Reconstructing Interlaced High-Dynamic-Range Video using Joint Learning

Supplemental Material

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Figure 1

Our joint deinterlacing

Our joint denoising
Figure 7

(a) LDR (low ISO)  (b) LDR (high ISO)  (c) Our gain-interlaced HDR  (d) HDR (gain varying)  (e) HDR (time varying)
Separated LDR from interlaced readouts

Figure 7 (close-up)

(a) LDR (low ISO)

(b) LDR (high ISO)

(c) Our gain-interlaced HDR

(d) HDR (gain varying)

(e) HDR (time varying)

Traditional Two-shot HDR

Bright side

Dark side (with NDs)
Separated LDR from interlaced readouts

Figure 7 (close-up)
Figure 7 (close-up)

One-shot HDR

(c) Our gain-interlaced HDR
Figure 7 (close-up)

Traditional two-shot HDR

(d) HDR (gain varying)

Separated LDR from interlaced readouts
Traditional Two-shot HDR
One-shot HDR
Bright side
Dark side (with NDs)
Figure 7 (close-up)

- (a) LDR (low ISO)
- (b) LDR (high ISO)
- (c) Our gain-interlaced HDR
- (d) HDR (gain varying)
- (e) HDR (time varying)

Traditional Two-shot HDR
Figure 8
Sharpness/noise comparison in interlaced HDR

(a) Hajisharif  (b) Heide  (c) Cho  (d) Our method
Figure 8 (close-up)

(a) Hajisharif  (b) Heide  (c) Cho  (d) Our method
Figure 8 (close-up)

(a) Hajisharif
(b) Heide
(c) Cho
(d) Our method
Figure 8 (close-up)

(a) Hajisharif

(b) Heide

(c) Cho

(d) Our method
Figure 9
Ghosting artifact comparison in HDR video

(a) Kang  (b) Kalantari  (c) Our method  full screen (ours)
Figure 9 (close-up)

(a) Kang

(b) Kalantari

(c) Our method
Figure 9 (close-up)

(a) Kang  
(b) Kalantari  
(c) Our method
Figure 9 (close-up)

(a) Kang  (b) Kalantari  (c) Our method
Figure 10

(a) Kalantari
(b) Liu 2014
(c) Ours
(d) Kalantari
(e) Liu 2014
(f) Ours
Figure 10 (close-up)
Figure 10 (close-up)
Figure 10 (close-up)
Figure 11

(a) 19.29 dB noise

(b) 22.23 dB noise removal

(c) 23.93 dB additional temporal denoising

(d) ground truth (average of 360 frames)
Figure 12

(a) Direct copy (b) Bicubic (c) Peleg (e) Ours (d) Yang (f) Ground truth
Figure 13

(a) Noise (d) BM3D (c) NLM (e) Ours (b) TVL1 (f) Ground truth

Reference

25.62 dB (S: 0.78) 27.96 dB (S: 0.87) 26.75 dB (S: 0.85) 29.34 dB (S: 0.91) 27.35 dB (S: 0.88) Reference

25.62 dB (S: 0.78) 31.59 dB (S: 0.93) 30.54 dB (S: 0.95) 33.68 dB (S: 0.97) 31.50 dB (S: 0.96) Reference

25.99 dB (S: 0.80) 30.32 dB (S: 0.90) 29.28 dB (S: 0.90) 31.82 dB (S: 0.94) 30.74 dB (S: 0.92) Reference

(a) Noise (b) TVL1 (c) NLM (d) BM3D (e) Ours (f) Ground truth
Figure 14

Real noise removal comparison in video

(a) Noise
(b) TVL1
(c) NLM
(d) VBM3D
(e) Ours
(f) Ground truth

20.13 dB (S: 0.38)
22.55 dB (S: 0.53)
22.93 dB (S: 0.71)
22.31 dB (S: 0.76)
23.78 dB (S: 0.77)
reference