

## ClickJoint



Bewegungsanalyse, Bildverarbeitung, Strichmännchen,

### Bewegungsanalyse aus Videos und Fotos

Mit der ClickJoint-Software lassen sich Arm- und Beinbewegungen aus Videos oder Bildern einfach erfassen und als Strichfiguren darstellen. Die Position der Gelenkpunkte und ihre Winkel werden berechnet, als Grafik angezeigt und können zur weiteren Analyse auch exportiert werden.

- vollautomatische Detektion von farbigen Markern
- Kalibration
- mehrere Gelenkpunkte definierbar
- kompatibel mit vielen Videoformaten
- beliebige Videokamera einsetzbar
- keine Infrarotkameras notwendig

Vorbereiten		Analysieren – präsentieren
<input checked="" type="checkbox"/> Videofilm oder Bildsequenzen wählen <input checked="" type="checkbox"/> Anzahl Gelenke mit Namen eingeben <input checked="" type="checkbox"/> Distanz kalibrieren <input checked="" type="checkbox"/> Zoombereich einstellen <input checked="" type="checkbox"/> Bei Bedarf Länge von Ober-und Unterschenkel eingeben, sodass Knie-Gelenk automatisch gefunden wird		<input checked="" type="checkbox"/> Interessante Stelle in Video suchen <input checked="" type="checkbox"/> Gelenkpunkte anklicken, zu nächstem Bild springen und weiter auswerten <input checked="" type="checkbox"/> Strichfiguren anzeigen <input checked="" type="checkbox"/> Gelenkbewegungen und Winkelverlauf beobachten <input checked="" type="checkbox"/> Resultate exportieren

## ClickJoint



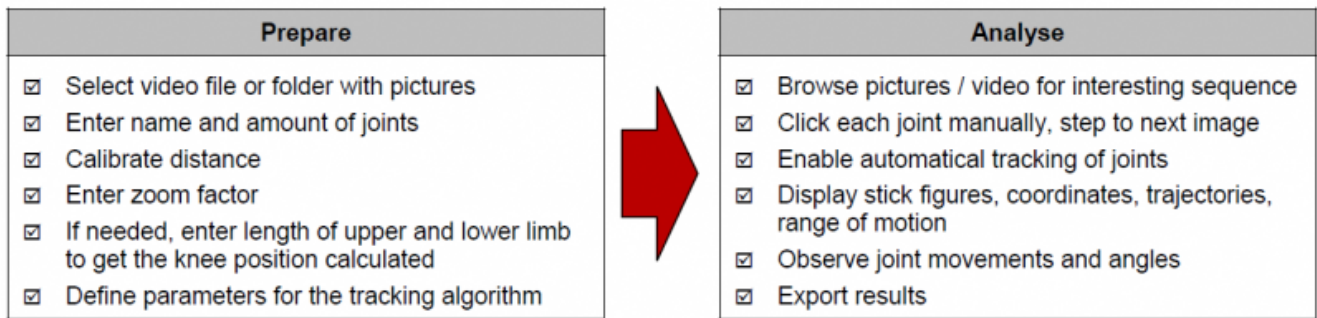
Movement analysis, Image analysis, Stick figures,

### Movement analysis on videos and images

With the software ClickJoint it is fast and easy to determine the movements of arms or legs by creating stick-figures from video or pictures. One click per joint defines lines which can be saved as a series of stick-figures, coordinates or angles.

By making use of the integrated advanced tracking algorithm, markers can be detected automatically. However, as always in automated image analysis, it is recommended to take the pictures under controlled conditions regarding lighting and markers.

- automatic detection of colored markers
- calibration
- several joints can be defined
- compatible with several video formats
- only standard video camera is required
- infrared camera is not needed



## ClickJoint Referenzen

- Profiling locomotor recovery: comprehensive quantification of impairments after CNS damage in rodents
- Björn Zörner, Linard Filli, Michelle L Starkey, Roman Gonzenbach, Hansjörg Kasper, Martina Röthlisberger, Marc Bolliger & Martin E Schwab
- Nature Methods | VOL.7 NO.9 | sepTember 2010 |
- [http://www.hifo.uzh.ch/research/schwab/publication/zoernerb\\_nature\\_2010.pdf](http://www.hifo.uzh.ch/research/schwab/publication/zoernerb_nature_2010.pdf)
  
- Motor deficits and recovery in rats with unilateral spinal cord hemisection mimic the Brown-Se´quard syndrome
- Linard Filli, Björn Zoörner, Oliver Weinmann and Martin E. Schwab
- Brain 2011; 134; 2261–2273
- [http://www.hifo.uzh.ch/research/schwab/publication/2011\\_Filli\\_Brain\\_134.pdf](http://www.hifo.uzh.ch/research/schwab/publication/2011_Filli_Brain_134.pdf)
  
- Motor physiology and neural network anatomy in rats following incomplete cervical spinal cord injury
- L P Filli
- ETH Zurich, Faculty of Science, 2011
- [http://www.zora.uzh.ch/55466/1/2011\\_Filli\\_Linard.pdf](http://www.zora.uzh.ch/55466/1/2011_Filli_Linard.pdf)
  
- Motor deficits and recovery in rats with unilateral spinal cord hemisection mimic the Brown-Sequard syndrome
- L Filli, B Zörner, O Weinmann, M E Schwab
- J Neurophysiol. 2010 December; 104(6): 2975–2984
- [http://www.zora.uzh.ch/54838/4/Brain\\_Publication\\_Linard\\_Filli.pdf](http://www.zora.uzh.ch/54838/4/Brain_Publication_Linard_Filli.pdf)
- <http://brain.oxfordjournals.org/content/early/2011/07/13/brain.awr167.full>
  
- Locomotion After Spinal Cord Injury Depends on Constitutive Activity in Serotonin Receptors
- K. Fouad, M. M. Rank, R. Vavrek, K. C. Murray, L. Sanelli, and D. J. Bennett
- J Neurophysiol. 2010 December; 104(6): 2975–2984
- <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3007654/>

## ClickJoint References

- Profiling locomotor recovery: comprehensive quantification of impairments after CNS damage in rodents
- Björn Zörner, Linard Filli, Michelle L Starkey, Roman Gonzenbach, Hansjörg Kasper, Martina Röthlisberger, Marc Bolliger & Martin E Schwab
- Nature Methods | VOL.7 NO.9 | September 2010 |
- [http://www.hifo.uzh.ch/research/schwab/publication/zoernerb\\_nature\\_2010.pdf](http://www.hifo.uzh.ch/research/schwab/publication/zoernerb_nature_2010.pdf)
  
- Motor deficits and recovery in rats with unilateral spinal cord hemisection mimic the Brown-Se´quard syndrome
- Linard Filli, Björn Zoörner, Oliver Weinmann and Martin E. Schwab
- Brain 2011; 134; 2261–2273
- [http://www.hifo.uzh.ch/research/schwab/publication/2011\\_Filli\\_Brain\\_134.pdf](http://www.hifo.uzh.ch/research/schwab/publication/2011_Filli_Brain_134.pdf)
  
- Motor physiology and neural network anatomy in rats following incomplete cervical spinal cord injury
- L P Filli
- ETH Zurich, Faculty of Science, 2011
- [http://www.zora.uzh.ch/55466/1/2011\\_Filli\\_Linard.pdf](http://www.zora.uzh.ch/55466/1/2011_Filli_Linard.pdf)
  
- Motor deficits and recovery in rats with unilateral spinal cord hemisection mimic the Brown-Sequard syndrome
- L Filli, B Zörner, O Weinmann, M E Schwab
- J Neurophysiol. 2010 December; 104(6): 2975–2984
- [http://www.zora.uzh.ch/54838/4/Brain\\_Publication\\_Linard\\_Filli.pdf](http://www.zora.uzh.ch/54838/4/Brain_Publication_Linard_Filli.pdf)
- <http://brain.oxfordjournals.org/content/early/2011/07/13/brain.awr167.full>
  
- Locomotion After Spinal Cord Injury Depends on Constitutive Activity in Serotonin Receptors
- K. Fouad, M. M. Rank, R. Vavrek, K. C. Murray, L. Sanelli, and D. J. Bennett
- J Neurophysiol. 2010 December; 104(6): 2975–2984
- <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3007654/>