



Revolutionizing
Behavior Research



FreeWalkScan

Features:

- Unconstrained Gait Analysis for Free Walking in Open Field, Runway, etc.
- Integrate seamlessly with Other Top/Bottom View Analysis
- Bottom-view analysis: Software tool applicable on any device providing clear ventral view, either in dark or lighted condition
- Full color-analysis
- Shows full animal body clearly at all times
- Provides over 9 various Different Measures of Gait!
- More measures from our other Gait Analysis products being ported to FreeWalkScan on a regular basis
- Exports conveniently to Excel, formatted for input into Stats packages
- Statistics can be exported across Groups of animals
- Software is trainable to adapt to changing environment
- Result review, Visualization of Acquired Experiments
- Extensive Experiment Database Management included!
- Batch-mode allows user to run multiple videos successively without human intervention

Measures FreeWalkScan can provide:

- Right Overlap
- Left Overlap
- Front Base
- Hind Base
- Right Front Stride
- Left Front Stride
- Right Hind Stride
- Left Hind Stride
- Paw Pressure

FreeWalkScan is our latest addition to our Gait Analysis Suite of products. It integrates Gait Analysis and Bottom-View Behavior Analysis. It allows highly sensitive, noninvasive detection and evaluation of many pathophysiological conditions, such as those occurring in Spinal Cord Injury, Parkinson's disease, Alzheimer's disease, ALS, arthritis, pain, neuromuscular and skeletal muscle diseases



FreeWalkScan system takes (optional high-speed) video of animal (mouse or rat) walking on a clear bottom plate either in the dark or using normal light conditions. The video of the ventral view (underside view) of the animal is obtained using camera mounted directly under the plate. The video captures animal movements on the plate, as well as the foot/paw prints of the animal. Information of animal movements and foot/paw print are integrated seamlessly, which yield rich information useful for pathophysiological studies.

FreeWalkScan can reliably analyze the video, and determine various characteristic parameters that are related to the pathophysiological conditions. These parameters include Right Overlap (distance between sequential footprints of the front and hind limbs on the right side), Left Overlap (distance between sequential footprints of the front and hind limbs on the left side), Front Base (distance between sequential footprints of front limbs, measured orthogonal to the walking direction), Hind Base (distance between sequential footprints of hind limbs, measured orthogonal to the walking direction), Right Front Stride (distance between two sequential footprints of the right front paw), Left Front Stride (distance between two sequential footprints of the left front paw), Right Hind Stride (distance between two sequential footprints of the right hind paw), Left Hind Stride (distance between two sequential footprints of the left hind paw). It also can measure Paw Pressure for each of the limbs.



FreeWalkScan

(Continued from front)

Applications:

- Spinal Cord Injury
- Parkinson's Disease
- Alzheimer's Disease
- ALS
- Arthritis
- Pain
- Neuromuscular diseases
- Skeletal muscle diseases
- Ataxia

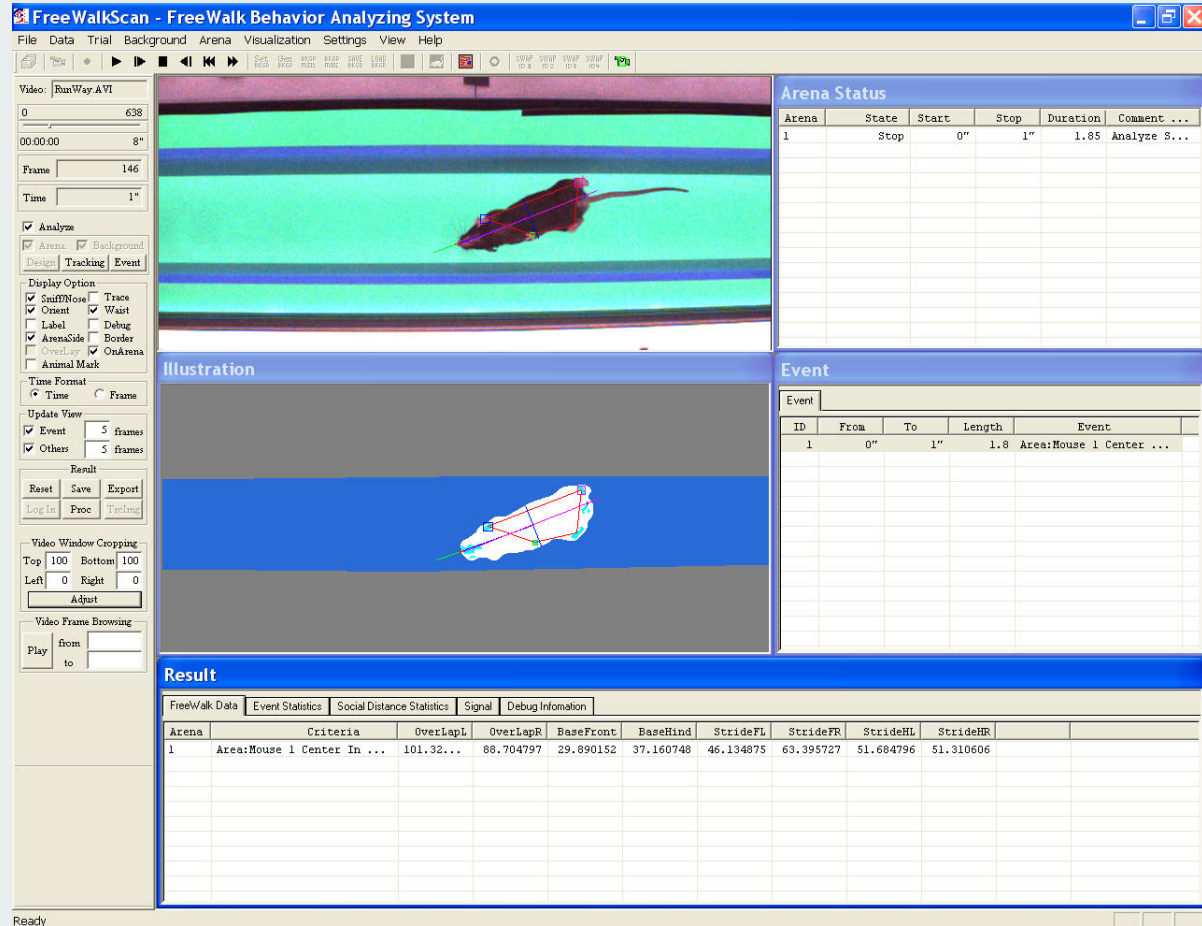
Results:

- Objective Bottom View Behavior with Gait Analysis Results
- Automatic Export to MS Excel
- Complete Experiment Database Management
- Summary data for each measure for each defined events
- Group Export available that allows multiple animals' data to be exported to a single Excel sheet allowing easy Group or sub-group analysis

Requirements:

- Windows-based PC
- Intel High-speed Processor
- Special Videocard for realtime analysis
- Large HDD space for storage
- Video-multiplexer for multi-camera feed

A sample screenshot of the **FreeWalkScan** software is shown below. For each defined event, corresponding Free-Walk data (including Right Overlap, Left Overlap, Front Base, Hind Base, Right Front Stride, Left Front Stride, Right Hind Stride, Left Hind Stride) is shown in the bottom window. This allows the user to study gait parameters during different behavior events (e.g., in different zones), thus revealing relations between gait data and various behaviors. The results are updated as the analysis takes place.



The screenshot shows the 'FreeWalkScan - FreeWalk Behavior Analyzing System' window. It features a main video window showing a mouse on a track, an 'Illustration' window showing a top-down view of the mouse's gait with overlaid lines, and a 'Result' window displaying a table of gait parameters. The 'Arena Status' and 'Event' windows provide additional context for the analysis.

Arena	State	Start	Stop	Duration	Comment ...
1	Stop	0"	1"	1.85	Analyze S...

Event	ID	From	To	Length	Event
1	0"	1"	1.8	Area:Mouse 1 Center ...	

Arena	Criteria	OverLapL	OverLapR	BaseFront	BaseHind	StrideFL	StrideFR	StrideHL	StrideHR
1	Area:Mouse 1 Center In ...	101.32...	88.704797	29.890152	37.160748	46.134875	63.395727	51.684796	51.310606

After analysis, **FreeWalkScan** can output the detailed results of these parameters as Microsoft Excel files, which allows the user to do further analysis through statistical analysis software like SAS or SPSS. Complete experiment database management function is provided for large group study. Advanced functionalities, such as visualization and post-analysis, batch mode analysis, group export, export video clips corresponding to specific detect event, record are available.

Unique Capabilities:

- Complete Hardware and Software Solution
- Works with rodents of all colors/sizes
- Analyzes up to 640x480 at 100 frames per sec
- Records video into storage during analysis