

JCTVC-C039

Choice of transforms in MDDT for Unified Intra Prediction

Chuohao Yeo, Yih Han Tan,
Zhengguo Li, Susanto Rahardja

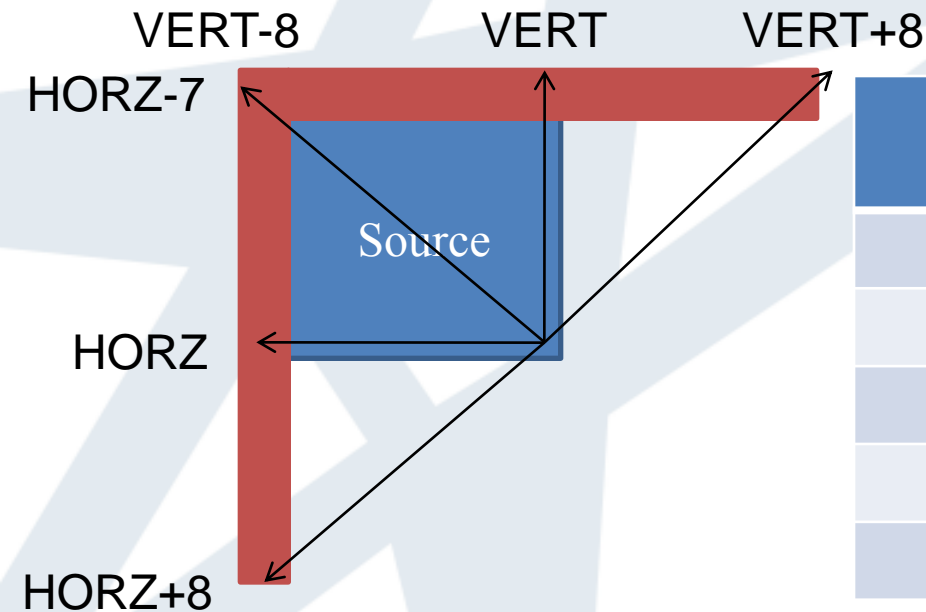
Institute for Infocomm Research

Background

- Simplification of MDDT (JCTVC-B024)
 - Uses 2 transforms: DCT and KLT
 - No training required to derive KLT matrix
 - Less operations for 4-point KLT
- Unified Intra Prediction (JCTVC-B100)
 - Replaces combination of Angular and ADI
 - Adopted into TMuC

Proposed choice of transforms

- Analysis based on which reference pixels are used for prediction



Mode	Column Tx	Row Tx
DC	DCT	DCT
VERT-8 to VERT-1	KLT	KLT
VERT to VERT+8	KLT	DCT
HORZ-7 to HORZ-1	KLT	KLT
HORZ to HORZ+8	DCT	KLT

Summary of results – Intra

Sequences Class	MDDT map vs anchor BD-Rate (%)	Proposed map vs anchor BD-Rate(%) [cross-checked]
Class A	0.1	0.0
Class B	0.1	0.1
Class C	0.1	0.0
Class D	0.1	0.0
Class E	0.1	0.0

Summary of results – Random Access

Sequences Class	MDDT map vs anchor BD-Rate (%)	Proposed map vs anchor BD-Rate(%) [cross-checked]
Class A	0.1	0.0
Class B	0.1	0.1
Class C	0.0	0.0
Class D	0.1	0.0

Conclusions

- Updated choice of transforms for Unified Intra Prediction
 - Still only two transforms; no training
 - No significant loss in coding efficiency
- Proposed choice has been cross-checked in TE7
- Recommend adoption in TM/TMuC