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사이언 마젠타 옐로우 검정



Improvement of Physical condition- Kwon3D!

(www.kwon3d.com)

Advanced Analysis Tool for Motion Analysis Researcher

Kwon3D

www.kwon3d.com

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3D Motion Analysis Specialist

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VISOL
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Kwon3D

Kwon3D was born in 1990 as a low-end, yet powerful, yet powerful, comprehensive motion analysis software package. It is a general-purpose motion analysis package with broad and in-depth analysis capabilities. Its main strengths are the solid theoretical foundation and the streamlined package structure. This single package meets the needs of various analysis types: robotics, rehabilitation, ergonomics, human mobility biomechanics, sport biomechanics, etc. The key designing themes of the package are comprehensiveness and flexibility. It covers a wide range of sophisticated motion analysis tasks: simultaneous capture of digital video from multiple cameras, individualized body segment parameter computation, flexible camera calibration, comprehensive body modeling, manual/automatic marker tracking, accurate reconstruction of the object plane (2D) and space (3D), flexible data processing, comprehensive data computation, high-quality graphics, generalized pattern analysis, etc. Kwon3D is flexible, allowing users to customize analyses to their unique needs and eliminating the needs for additional user programming.

Kwon3D XP

Kwon3D XP provides competitive power as a research project based integration software for needs of accurate analysis. Kwon3D XP preserves depth of analysis using direct interface method. As the single unit program that can be used as an enterprise solution, Kwon3D XP increased easy usability and has features like capturing multi videos, measuring ground reaction force data and analog signal, calibrating, analyzing, creating reports as well as auto-updating.

Applications

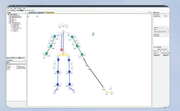
- Biomechanics
- Sports Science
- Rehabilitation
- Kinematics
- Ergonomics
- Robotics
- Motion Research
- 3D Animation
- Auto Crash
- Gait Analysis
- Balance
- Games
- Animal Motion



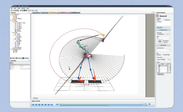
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Kwon3D Motion Analysis







■ General Features
- Microsoft Windows 2000 or XP
- High-speed multi capture with multi net express & Motion Master 100 cameras
- Requires Microsoft DirectX 9.0
- Simultaneous DV capture from up to 9 DV cameras / VCRs / camcorders
- Supported video formats: Microsoft AVI, Microsoft DV AVI, MPEG, etc.
- Integration of GRF data computation
- Acoustic signal capture for automatic sync frame
- Transformation using DLT

■ Solid Theoretical Foundation
- Visit http://kwon3d.com for the theoretical foundation of Kwon3D and KwonGRF.

■ Analysis Types
- Control point-based 2D, pseudo-3D, and 3D

■ Camera Calibration
- Calibration frame of range poles
- Flexible axis alignment
- DLT or DSM (direct solution method) algorithm
- Special underwater camera calibration features

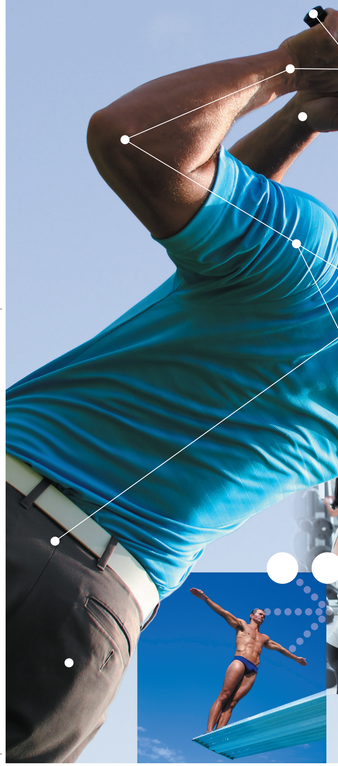
■ Body Modeling-Core of Kwon3D Motion Analysis
- Anthropometric parameters
- Points (primary, secondary, and graphic)
- Rigid bodies of segments (Point, simple, and complex)
- Body groups or system of rigid bodies
- Joints for the inverse dynamics and helical axis analysis
- Local reference frames
- User angles
- Built-in joint center location algorithms

■ 3D Marker Tracking
- Manual digitization and automatic 3D tracking
- Integrated 2D and 3D Automatic Tracking

■ Data Processing
- Cubic spline interpolation (pre and post)
- Software genlock for the camcorders
- Digital filtering with butterworth low-pass filter
- Point padding
- C3D data import

■ Scope of the Analysis
- Point kinematics
- CM kinematics
- Transformation matrices of the local reference frames
- Body orientation angles
- Body angular kinematics
- Angular momentum
- Inverse dynamics
- Helical axis analysis

■ Reporting
- Easy handling through the processing center
- Powerful 3D openGL stick figures
- Graphs
- Data Sheets
- Text
- Pictures
- Videos















KwonGRF Analysis

KwonGRF is specifically developed for the ground reaction force analysis. It is compatible to various force plate models commonly used in the fields of biomechanics.

■ General Features
- Microsoft Windows 2000 or alter
- Requires an AD Sync Box (16 or 32 channels) with the standard accessories
- Requires a Data translation AD board for acquisition

■ Compatible Force Plates
- AMTI, Bertec, and Kistler

■ Ground Reaction Force Data
- Ground reaction force
- Ground reaction torque
- Center of pressure (position, centroid, excursion, area; individual vs. combined)
- Acceleration
- Friction coefficient
- Impulse
- Additional channel data (foot switch, goniometer, EMG, etc.)

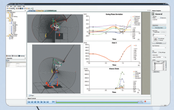
■ Trigger Types
- Manual, channel, or external

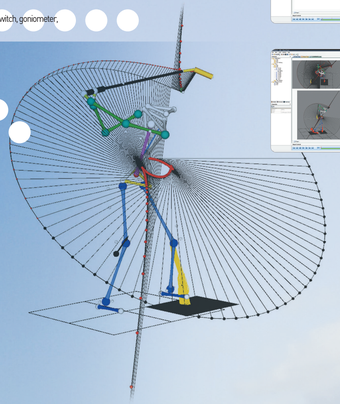
■ Graphics
- Channel graphs (force plate & additional channels)
- Vectogram (ground reaction force)
- Multiple windows

■ Special Features
- Automatic event detection
- Average gait velocity measurement
- Plate padding
- Flexible plate positioning

■ Future Expansions
- Musculoskeletal modeling with integrated EMG data
- Real-time marker tracking
- More realistic 3D graphics
- Analysis or sport-specific features
- Flexible report generator







Optional Hardware

■ MotionMaster 100
- 659 x 490 pixels when 100fps
- Embedded IR LED lighting
- Hardware synchronization



■ Multi Net Express
- Multiple PC control using ethernet
- Complete synchronized capturing
- 100fps progressive recording
- Stable and robust capturing
- Optimization for Kwon3D XP



■ Trigger Master
- Master 100 Cameras Synchronization
- Module Power Supply



■ Calibration Matrix
- Calibration tools for normal motion analysis



■ Range Pole
- 4 x 2m vertical pole
- Calibration tools for wide range field



■ Other Accessories
- Reflective markers
- Additional marker plate



■ DV Camcorder
- 60Hz recording
- IEEE1394 Link
- Direct Capture



■ Lighting Device
- Auto digitizing light
- High speed video light
- Indoor TH light or LED



■ A/D Sync. Box
- 16 or 32 channels
- GRF & EMG data acquisition
- 3D/GRF/EMG/other data synchronization



■ Force Platform
- Gait and balance analysis
- Multi-axis force / torque measurement



■ EMG/EKG Equipments
- Surface electromyography
- The state-of-the-art telemetric SEMG





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