Fast Method for DMM1 Subdivision Selection in 3D-HEVC Depth Maps Intra Coding

A) 3D Heigh Efficiency of Video Coding:

1) Stat of arts of 3D-HEVC Depth maps intra coding
    a. Texture and depth maps videos.
    b. Intra coding.
    c. The units used in 3D-HEVC.
    d. Intra modes (DS, Planar, intra angular).
    e. DMM1.
    f. Intra sizes.
2) Description of RMD process in 3D-HEVC.
    a. Understanding the algorithm of RMD.
    b. Elaboration the organigram finale of RMD (figure).
3) Description of Depth Modeling modes 1 (DMM1).
    a. Which PU in depth maps uses DMM1 as intra prediction?
    b. The number of subdivision for each size.
    c. Understanding and analyzing the complexity of DMM1.
    d. For each subdivision already defined by the encoder we must find the equation of that line that separate the depth maps bloc into two sub-blocks. (Equation of order information that descript the line in unique way orientation for example).
    e. Elaboration a solution to reduce the complexity in DMM1.
4) Working in some block of depth maps.
    a. Stat of art of image processing

B) Image Processing:

1) Understanding the gradient in an image (Sobel, Prewitt, Tensor of Structure..).
2) Applying the gradient of block of depth maps (32, 16, 8 and 4).
3) Description of least square method.
4) Applying the least square method of depth maps block after the gradient process and find the equation of the line (or orientation of order information that find in **3)-d**) that separate the block into two sub-blocks.
5) The possibility to enhance the least square by the gradient descent.
    a. The idea is the take the line extracted by the least square as the initial line and uses the gradient descent to fine the best line.

C) Proposed method:

1) Using some block that we know already the best sub-division we try to apply the least square and propose your own methods (analyzing B-4 and B-5 in term of time and precision).