

Fast Depth Coding Via TensorFlow

Version 1

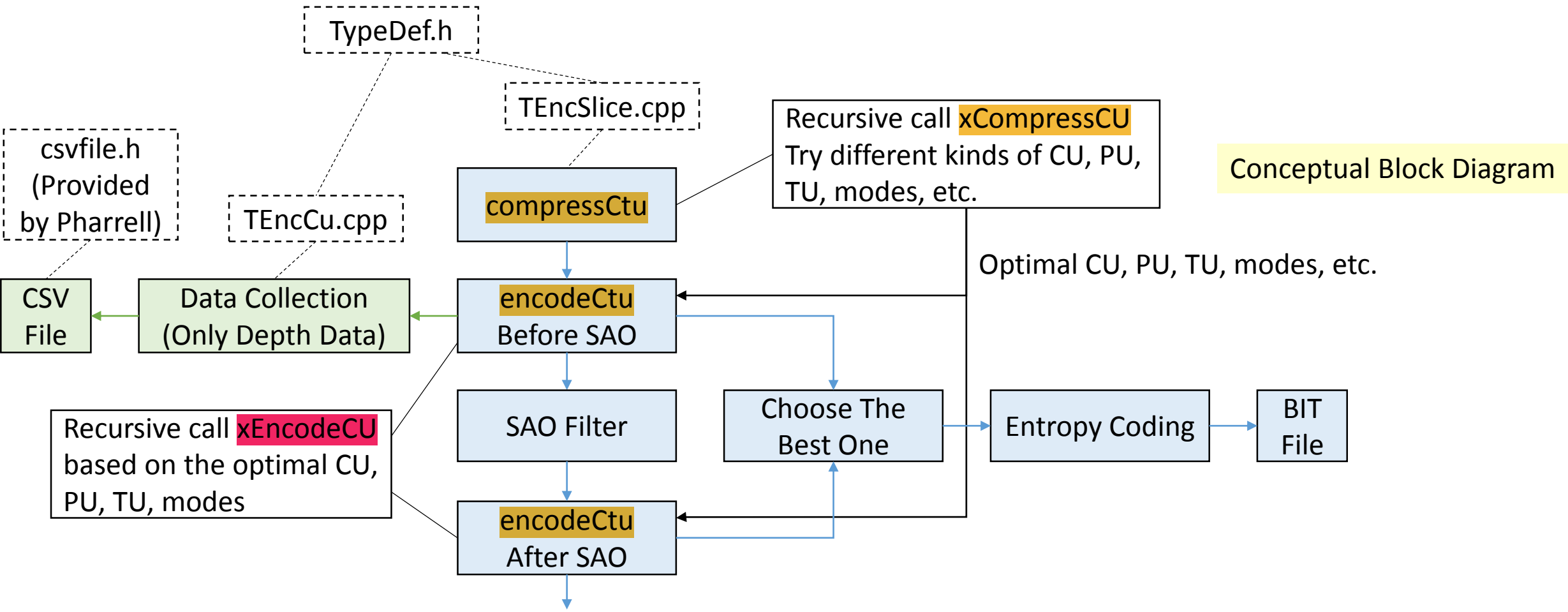
Ho



Version Log

| Version | Descriptions |
|---------|----------------------------|
| 1 | Data Collection at Encoder |

Data Collection at Encoder



Data Collection at Encoder

- Depth data collected for each CU size from 64x64, 32x32, 16x16 to 8x8.
- For each row/vector/sample/observation:

when DIS mode is 1, that means NO NEED for partition. Hence negative one (-1) is used here.

0: Depth Intra Skip (DIS) mode not used
1: DIS mode used

-1: when DIS mode is 1
1: 2Nx2N
4: NxN

-1: when 2Nx2N or DIS mode is 1
0-34: when conventional Intra
37-38: when DMM

| | | | | | | | |
|---|----------|----------|------------------|---------------|---------------|---------------|---------------|
| 1-D Depth Data (Length depending on CU size) (Raster Scan from Top Left to Bottom Right) | DIS Flag | DIS Type | Partition Number | Intra Pred[0] | Intra Pred[1] | Intra Pred[2] | Intra Pred[3] |
|---|----------|----------|------------------|---------------|---------------|---------------|---------------|

Luminance components of the depth data

-1: when DIS mode is 0
{0-3}: DIS type when DIS mode is 1

-1: when DIS mode is 1
0-34: when conventional Intra
37-38: when DMM

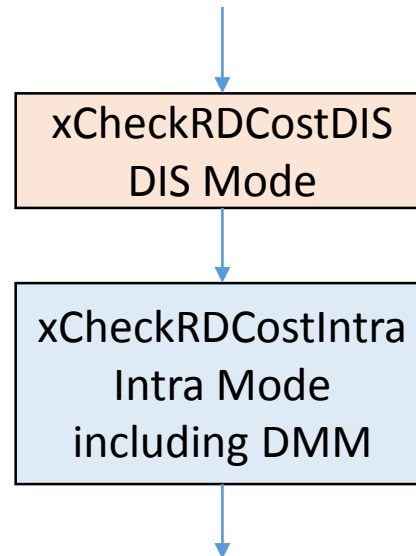
As long as the depth intra skip mode is USED, the last five columns are all -1.

Data Collection at Encoder

- The modified part is indicated by the macro definition
 - HO_EXPORT_ENCODE_DATA
- The **All-Intra (AI)** configuration used
 - Provided by original HTM at the path below
 - 3D-HEVC\NonCTC\allintra\baseCfg_3view+depth_AllIntra.cfg
 - e.g.: TAppEncoder.exe -c seqCfg_Newspaper.cfg -c qpCfg_Nview+depth_QP45.cfg -c baseCfg_3view+depth_AllIntra.cfg
- The exported CSV file named just simply as
 - test_%d.csv
 - %d is the CU depth level
 - Please rename it if needed

Appendix: Mode Decision Process

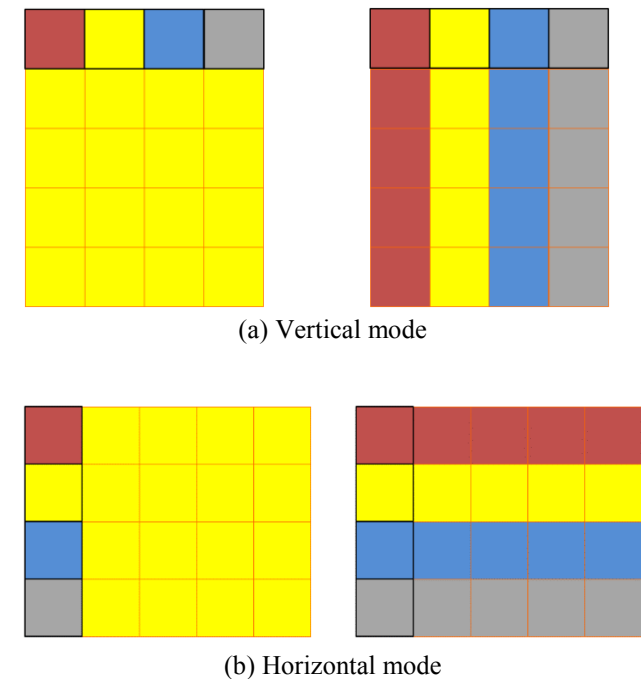
- For each CU,
 - when DIS mode is used,
 - conventional intra mode (including DMM) would not be used.
 - when conventional intra mode (including DMM) is used,
 - DIS mode would not be used.



Conceptual Block Diagram

Appendix: Depth Intra Skip (DIS) Mode from JCT3V-K0033 “3D-CE1: Depth intra skip (DIS) mode”

- Fig. 2 displays the difference between (left) the single depth mode and (right) the proposed method in (a) the vertical mode and (b) the horizontal mode. A block within a black boundary shows a reconstructed pixel. In the single depth mode, the yellow boundary pixel, which is placed in the middle of the boundary, is filled for the reconstruction of the current pixels. The proposed DIS mode performs the reconstruction like the conventional prediction vertical and horizontal modes.
- does not code the residual information, only one bit flag signaling is required.



From (JCT3V-K0033)