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Abstract

The current G-PCC draft provides a single profile encompassing all tools present in the specification. In this document, codec features are mapped to application content types and a set of profiles are proposed.

Proposed profiles

Table 1 maps codec features to a proposed set of profiles.

Table 1 – Mandatory (y) and optional (x) profile features

	Simple	Simple+	Dense/Semi	Trisoup
Dictionary occ coding	y			y
Bitwise occ coding		y	x	
QTBT	?	x	x	
N6			y	
N3	y	y		y
IDCM	y	x	x	x
Intra occ prediction			x	
Adjacent child neighbours			x	
Planar			x	
Angular (Azimuth)		x		
Geometry quantisation	x (if shift)	x	x	
Duplicate points	x	x	x	x
Parallel octree levels			x	
Trisoup				x
Entropy bypass stream	y	x/y?	x	
Lifting		?	x	x
Predicting	y	x	x	x
adaptive prediction	x	x	x	x
intra lod prediction	y	y	x	x
inter component prediction	x	x	x	x
LoD generation using distance			y	y
LoD generation using decimation	y	y		
scalable LoD generation				
RAHT		x	x	x
RAHT transform domain prediction			x	x

To choose the tooling for the proposed profiles (Table 1), the following principles are applied. First, profiles should address application requirements. Tools that are inappropriate for a given application should not be included. Secondly, to reduce conformance and design burdens, the choice of alternative features within a profile should be reduced as much as possible. For example, in the proposed profiles, the constrained neighbours feature (N3 vs N6) is mandated in simple profiles; whereas in more complex profiles, N6 is mandated.

Issues

The current G-PCC design consists of a single sequence that conforms to a particular profile. However, a point cloud is not necessarily uniform. For example, one attribute may be required to use lossless coding, while another need not. Alternatively, a point cloud could be represented in part by a trisoup geometry and in part by octree geometry. Similarly, a general point cloud may consist of many attributes. However not all attributes need to be decoded by a given decoder.

How should the profile of such streams be identified? How would such information be useful?

References