

# Video Decolorization Using Visual Proximity Coherence Optimization

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We have implemented our method and tested it on 10 videos among 300 audience, covering animation, action movie, documentary, etc., as shown in Fig. 1. We have compared our results with some existing methods: Song *et al.* [1], Kim *et al.* [2], Lu *et al.* [3] and Liu *et al.* [4]. The user study consists of two parts, namely, the preference and the accuracy experiments. In the preference experiment, the participants were asked to watch two greyscale videos, one produced by our method and the other produced by a random method selected from Song *et al.* [1], Kim *et al.* [2], Lu *et al.* [3] and Liu *et al.* [4]. They were then asked to choose the one that they preferred. Table I shows the percentage of participants choosing each of the existing methods over our approach, on each of the ten test videos. In the accuracy experiment, the participants were shown six videos, including the input color video and the five greyscale videos from all the methods. The participants were asked to choose the greyscale video that best represented the color video. Table II shows the number of participants choosing one of the six methods tested, on each of the ten test videos.

TABLE I  
RESULTS OF THE PREFERENCE EXPERIMENT.

(EACH NUMBER INDICATES THE PERCENTAGE OF PARTICIPANTS PREFERRED RESULT OF THE CORRESPONDING METHOD OVER THAT OF OURS.)

Video	Song [1]	Kim [2]	Lu [3]	Liu [4]
1	10%	20%	13%	22%
2	12%	22%	15%	27%
3	8%	15%	10%	19%
4	8%	14%	12%	19%
5	9%	14%	13%	22%
6	11%	21%	14%	22%
7	10%	21%	14%	24%
8	10%	19%	17%	28%
9	13%	20%	12%	22%
10	9%	14%	10%	15%

TABLE II  
RESULTS OF THE ACCURACY EXPERIMENT.

Video	Song [1]	Kim [2]	Lu [3]	Liu [4]	Ours
1	72	34	65	38	91
2	50	37	65	37	111
3	78	35	65	34	88
4	70	36	68	30	96
5	75	34	65	39	87
6	70	35	62	42	91
7	71	35	63	41	90
8	75	33	65	38	89
9	77	34	69	38	82
10	82	26	64	43	85

## REFERENCES

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- [3] C. Lu, L. Xu, and J. Jia, "Real-time contrast preserving decolorization," in *Proc. SIGGRAPH Asia Technical Briefs*, 2012.
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Fig. 1. In the user study, we have chosen a total of 10 test videos. Each row shows a representative frame from each video. Each column shows the results from one decolorization method.