

From: Ye-Kui Wang <wyk@ieee.org>
Sent: Tuesday, September 10, 2002 8:25 AM
To: Gary Sullivan; Toby Walker
Cc: jvt-experts@mail.imtc.org
Subject: [jvt-experts] Re: JM Implementation of Constrained Intra Prediction for B-frames

Gary,

Thank you for your reply. I believe moving constrained_intra_pred_flag to picture parameter set is good, to let implementors decide when to use constrained intra prediction.

Best Regards,
Ye-Kui

----- Original Message -----

From: "Gary Sullivan" <garysull@microsoft.com>
To: "Ye-Kui Wang" <wyk@ieee.org>; "Toby Walker" <tobyw@usrl.sony.com>
Cc: <jvt-experts@mail.imtc.org>
Sent: Monday, September 09, 2002 9:05 PM
Subject: [jvt-experts] Re: JM Implementation of Constrained Intra Prediction for B-frames

Ye-Kui, Toby, et al.

B frames can be used as reference frames for P frames too.

What Toby describes sounds like a software bug.

However, perhaps constrained_intra_pred_flag should be moved from the sequence parameter set to the picture parameter set to allow the encoder to use it on some pictures and not others.

Best Regards,

-Gary S.

+> -----Original Message-----

+> From: Ye-Kui Wang [mailto:wyk@ieee.org]
+> Sent: Monday, September 09, 2002 9:49 AM
+> To: Toby Walker
+> Cc: jvt-experts@mail.imtc.org
+> Subject: [jvt-experts] Re: JM Implementation of Constrained Intra
+> Prediction for B-frames
+>
+>
+> Toby,
+>

+> I am not sure, either, that is just my thinking. Even B-frames are
 +> used as reference frames, they are used as references for B-frames in
 +> higher layers, and the error propagation will not last long.
 +> So, the error propagation problem is also not serious for B-frames
 +> WITHOUT constrained intra prediction, as same as the coding
 +> efficiency problem may be not serious for B-frames WITH constrained
 +> intra prediction :-)
 +>
 +> Best Regards,
 +> Ye-Kui
 +>
 +>
 +> ----- Original Message -----
 +> From: "Toby Walker" <tobyw@usrl.sony.com>
 +> To: "Ye-Kui Wang" <wyk@ieee.org>
 +> Cc: <jvt-experts@mail.imtc.org>
 +> Sent: Monday, September 09, 2002 7:33 PM
 +> Subject: [jvt-experts] Re: JM Implementation of Constrained Intra
 +> Prediction for B-frames
 +>
 +>
 +> > Ye-Kui:
 +> >
 +> > Thanks for your reply. I am not so sure that the FCD
 +> should be changed. For applications that do want to use B-frames in
 +> error-prone environments (ignoring whether this is a good idea or not
 +> for the moment), then it seems more consistent to have the
 +> constrained prediction mode disable use of non-intra blocks for intra
 +> predictions as is specified in the FCD. Moreover, it is also possible
 +> for B-frames to be used as reference frames and constrained intra
 +> prediction might have a role to play in such a case.
 +> >
 +> > My guess is that the impact of coding of B-frames when
 +> constrained intra prediction is used may not be too high.
 +> > About the use of LA-RDO in B-frames, I am not sure.
 +> >
 +> > Best regards,
 +> > Toby Walker
 +> >
 +> > Ye-Kui Wang wrote:
 +> >
 +> > >Toby,
 +> > >
 +> > >I believe you did find a bug. However, I think the place
 +> > that needs modification is not the
 +> > software
 +> > >but the FCD document. Please correct me if I am wrong.
 +> > Constrained intra prediction is used for
 +> > >error resiliency, mainly to stop error propagation.
 +> > B-frames are used to achieve high coding
 +> > >efficiency and are often not applied in error prone
 +> > environments. Therefore B-frames need not to use

+> > > constrained intra prediction mode, and need not to use
 +> loss-aware R/D optimized mode selection as
 +> > > well (I don't know whether LA-RDO has been implemented
 +> for B-frames).
 +> > >
 +> > > Best Regards,
 +> > > Ye-Kui Wang
 +> > >
 +> > >
 +> > > ----- Original Message -----
 +> > > From: "Toby Walker" <tobyw@usrl.sony.com>
 +> > > To: <jvt-experts@mail.imtc.org>
 +> > > Sent: Thursday, September 05, 2002 9:43 PM
 +> > > Subject: [jvt-experts] JM Implementation of Constrained
 +> Intra Prediction for B-frames
 +> > >
 +> > >
 +> > >
 +> > >
 +> > > Dear experts,
 +> > >
 +> > > Came across a possible discrepancy between the FCD and
 +> the reference
 +> > > software regarding the implementation of intra
 +> prediction for B-slices
 +> > > when constrained_intra_prediction=1. In the FCD, it states that
 +> > > non-intra blocks shall not be used for intra prediction when the
 +> > > constrained intra prediction mode is active. However,
 +> for B-frames, the
 +> > > JM software (JM4.0C) appears to use non-intra
 +> macroblocks for prediction
 +> > > even when constrained intra prediction mode is on.
 +> > >
 +> > > In JM4.0C, the function decode_one_macroblock checks if
 +> the constrained
 +> > > intra prediction flag is set and if the top and left MBs
 +> are inter. If
 +> > > it is true, the decoder will not use these macroblocks for intra
 +> > > prediction. The table that keeps track of whether each
 +> MB is intra or
 +> > > non-intra, img->intra_block, is first initialized to 1,
 +> indicating that
 +> > > all blocks are first treated as intra blocks. After
 +> that, the code that
 +> > > changes the value of img->intra_block to 0 for each
 +> non-intra block (as
 +> > > it is decoded) does not run for B-frames (because the
 +> code for changing
 +> > > img->intra_block is guarded by a condition checking that
 +> constrained
 +> > > prediction is on and that the current slice is a P-slice). As the
 +> > > result, the decoder seems to always uses inter blocks to

+> predict intra
 +> > >>in B-pictures.
 +> > >>
 +> > >>Is this a JM bug or am I missing something?
 +> > >>
 +> > >>Best regards,
 +> > >>Toby Walker
 +> > >>
 +> > >>
 +> >
 +> >
 +> >
 +> > ---
 +> > The use of the jvt-experts list is intended only for the
 +> video coding standardization work
 +> conducted by the Joint Video Team (JVT) of ISO/IEC
 +> JTC1/SC29/WG11 (MPEG) and ITU-T SG16 Q.6 (VCEG).
 +> >
 +> > You are currently subscribed to jvt-experts as: wyk@ieee.org To
 +> > unsubscribe send a blank email to %%email.unsub%%
 +>
 +>
 +> ---
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 +>

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