

JCTVC-F397

Weighted Prediction with Parameter Estimation

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Summary

- ❑ One of the mandates of Weighted Prediction AHG
 - “Discuss and develop analysis software for estimating weighting parameters for explicit WP.”
- ❑ One WP estimation method is evaluated based on the software developed by the AHG [F265]
- ❑ Results (Y-BDRate gain)
 - with given parameter: 17.6-28.7%
 - with estimated parameter: 17.0-28.2%
 - Estimation time: < 4 seconds

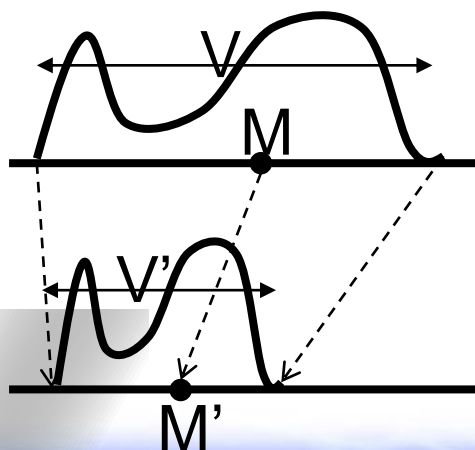
Condition

- ❑ Software with WP support
 - HM3.0-based
 - Provided by the AhG
- ❑ Faded sequences
 - Controlled B/W fading
 - ~2 seconds duration
 - Provided by the AhG
- ❑ Other conditions are based on common conditions

WP parameter estimation

[Aoki and Miyamoto, ICIP2008]

- Two image features (at time t)
 - $M(t)$: average of the frame
 - $V(t)$: L1-distance between M and the frame
- weight (w) and offset (o) between t_{enc} and t_{ref} are:
 - $w = V(t_{\text{enc}}) / V(t_{\text{ref}})$
 - $o = M(t_{\text{enc}}) - w * M(t_{\text{ref}})$
- Histogram interpretation



$$V' = w * V$$

$$M' = w * M + o$$

Results (Y-BDRate, encT, decT)

Black fade


	Given param.		Estimated param.	
	HE	LC	HE	LC
RA	-17.6	-19.6	-17.0	-19.1
	121%	128%	121%	128%
	100%	103%	103%	104%
LD B	-22.6	-28.5	-21.8	-27.7
	117%	127%	116%	126%
	85%	86%	90%	89%
LD P	-23.8	-28.7	-23.1	-28.2
	100%	109%	101%	110%
	82%	81%	88%	86%

White fade

	Given param.		Estimated param.	
	HE	LC	HE	LC
RA	-18.4	-20.3	-19.4	-21.6
	119%	125%	117%	123%
	105%	107%	104%	105%
LD B	-21.0	-28.0	-20.4	-27.3
	116%	126%	115%	124%
	88%	90%	89%	93%
LD P	-22.3	-28.5	-21.6	-28.0
	100%	108%	100%	107%
	86%	86%	87%	91%

Conclusion

- ❑ Confirmed the performance of WP
- ❑ Demonstrated a robust, low-complexity parameter estimation method
- ❑ Future work
 - To investigate good estimation for 1-pass coding
 - HM w/o WP vs. JM w/ WP

A photograph of a large, modern, multi-story office building with a distinctive horizontal striped facade. The building is situated on a green, landscaped hillside. The text "Thank you, questions?" is overlaid on the building in a large, bold, black font, tilted diagonally.

Thank you, questions?