1 Visualization of comparison in Table 1

Our test data comes from five datasets (totally 22 videos) as stated in the paper.

ANIMAL, HUMAN, STATIC are from Zhong et al. 2012.

VIDEO-SNAPCUT is from SnapCut.

FAST-MOTION is from our JumpCut.

We compared our algorithm with Snapcut, Zhong's method and SeamSEG.

SnapCut and Zhong et al. 2012 are the state-of-the-art interactive video cutout methods published in SIGGRAPH'2009 and SIGGRAPH ASIA'2012, respectively. SeamSEG is almost the best reported method on SegTrack Benchmark.

For comparison, we do non-successive propagation with stride 4,8,16 and 32 frames. The results of 4 and 8 frames stride are shown in xxx_4&8.avi, and results of 16 and 32 frames stride are shown in xxx 16&32.avi. These videos contain **most** details of Table 1 in our paper. In videos (as in Figure 1), the numbers at the leftmost part indicate the strides, and the numbers above every frame are the error rate. Note that to highlight the smallest error among four methods, we make that number green, and for most of the frames, our method gets the smallest error!

Figure 1: Visualization of comparisons with SnapCut, Z12, and SeamSEG.

For a fair comparison, all these results of four methods are computed totally automatically!

2 Comparison on SegTrack benchmark

We select 5 state-of-the-art SegTrack methods [1][2][3][4][5] for comparison. They are all tested on SegTrack benchmark which consists of 6 videos (birdfall, cheetah, girl, monkeydog, parachute and penguin). All the data below are public and come from their own papers. The score for each video corresponds to average number of error pixels per frame. The red numbers refer to the best performance for each video, and green numbers indicate the 2nd good performance among 6 methods for our algorithm.

From the table in Figure 2, you can see that our method achieves comparable results on SegTrack benchmark! Note that [1][5] are object tracking methods

	JumpCut	SegTrack[1]	FastSeg[2]	SegTrack2[3]	KeySeg[4]	SeamSEG[5]
birdfall	400	252	217	242	288	**186**
cheetah	**757**	1142	890	1156	905	**535**
girl	**933**	1304	3859	1564	1785	**761**
monkeydog	**300**	563	**284**	483	521	358
parachute	281	235	855	328	**201**	249
penguin	**558**	1705		5116	13285	**355**

Figure 2: Comparisons on SegTrack dataset.

that need to specify the object in the 1st frame, and [2][3][4] are totally automatic. And [2] didnt provide their result on video penguin.

Figure 3 shows more results from our methods performance on SegTrack benchmark.

birdfall cheetah girl monkeydog parachute penguin

Figure 3: Results on SegTrack database. For best viewing please zoom in and view on a digital display

3 Real-time Interactive Video Cutout Session

We captured two more video cutout process with our system real-time and interactively, this is for better illustrating how our system works. We transfer masks between non-successive frames first, and then interpolate the intermediate frames layer by layer. In Demo_couple.mp4, we segment 33 frames with stride = 16 and in Demo_skater.mp4, we segment 17 frames with stride = 8. The short animation at the bottom of Demo_skater.mp4 shows which are source

frames (green circle) or target frames (red circle), and when is propagation or interpolation. You can get a feel about this from Figure 4.

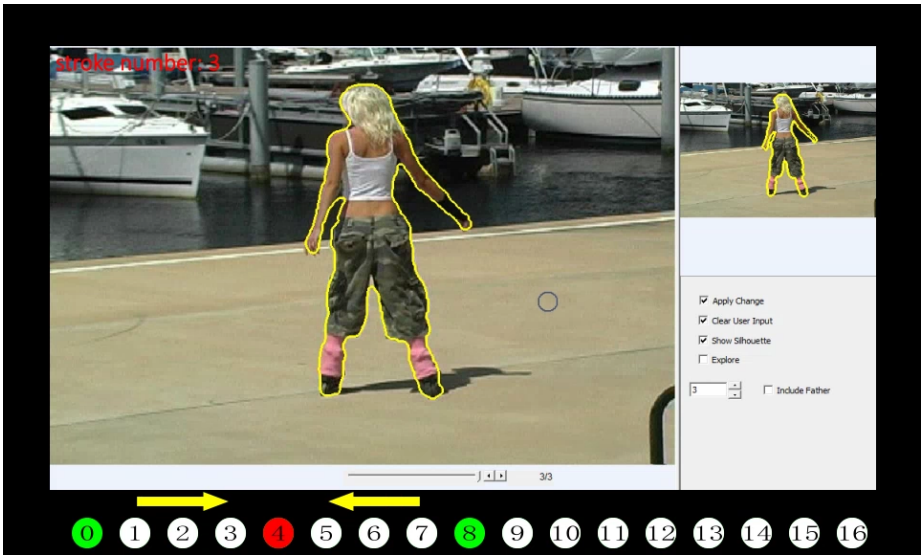

Figure 4: Screenshot of our video cutout session

[1] David Tsai, "Motion Coherent Tracking Using Multi-label MRF Optimization", BMVC 2010.

[2] Anestis Papazoglou, "Fast object segmentation in unconstrained video", ICCV 2013.

[3] Fuxin Li, "Video Segmentation by Tracking Many Figure-Ground Segments", ICCV 2013.

[4] Yong Jae Lee, "Key-Segments for Video Object Segmentation", ICCV 2011.

[5] S. Avinash Ramakanth, "SeamSeg: Video Object Segmentation using Patch Seams", CVPR 2014.

Thank you!