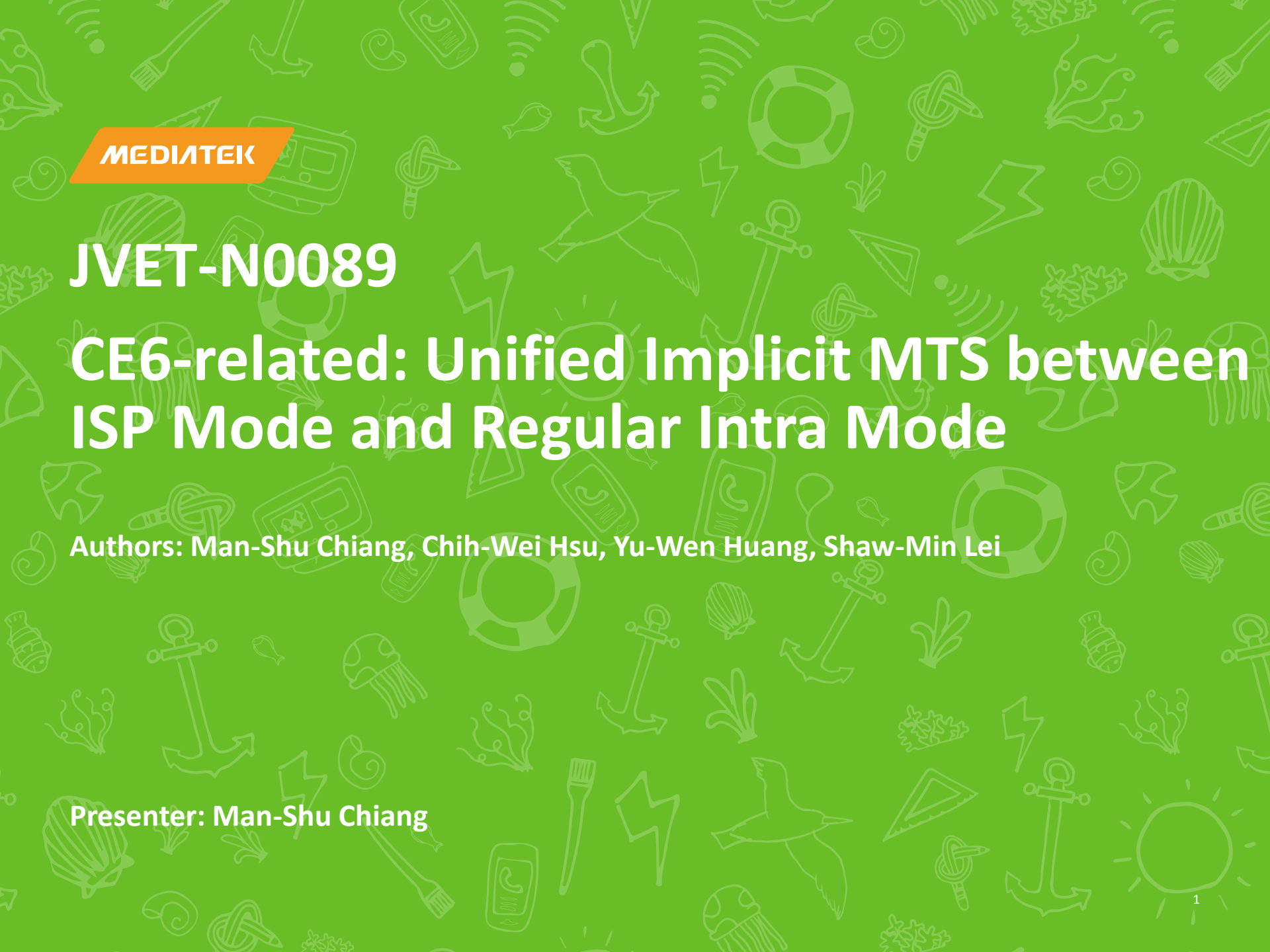


The background is a solid green color with a repeating pattern of white line-art icons. These icons include various nautical items like anchors, lifebuoys, and compasses, as well as outdoor and travel-related items like a backpack, a tent, a bird, and a sun. The icons are scattered across the entire slide.

MEDIATEK

JVET-N0089

CE6-related: Unified Implicit MTS between ISP Mode and Regular Intra Mode

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Overall Summary

- Implicit multiple transform selection (MTS)
 - Currently,
 - One scheme is for regular intra mode
 - Another one scheme is for intra subpartitions (ISP) mode
 - Unify the scheme for regular intra mode with ISP mode
- Performance

#	Config.	VTM-4.0				
		with MTS off and implicitMTS on				
		Y	U	V	EncT	DecT
Proposed implicit MTS	AI	-0.24%	0.10	0.09	101%	99%
	RA	-0.04%	0.14%	0.07%	100%	98%

Proposed Method

- For the implicit MTS scheme of regular intra mode,
 - “Shape adaptive transform selection” scheme is removed
 - ~~– Horizontal transform = (TB width $\geq$ 4 && TB width $\leq$ 16 && TB width $\leq$ TB height) ? DST VII : DCT II~~
 - ~~– Vertical transform = (TB height $\geq$ 4 && TB height $\leq$ 16 && TB height $\leq$ TB width) ? DST VII : DCT II~~
 - Intra prediction mode dependent scheme for ISP mode is used
 - One table, to define the implicit MTS scheme for ISP mode, is used in both regular intra mode and ISP mode

Performance of Proposed Method

#	Config.	VTM-4.0 with MTS off and implicitMTS on				
		Y	U	V	EncT	DecT
Proposed implicit MTS	AI	-0.24%	0.10	0.09	101%	99%
	RA	-0.04%	0.14%	0.07%	100%	98%
	Config.	VTM-4.0 with MTS off (DCT-II only)				
		Y	U	V	EncT	DecT
	AI	-1.83%	-1.93%	-1.94%	102%	103%
	RA	-0.96%	-0.66%	-0.70%	100%	100%

Conclusions

- One implicit MTS scheme for regular intra mode and ISP mode is proposed
 - Implicit MTS scheme for regular intra mode can be unified with ISP mode
 - The corresponding texts can be simplified
 - On VTM-4.0 with MTS off and implicit MTS on, it can achieve -0.24% and -0.04% luma BD-rates for AI and RA
- It is suggested to consider this unified implicit MTS scheme

Backup

Proposed Method

- The implicit MTS scheme of regular intra mode is unified with that of ISP mode, as shown in the table

Intra prediction mode	Horizontal transform	Vertical transform
INTRA_PLANAR, INTRA_ANGULAR31, INTRA_ANGULAR32, INTRA_ANGULAR34, INTRA_ANGULAR36, INTRA_ANGULAR37	(TbWidth >= 4 && TbWidth <= 16) ? DST-VII : DCT-II	(TbHeight >= 4 && TbHeight <= 16) ? DST-VII : DCT-II
INTRA_ANGULAR33, INTRA_ANGULAR35	DCT-II	DCT-II
INTRA_ANGULAR2, INTRA_ANGULAR4,...,INTRA_ANGULAR28, INTRA_ANGULAR30, INTRA_ANGULAR39, INTRA_ANGULAR41,...,INTRA_ANGULAR63, INTRA_ANGULAR65	(TbWidth >= 4 && TbWidth <= 16) ? DST-VII : DCT-II	DCT-II
INTRA_ANGULAR3, INTRA_ANGULAR5,..., INTRA_ANGULAR27, INTRA_ANGULAR29, INTRA_ANGULAR38, INTRA_ANGULAR40,...,INTRA_ANGULAR64, INTRA_ANGULAR66	DCT-II	(TbHeight >= 4 && TbHeight <= 16) ? DST-VII : DCT-II

Performance of Proposed Method

#	Config.	VTM-4.0 with MTS off and implicitMTS on				
		Y	U	V	EncT	DecT
Proposed implicit MTS	AI	-0.24%	0.10	0.09	101%	99%
	RA	-0.04%	0.14%	0.07%	100%	98%
	LB	-0.03%	-0.68%	-0.25%	100%	99%
#	Config.	VTM-4.0 with MTS off (DCT-II only)				
		Y	U	V	EncT	DecT
Proposed implicit MTS	AI	-1.83%	-1.93%	-1.94%	102%	103%
	RA	-0.96%	-0.66%	-0.70%	100%	100%
	LB	-0.54%	-0.74%	-0.12%	100%	99%
#	Config.	VTM-4.0				
		Y	U	V	EncT	DecT
Proposed implicit MTS	AI	0.65%	0.11%	0.09%	62%	98%
	RA	0.31%	0.10%	0.01%	97%	100%
	LB	0.09%	-0.12%	-0.05%	98%	99%