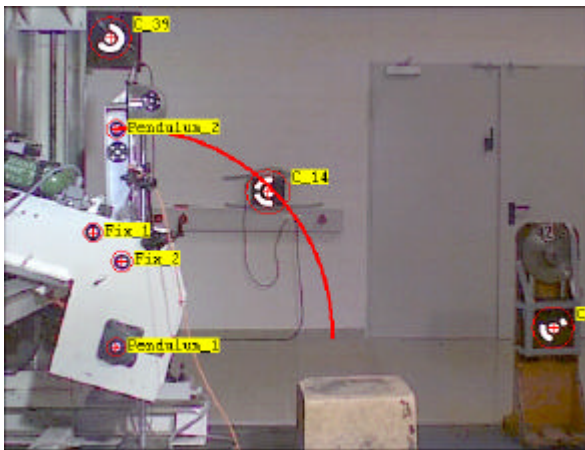


## FalCon eXtra Mov3D

### The 3D Analysis Software



#### Main features:

The image analysis software **Mov3D** offers you the possibility to analyze 3D motion of dynamic recordings:

Using the 2D module MovXact you track objects in several stereoscopic views. Photogrammetric methods ("triangulation") enable you to calculate 3D curves.

- Easy management of multi views within one test file
- Interface to 3D control points
- New type of marker CODE (= coded ring marker, by AICON), virtual markers
- Calculation of camera position using known control points
- Calibration of camera and lens with powerful distortion correction.  
(Use drag&drop from module CamFolder)
- 3D calibration and output of x-y-z displacement/time diagrams  
(with a-v differentiation etc. see MovXact)
- 3D-prediction of marker with selectable coordinate-system of the control points
- 3D-x diagrams with choice of the 2D-plane of projection
- Stabilization for compensation of small jitter of the camera
- Extensions for 3D-CamSplitter
- **New:** Relative camera position into pair of camera

**Leave the plane: 3D is much more than 2D**

## Data necessary for successful 3D analysis:

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control point data



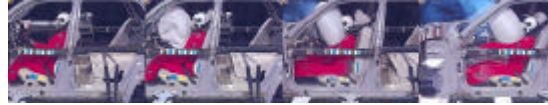
ControlPoints.apr

### Tracking data: control points and unknown points

image sequence  
(per view)



View-A.avi



### Calibration measurements

image sequence of test target +  
camera - lens - data  
(per camera) +  
control point data in ASCII file



ISO-Target-A.avi

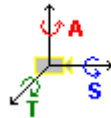


ISO-Target.apr



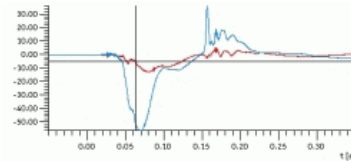
### ? Position measurements

3D control points with tracking data +  
calibration measurement  
(per view + per image)



### ? 3D measurements

tracking data of unknown points +  
calibration measurements +  
position measurements  
( n \* 2D ? 3D)



## Requirements for 3D measurements

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- At least two views from different points are included in the analysis session.
- (Same) control points and marker targets with the same name are set up and measured in the single views.
- All cameras run synchronously (as possible within 1 line).
- The frequencies of the image sequences need to be equal or integer parts of the maximum occurring frequency = max. frequency / n.
- The T0 start times should be in the raster of the maximum image frequency:  
 $T0(n) - T0\text{-min.} = 1 / \text{max. frequency.}$
- The camera positions are calculated within the overlapping time interval; for this measurement data of at least 4 control points per image are necessary. Alternatively the positions may be defined as „static“.
- A triangulation on the basis of the measured image coordinates must be possible.

Own scales or rulers are not necessary for calibration.

The scaling is implicitly included in the control point information.

## Technical Framework:

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- Program system for computer platforms under WINDOWS 2000 / XP / 2003
- User interface compliant to MS-Windows.
- **Technical specifications are subject to change.**