

Motion Capture for Human Tasks **Interaction for V6 3D Experience**



Motion Capture for Human Tasks is a software add-on for Dassault Systemes 3D Experience™. It enables interactive real-time simulation with digital human capabilities inside a virtual environment, while maintaining all basic functions.

Using MCHT, the user can simulate **manual operations** in:

- ⇒ **Accessibility** testing
- ⇒ **Visibility** study
- ⇒ **Operator training**
- ⇒ **Ergonomic** assessment
- ⇒ **Workplace** simulation
- ⇒ **Collaborative work**

The User Benefits are: reduction of the time needed for producing human animations, increased productivity, increased quality, lower development effort.

Key Features

- ⇒ **Easy calibration**
- ⇒ **Stop on collision cues**
- ⇒ **Combination with 3D Experience™ KIN mechanisms**
- ⇒ **Record postures as a 3D Experience™ Human Task / Move Activity**

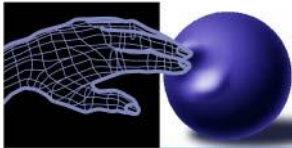
Technical Requirements

- ⇒ 3D Experience CNV, CPF, CSV, EGE, ETD, EWK, IFW, LIV, VPM
- ⇒ Supported releases: 2013X, 2014X
- ⇒ Hardware: valid configuration certified by Dassault Systemes
- ⇒ Haption IPSI Server

3D Real-Time Interaction and Simulation

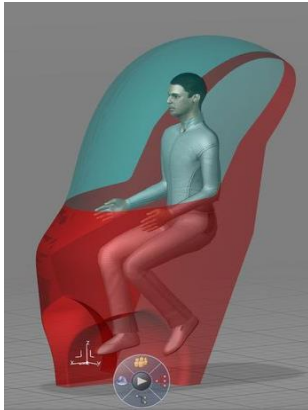
MCHT offers functionality for:

- Simulation set-up
 - Easy control: start, stop, pause, resume, active/deactivate
 - Activate/deactivate individual joints
 - Identify tools and moving parts
 - Select any kind of manikin in your 3D Experience Resources
 - Record the movement of the operator in a track
- Manipulation device management
 - Optical tracking system; currently supported are ART™, VICON™, MotionAnalysis™, and trackd™
 - Inertial system; currently supported are Xsens MVN and Animazoo
 - Haption's force-feedback devices Virtuose 6D and Inca 6D

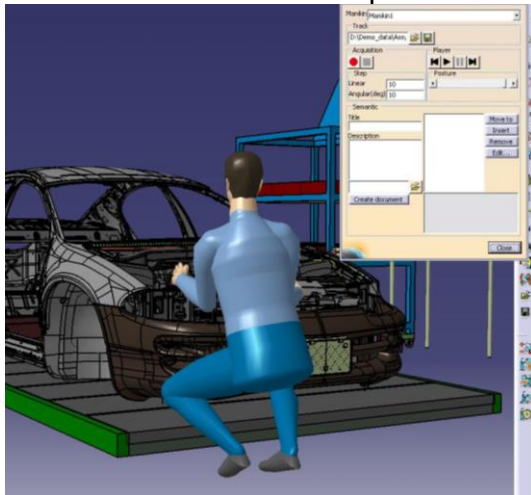


haption VIRTUAL TOUCH

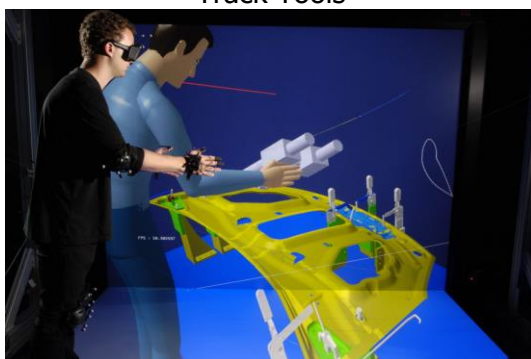
Product|Software



Simulation Set-up



Track Tools



Virtual Reality

- Simulation process control
 - Attach/detach manipulation devices to 3D objects
 - Automatically calibrate the operator using motion tracking equipment, attach/detach the virtual manikin with one click
- Real-time physics simulation
 - Scale the operator's movements to the virtual manikin
 - Integrate the virtual manikin's kinematics, including joint limits
 - View collisions and stop/glide/pivot on contact point
 - Update the viewer in real-time
 - Animate 2 manikins simultaneously
- Simulation capture and recording
 - Record the virtual manikin's postures as joint angles in real-time
 - Create a Human Task based on the recorded postures, for later replay and analysis

First-person experience

Through the motion capture device, the operator is controlling the human model as an avatar of his own body. When combined with a head-mounted-display (HMD) or an immersive visualization device, he can see the CAD model through the eyes of the avatar, and manipulate objects with its hands.

Realistic Kinematics Constraints in Real-Time

Depending on the scenario, the avatar may have the same anthropometry as the operator, or a very different one. But even with differing body sizes, the system generates relevant postures, thus greatly simplifying validation studies such as reachability, visibility, accessibility, etc.

Real-Time Recording Trajectory

The operator performs the task at real speed, and the system generates a Gesture Activity containing the sequence of postures with up to 100 key-frames per second. The Gesture Activity can be transferred into a new generic skill, which can be reused later on for building complex animations with a very high realism of motion.