

Simi Reality Motion Systems GmbH, Max-Planck-Str. 11, 85716 Unterschleissheim/Germany

Quotation number ANG-06828-GL0IBX

UBB Cluj Doctoral School  
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Romania

### Simi System Quote

Offer valid until 30.11.2021

#### Amount

#### Software

#### Software

#### offer

##### 1 1 - Simi Motion Basic Module - Video

- \*Recording of unrestricted amount of digital video and high speed cameras in software*
- \*Camera integration for GigE, Dual GigE, USB3, camera link or CoaXPress*
- \*Support of synchronization of all cameras and external devices by hardware trigger*
- \*Real-time control of camera properties (such as gain, brightness, frame rate, shutter speed, image rotation, mirroring and others)*
- \*Various saving options including direct save to predefined folder (no interruption before next recording) and save to selectable folder (video cutting possible before saving)*
- \*Real-time display of measured recording speed and frame rate - automatic detection and handling of lost frames*
- \*Adjustable control of image display quality during capture to control PC load*
- \*Adapt area of interest and camera speed for each individual camera*
- \*Multi camera video cutting*
- \*Record raw high speed camera videos (Bayer coded)*
- \*Allow real-time compression of high speed cameras during recording (compression setting adaptable by each individual camera)*
- \*Time delayed recording and real-time time delayed camera display*
- \*Snippet real time video cutting technology - by one click cut video sequences in real time during recording without delay (all sequences are registered in one playlist to also use them as one again)*
- \*Image processing pipe for real time image manipulation (distortion, brightness, contrast, gamma, black/white inversion) - increasing image quality - higher accuracy and speed of tracking*
- \*Video mix (transparent overlay) and overlay function (show several videos in one)*
- \*Save templates for video display (size, position, color, settings)*
- \*Play video, Set playback range, slow motion, single frame control by mouse and keyboard*
- \*Synchronized display of multiple video views*
- \*Organizing multiple videos in one camera group for different trials*

##### 1 2 - Simi Motion module - 2D kinematics

- \*2D calibration
- \*Distortion correction for high accuracy in small rooms
- \*Import/export of video calibrations
- \*Manual point tracking
- \*Automatic tracking of reflective markers or other high-contrast markers - automatic image detection - adjustable settings for size, ellipse factor and others
- \*Tracking in multiple views simultaneously
- \*Image feature tracking by pattern matching
- \*2D kinematic reconstruction (positions, velocities, accelerations)
- \*Applying arithmetic functions, geometric functions, filters, angles, distances and others to individual and combined dynamic data plots
- \*Phase models, event tagging and data cutting by phases with time normalization (manual and automatic event detection)
- \*Definition and saving of templates for complex calculation and filter pipe lines
- \*Export all data and calculations in editable reports to be printed (XML predefined reports available and editable)
- \*Automatic filter and interpolation settings for raw data
- \*2D still mode on single images for distances total/horizontal/vertical, 3 or 4 point angles, angles to horizontal/vertical
- \*Calculate step length, step width, stride length, Duration of cycle, Stance/Swing Phase, cadence, range of motion, angles for Foot, Ankle, Knee, Hip, spine, trunk, shoulder, arm, head and more
- \*Manual synch option by shifting data to moments of interest by visual feedback
- \*Calculate angular momentum
- \*Calculate envelopes
- \*Frequency analysis (FFT, DFT, band pass)
- \*Import HL7 data
- \*Display dynamic data plots synchronized with each other and videos - configurable appearance for dimming, color, size, etc.
- \*2D Stick figures (also overlaid on video) - various colors
- \*Trace of points and connections
- \*Show data tables with max, min, mean, standard deviation
- \*Compare trials by data overlay and video comparison
- \*Export txt files of any raw or processed data
- \*Export videos in editable templates (1 to 8 combined views)
- \*Matlab interface available
- \*Export of results as reports and PDF

**1 3 - Simi Motion module - 3D markerless and hybrid kinematics**

\*\*\*\*\*Requirement: 1 - Simi Motion Basic Module - Video & 2 - Simi Motion module - 2D kinematics\*\*\*\*\*

- \*3D dynamic wand calibration for intrinsic and extrinsic parameters
- \*Automatic calibration check
- \*DLT calibration by cube possible
- \*Dynamic calibration for pan, tilt and zoom cameras available
- \*Automatic tracking and labelling of reflective markers
- \*Marker-less silhouette based tracking for full body motion capture without any sensors on subject
- \*IMU based full body or segment motion capture
- \*Hybrid tracking combining weighted correspondences from: 2D or 3D Marker, silhouettes, IMU model constraints and others
- \*Automatic model scaling in T-Pose or manual in any pose
- \*Joint property control during tracking (lock, refine, smoothing, constrain, ROM limitations, hinge, ball, free, shift)
- \*Segmentation pipeline including background subtraction, space carving, foreground labelling and counter detection algorithms
- \*Multiple tracking layers
- \*Automatic scripting and background operation
- \*Full camera speed possible for outdoor motion capture
- \*Working with 3D Data
- \*Centre of Mass and segment center of mass calculations
- \*Inverse Kinematic for all joints and planes
- \*Inverse Dynamics (joint forces, torques and power)
- \*Static 3D measurements
- \*Possibility for manual and automatic change, interpolation of gaps and filtering with visual feedback on high speed videos
- \*Define rotations and Euler/Cardan angles
- \*3D data overlay on full color image for each capture camera
- \*Show 3D data as skeleton and visualize segment rotation axes
- \*Export of C3D
- \*Export for Animation software

**1 4 - Simi Motion module - Signal integration**

- \*Integration of any analog signal by National Instruments, Data Translation or Measurement Computing devices
- \*Sending or receiving trigger signals to and from any external device
- \*Complex triggering of different systems
- \*Import for any kind of .txt
- \*Direct digital integration and interface with Delsys EMG and IMU sensors
- \*Force Plate integration and calculations (XYZ force, Resulting force, CoP, Moment, Free moment)
- \*Display of force vector overlay on high speed videos (real time and video)
- \*Foot pressure display and analysis 2D/3D (import of Zebris, Novel, RSscan and Techscan data formats)
- \*EMG processing module (high pass, low pass, band pass, RMS, mean, power, frequency, amplitude normalization)
- \*Import of Noraxon, Zebris, and Micromed files

**Softwaresystemprice**

**28.900,00 €**

**Hardware**

**Accessoires**

**1 3D Lab Simi Accessoire package**

- 10 x Simi active markers with remote control
- \* use for 2D analysis
- 3 x Adhesive rings for marker attachment
- \* roll with 500 pieces in a box
- 3 x Simi Marker apr. 12 mm
- \* set of 20 reflective markers with socket
- 3 x Simi Marker apr. 6 mm
- \* set of 20 reflective markers with socket
- 1 x Simi Wand calibration stick
- \* T-stick with marker for WAND calibration
- \* L- Frame for calibration orientation

**Recordinghardware**

**1 Simi System Hardware 2b - 105 fps - 8 Cameras - 2MP**

- \*8 Industrial Cameras, approx. 105 fps, approx. 2MP
- \* Chip scalable in height for 105fps@2MP; 500fps@1MP; 617fps@VGA; 1924fps@0,3MP
- \* max. transfer bandwidth 105fps@2MP; 238fps@1MP; 516fps@VGA; 831fps@0,3MP
- \*8 Camera Lenses
- \*1 Synchronization Box – for camera synchronization
- \*8 Camera Trigger Cables (20m) – camera synchronization cables
- \*8 System Cables (20m) – camera cables
- \*8 Camera Tripod Mounting Adapters – adapter to secure the cameras on the tripods
- \*8 Camera Tripods – 3D tilt
- \*8 High-Powered LED Ring Lights and Mounting Set
- \*1 Simi High-Speed Workstation – individual hardware configuration, Microsoft operating system, LCD-Monitor, keyboard, mouse (optical)
- \* capacity for live recording until archiving is necessary: 15min
- \* Writing capacity per camera until SSD TBW is exceeded: 150 TBW (equals a minimum of 150 hours of recording with 2MP@100fps)
- \* Realtime compression at recording

**Hardwaressystemprice**

**52.194,00 €**

**Service**

**Training**

**1 Simi Motion system training 01 - system setup**

- \* System Setup (cable, cameras, mounts, PC)
- \* lab check and design of system setup plan
- \* mounting of cameras and cables
- \* plan for further changes in the room (light, windows, camera placing, etc.) not part of the training or is construction work or wiring of cables in open or closed cable channels
- \* test criteria and systemtest (tracking, ghosts, visibility or markers, image settings, segmentation test for Shape (if available))
- \* calibration possibility
- \* Result: Preliminary optimal system setup with further instructions how to optimize the room and Setup
- \* Duration: 1 day (6 hours)

**1 Simi Motion system training 02 - calibration**

- (requirement: training system setup)
- \* 3D calibration of a setup and ready System
- \* wand calibration
- \* distortion correction
- \* calibration checks in system and corrections
- \* test of calibration excellence
- \* calibration export and template Generation
- \* Result: high Quality calibration
- \* Duration: 1 day (6 hours)

**1 Simi Motion system training 03a - 2D/3D data capture**

- (requirement: training for system setup and calibration)
- \* Configuration of optimal camera Settings
  - \* 2D/3D tracking (automatic tracking)
  - \* optimal tracking settings (AOI, options, expert options)
  - \* quick tests for tracking Settings
  - \* assignement and Splitting
  - \* MBT (use, templates, tolerance)
  - \* failure check (2D/3D overlay, raw data, 3D view)
  - \* Failure check (auto tracking, manual tracking, raw data, interpolation and filter)
  - \* basics for interpolation and filtering
  - \* Result: Clean 3D Data
  - \* Duration: 1 day (6 hours)

**1 Simi Motion system training 03b - markerless tracking-Shape**

- \* segmentation with 2D and 3D methods
- \* tracking with silhouettes
- \* tracking with hybrid methods (silhouettes, marker, IMU if applicable)
- \* data processing and analysis

<b>Serviceprice</b>	<b>5.700,00 €</b>
<b>Handling and Shipping costs</b>	<b>340,00 €</b>
<b>Systemprice (net)</b>	<b>87.134,00 €</b>
<b>final Systemprice (net), plus applying taxes</b>	<b>87.134,00 €</b>

**payment terms:**

Vorkasse/prepayment

Kind regards

Thomas Hock

For all offers additional taxes, customs and fees will be charged

We accept your order with the exclusive validity of our Terms & Conditions. We further explicitly point to the validity of our service policies in acceptance of the order. Please find both here:

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