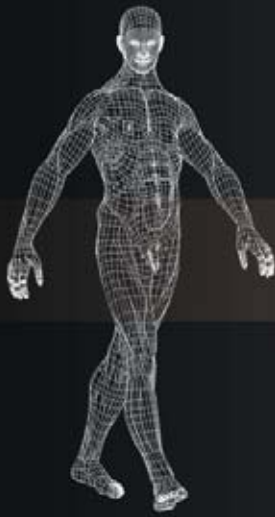




# Simi Motion

MOTION ANALYSIS SYSTEM WITH 2D/3D KINEMATICS AND KINETICS

your movolution



## ■ 2D and 3D Motion Analysis

3D motion analysis is one of the most important catch phrases in many areas of biomechanics such as, for instance, the scientific study of performance enhancement in sports.

Simi Motion is a user-friendly software solution for analyzing every possible type of movement.

The software is image- or video-based and can be used with standard PCs as well as with professional workstations.



## ■ Cameras

- » Conventional DV cameras with FireWire interface
- » High-speed cameras, for instance from Basler and Vosskühler, 100 Hz or faster

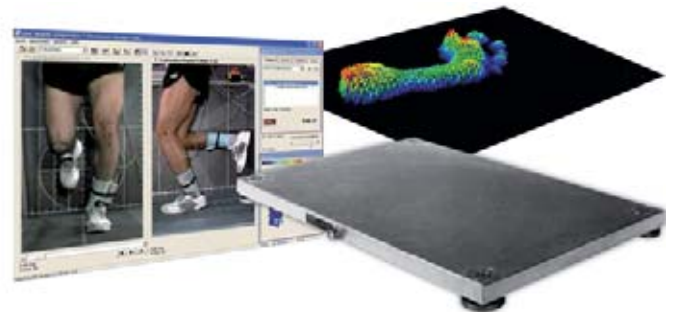
## ■ Results

You obtain a high-quality analysis in which all the data, such as EMG and pressure distribution results, are presented, recorded and evaluated in synchronization with the video pictures. Simi Motion allows you to analyze movements step by step.

## ■ Measuring Devices

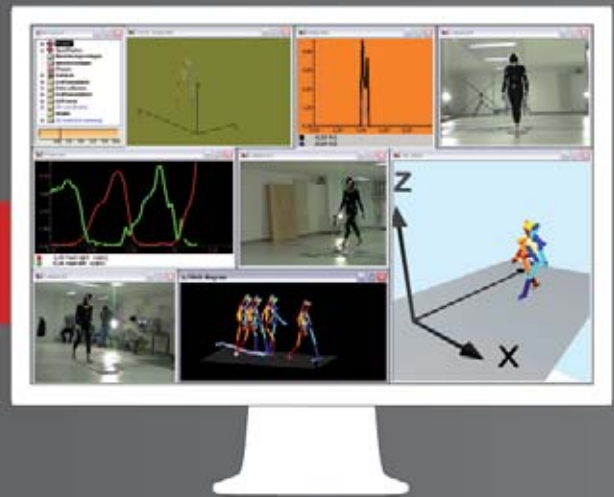
SIMI Motion Device synchronizes all external measurements with the video stream:

- » Force plates from AMTI, Bertec and Kistler
- » EMG measuring equipment from Biovision and other manufacturers
- » foot pressure measuring devices from RSscan, Tekscan, Novel, Paromed, Medilogic, etc.



## ■ Operating Location (mobile, flexible)

Movements can be captured with any number of independently positioned DV or high-speed cameras. You can perform your analyses anywhere, on a football pitch or in a sports hall, under water in a swimming pool or, as has already been carried out, on the world-famous ski jumping hill in Oberstdorf.



## ■ Calculations

- » Inverse dynamics/kinematics calculates the joint centers, segment orientations as well as joint forces and moments from the 3D motion and force data
- » Your own processing algorithms can be incorporated into Simi Motion through a plug-in interface
- » Center of gravity is calculated using mathematical models developed by Clauser, de Leva, Hanavan, Gubitz, Dempster and our own models
- » Angles and distances can be freely defined (velocities, accelerations etc.)
- » Movements can be divided into separate phases as required
- » Automatic validation of 3D calibration which reveals any mistakes in the calibration and offers suggestions for improving accuracy
- » Simi Motion provides various filters for editing data, e.g. root mean square, median and mean frequency as well as automatic or interactive onset and offset determination
- » DLT 12/16 and DLTopt methods for calibration
- » Support for pan, tilt and zoom

## ■ Visual Presentation

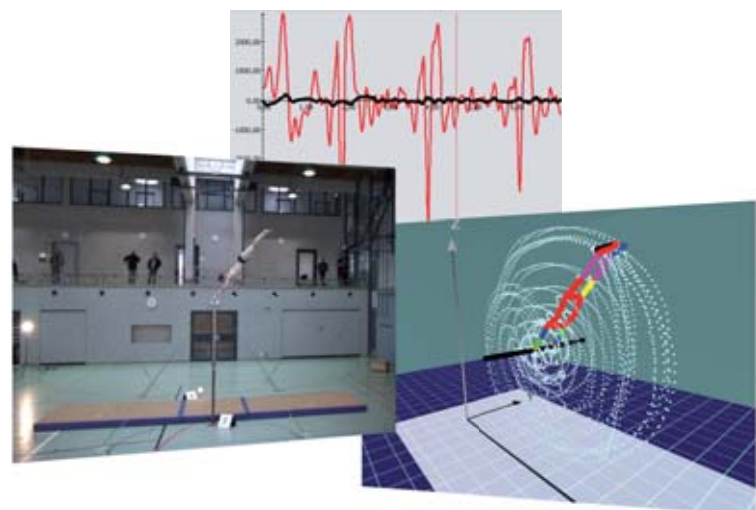
- » Video images from DV or high-speed cameras
- » 3D views gained from motion data
- » Trajectories of points and connecting lines
- » Graphs of motion data (e.g. coordinates, acceleration, velocity)
- » Interactive HTML report with controllable video streams and graphs can be saved, sent by e-mail as well as printed out as a hard copy

## ■ Automatic Tracking

The development of new and optimized tracking algorithms is one of the primal goals of Simi. Simi has concentrated a lot of it's attention on making the capturing easy, fast, secure and accurate.

The results are the following comfortable tracking variations for all kind of applications:

- » Marker-based tracking with colored or reflecting markers that silhouette against surroundings
- » Pattern matching allows tracking and rotation data to be collected without markers
- » Realtime tracking based on video streaming and synchronized recording
- » These solutions make Simi Motion users more flexible to adapt to any working environment and also independent from any stationary infrared tracking system.



# your movolution

Outstanding price-performance ratio

Flexible prices achieved through hardware neutrality

Over 10 years of experience in the international motion analysis market

Constant development of innovative software technologies and upgrading of the software with scientific standards in cooperation with scientific institutions

Flexible and individual solutions resulting from practical experience

Unequalled and individual service & support

Medicine Biomechanics Orthopedics  
Industry Entertainment Multimedia



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The World of Simi Motion

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