

Videoanalyse eines Chaospendels

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Chaospendel

Tracking

Auswertung

Ergebnisse

Chaospendel

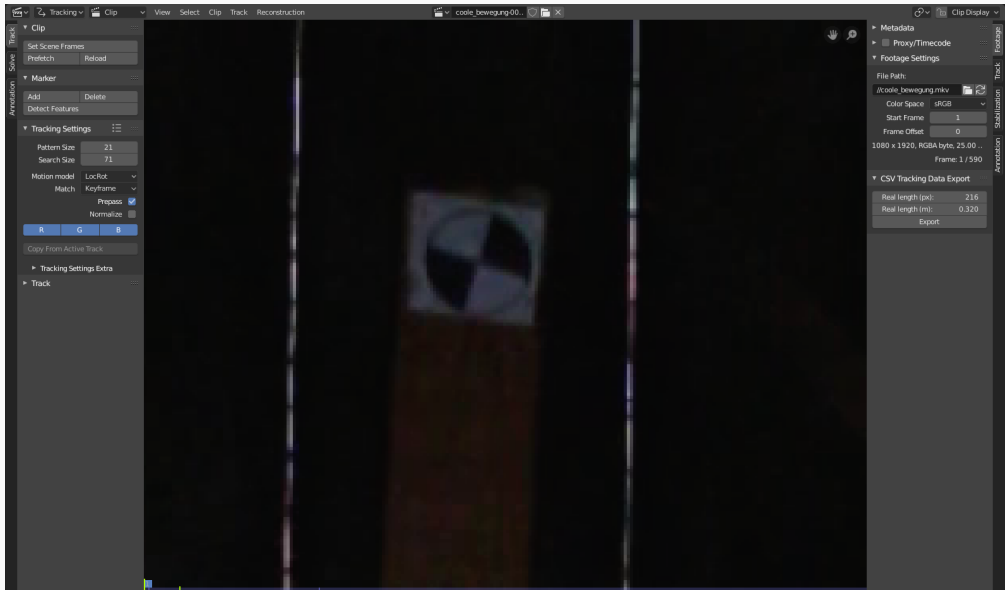


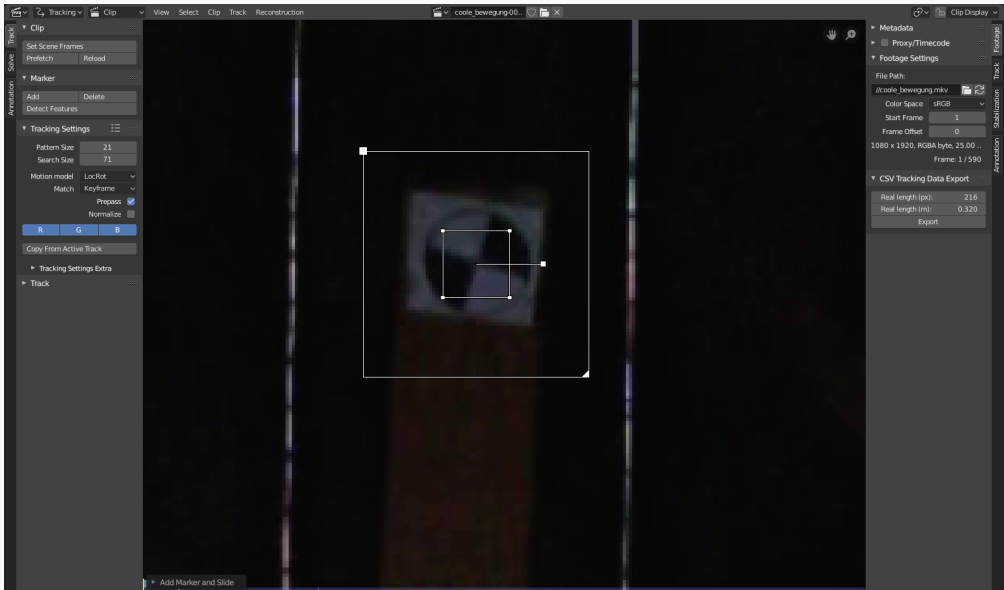
Tracking

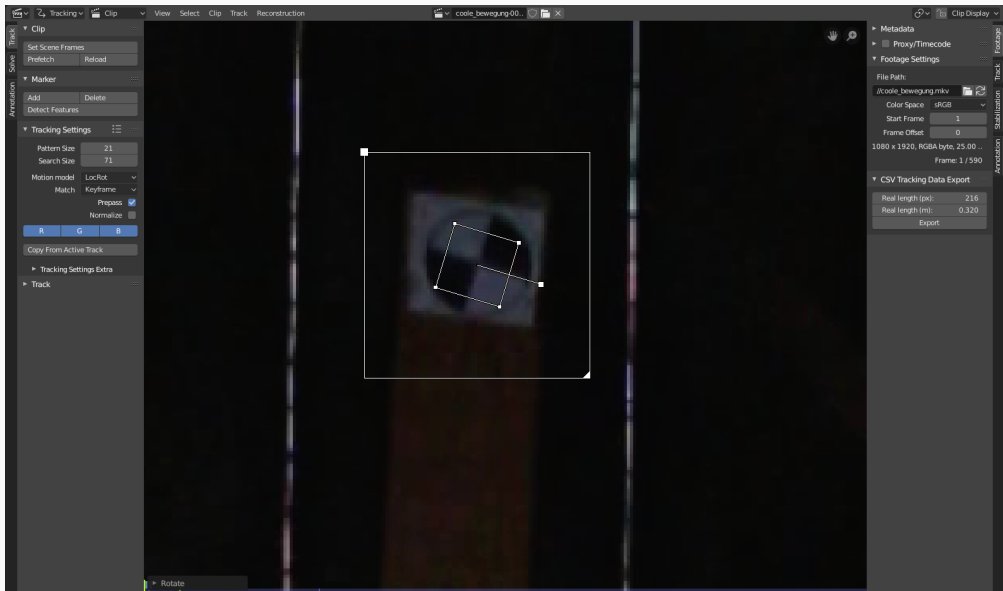


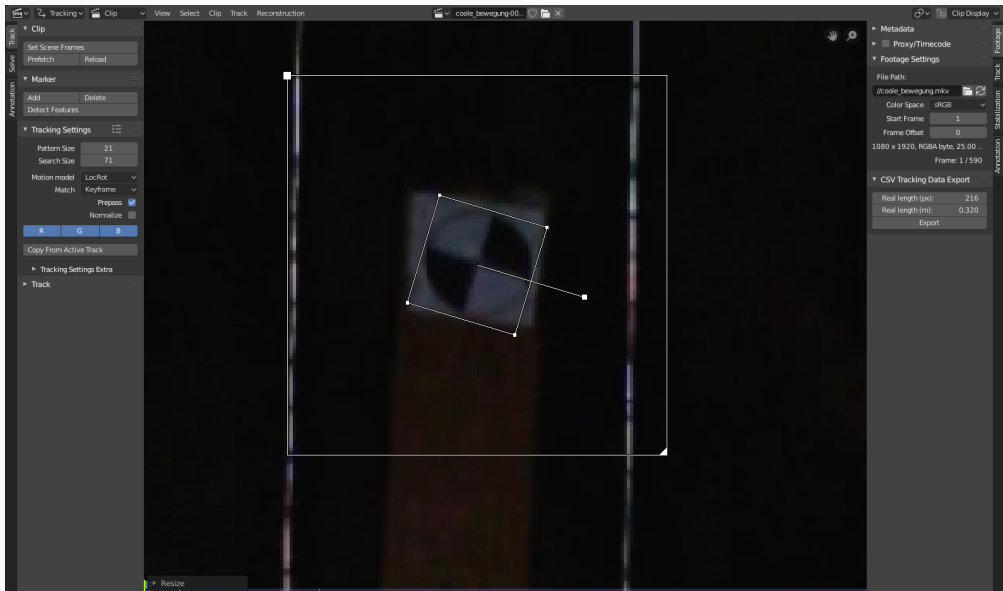
- Ursprünglich 3D-Animationsprogramm
- Deckt mittlerweile kompletten Arbeitsablauf für Filmproduktion ab

» Demo erfolgreich, Screenshots überspringen









Tracking-Ergebnisse

time (frames)	t	x (px)	x	y (px)	y	rotation
1	0.04	560.4334759712	0.8302717976956	396.12247467041	0.5868480975057	0
2	0.08	560.5243062973	0.8304063611386	396.20464324951	0.5869698287313	0.23773584383479
3	0.12	560.4334759712	0.8302717976956	396.09981536865	0.5868145281705	0.35648843393869
4	0.16	560.5022907257	0.8303737454777	396.15131378173	0.5868908221141	0.48422587123809
5	0.20	560.4740309715	0.8303318791762	396.17752075195	0.5869296472543	0.27098651406572
6	0.24	560.4189920425	0.8302503400240	396.10782623291	0.5868263961173	0.39046013035112
7	0.28	560.4686236381	0.8303238683121	396.12590789794	0.5868531837686	0.47220017386621
8	0.32	560.4391407966	0.8302801900294	396.14273071289	0.5868781064569	0.18822010173505
9	0.36	560.4592895507	0.8303100400348	396.14913940429	0.5868876008143	0.19962089014342
10	0.40	560.4381752014	0.8302787595179	396.11011505126	0.5868297869592	0.49845554711816
11	0.44	560.4057955741	0.8302307897009	396.16344451904	0.5869087935764	0.39718314068488
12	0.48	560.4696536064	0.8303253941910	396.12739562988	0.5868553878159	0.85054854679435
13	0.52	560.3842306137	0.8301988416120	396.09958648681	0.5868141890863	0.41302134334785
14	0.56	560.4851031303	0.8303482823741	396.13220214843	0.5868625085839	0.21631585128005
15	0.60	560.4882574081	0.8303529553781	396.17912292480	0.5869320208437	0.55523747660242
⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮

Tracking-Ergebnisse

t	x	y
0.04	0.8302717976956	0.5868480975057
0.08	0.8304063611386	0.5869698287313
0.12	0.8302717976956	0.5868145281705
0.16	0.8303737454777	0.5868908221141
0.20	0.8303318791762	0.5869296472543
0.24	0.8302503400240	0.5868263961173
0.28	0.8303238683121	0.5868531837686
0.32	0.8302801900294	0.5868781064569
0.36	0.8303100400348	0.5868876008143
0.40	0.8302787595179	0.5868297869592
0.44	0.8302307897009	0.5869087935764
0.48	0.8303253941910	0.5868553878159
0.52	0.8301988416120	0.5868141890863
0.56	0.8303482823741	0.5868625085839
0.60	0.8303529553781	0.5869320208437
⋮	⋮	⋮
⋮	⋮	⋮

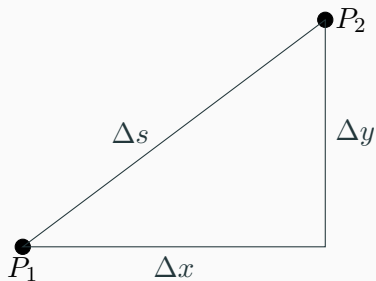
Auswertung

Gegeben

- t
- x
- y

Gesucht

- s
- \bar{v}
- \bar{a}



$$\Delta x_i = x_i - x_{i-1} \quad (1)$$

$$\Delta y_i = y_i - y_{i-1} \quad (2)$$

$$\Delta s_i = \sqrt{\Delta x_i^2 + \Delta y_i^2} \quad (3)$$

$$s_i = \Delta s_i + s_{i-1} \quad (4)$$

$$\Delta t_i = t_i - t_{i-1} \quad (5)$$

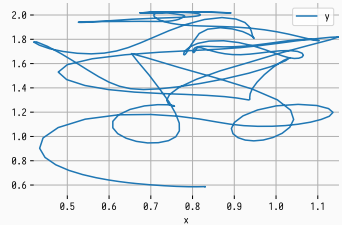
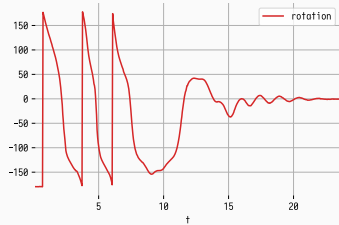
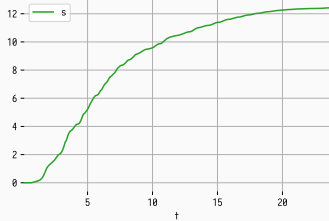
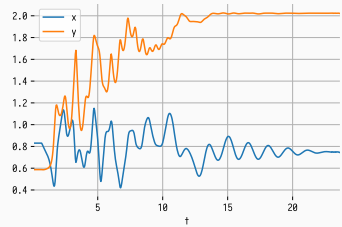
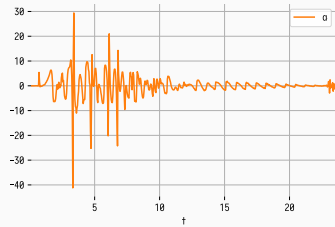
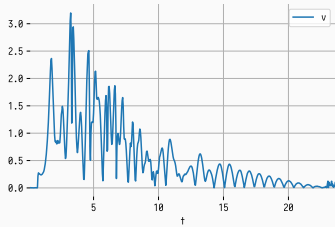
$$\bar{v}_i = \frac{\Delta s_i}{\Delta t_i} \quad (6)$$

$$\Delta \bar{v}_i = \bar{v}_i - \bar{v}_{i-1} \quad (7)$$

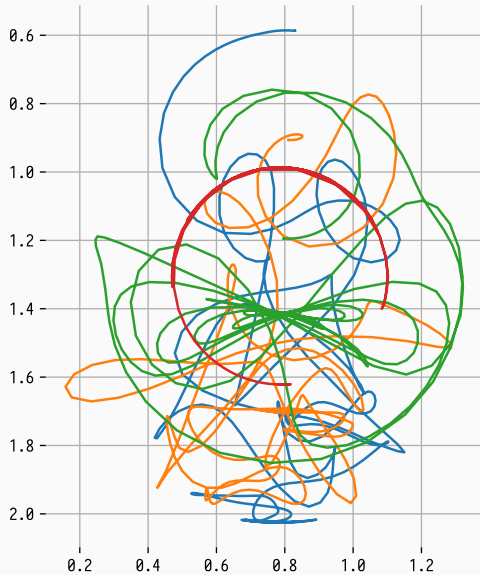
$$\bar{a}_i = \frac{\Delta \bar{v}_i}{\Delta t_i} \quad (8)$$

Ergebnisse

Graphen (1/2)



Graphen (2/2)



Weiterführende Informationen

`git.sbruder.de/simon/video-analysis`