

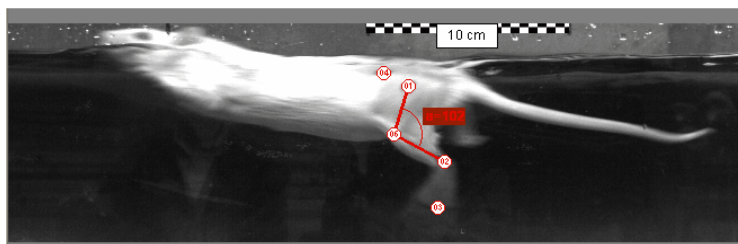
MaxTRAQ VJR

Video Based Auto Tracking for Virtual Joint Recognition

Use MaxTRAQ VJR to calculate the position of the knee based on known positions of the hip and ankle in rodents. The lengths of the femur and tibia are assigned based on post-mortem measurements or estimates based on age, weight and gender- matched controls. MaxTRAQ VJR calculates and plots the position of knee and generates accurate estimates of the hip, knee and ankle angles that are critical to understanding the hindlimb kinematics during walking or swimming.

Parts of the calculations used in MaxTRAQ VJR were developed in collaboration with Mr. Trystan Magnuson and Dr. David Magnuson at the University of Louisville. Without their input, this module would not be available to researchers worldwide.

“In our specific approach we are using kinematics to assess the movement of the hind limbs of rodents following spinal cord injury. We use both walking and swimming. One of the major hurdles that we have had to overcome is the inaccuracy of marking the skin to approximate the position of the knee joint during swimming. The range of motion is greater than during over ground walking and the data we collected by marking the skin over the knee was obviously flawed and certainly was not useable to assess changes following injury and/or treatment or rehabilitation. We are able to acquire accurate data for the iliac crest and hip because they are relatively static compared to the overlying skin, and from the ankle and toe because they are covered by tight skin. So, we set out to develop a way to accurately estimate the knee position based on bone lengths and the known positions of the hip and ankle in 2-dimensions, based in part on previously published work (S. Rossignol, U. of Montreal). This program allows us to assign lengths to the femur and tibia (based on actual post-mortem measurements) or to use estimates based on age, weight and gender-matched controls, and to calculate the position of the knee and the two angles critical to understanding the hind limb kinematics, the iliac crest – hip – knee (hip angle) and hip – knee – ankle (knee angle). Of particular importance is the phase relationship between the hip, knee and ankle angles during swimming and walking. Following spinal cord injury, the complex phase relationship seen in normal animals breaks down until all three joints are moving almost in phase. This clearly represents an important feature that we would not be able to address without this piece of software.”



- Acquire accurate data for the iliac crest & hip and ankle & toe
- Accurately estimate the knee position based on bone lengths
- Accurately estimate the known position of the hip & ankle
- Assign lengths to the femur and tibia
- Can use estimates based on age, weight, gender-matched controls
- Calculate the position of the knee and the two angles which are critical to understanding the hindlimb kinematic (iliac crest – hip – knee (hip angle) and hip – knee – ankle (knee angle)
- Acquire phase relationships between the hip, knee and ankle angles during swimming and walking

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Visit our web site and download both the standard MaxTRAQ 2D and MaxMATE [free](#) for 15 days.

MaxTRAQ 2D Specifications	
Features:	
Max. number of markers/targets	99
Supported file formats	AVI, MPEG, BMP, JPEG
Tracking modes	Manual and Semi-Manual Digitizing and Auto Tracking
Export data format	ASCII, C3D
Sub-pixel tracking accuracy	Yes
Upgradeable to 3D	Yes
Image control	Bright, Contrast, B/W, Rotate, Flip, Invert, Zoom
Visuals	Trace, Stick Figures, Grid Capabilities
Stick figures	Yes
Export images	AVI
Notations area/note pad/test box w/pointer	Yes
Analysis / Tools	Velocity Acceleration, Distance, Angles, Stick, Scale, Projected Points, Center of Mass
Video Recorder	Record from Direct Show compatible cameras
Scripting	Put commands in text file – Repeat command for batch recording /processing – Script commands avail. as special hyperlink commands (see Widgets)
Codec Information	Yes
MaxTRAQ 2D Software Editions	
Features:	<u>Educational</u> <u>Lite</u> <u>Standard</u>
Auto-tracking	
Video Recorder	X
SimpleScript	X
Widgets	X
Network Licensing	X
Hardware Dongle	X
Computer Requirements for MaxTRAQ 2D	
Operating system, CPU, Memory, Video card	Window® 2000, XP or Vista, Pentium Class, 512 MB, True Color (32 bit) recommended
Licensing Options (MaxTRAQ/MaxMATE)	
Single	License registered to a single computer that does not expire
Network	Server based licenses for use by multiple users
Subscription	Licenses purchased at a discount that expires after set time period, renewable
Dongle	Single license that is on the dongle hardware. The dongle connects to the computer via USB connection. When dongle not present, software will not run. Recommended if you want to run software on multiple computers or if you reformat computer regularly. \$55 extra charge