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**Source** **Poznań University of Technology,**
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**Title** **First version of depth maps for Poznan Blocks multiview video test sequence**
**Author** Krzysztof Wegner (kwegner@multimedia.edu.pl)
Olgierd Stankiewicz
Adrian Dziembowski
Dawid Mieloch
Marek Domański

# 1 Introduction

This documents presents preliminary depth maps produced by Poznan University of Technology for Poznan Blocks test sequence. The sequence [1] have been provided to MPEG (and scientific community in general) for research and standardization purposes. Of course, some words of acknowledgement are appreciated if the material is to be used in research and are required if the material is to be used in publications. Any commercial use is prohibited unless an explicit permission is given by Poznań University of Technology, Chair of Multimedia Telecommunications and Microelectronics.

The depth maps are available at ***ftp://multimedia.edu.pl/ftv*** ftp server. User credential will be provided upon request.

# 2 Depth Maps

The presented first version of depth maps has been produced with used Depth Estimation Reference Software version 6.0 (DERS 6.0) [2].

The depth maps have been generated fully automatically. It have been generated for eight views: from view 1 to view 8.

DERS was configured to use epipolar line search and occlusion handling.

Table 1 presents key paramaters used for depth estimation. Table 2 summarizes disparity search range used for each view.

Table 1. Common configuration parameters used for depth estimation for Poznan Blocks sequence

| Name of the parameter | Value |
|---|---|
| DepthType | 0 (Depth from Camera) |
| Precision | 4 (Quarter Pixel) |
| VerticalPrecision | 4 (Quarter Pixel) |
| SearchLevel | 4 (Quarter Pixel) |
| Filter | 0 (Bi-linear) |

| | |
|---|---|
| VerticalFilter | 0 (Bi-linear) |
| MatchingMethod | 4 (Eppipolar line search) |
| TemporalEnhancement | 0 (Off) |
| MatchingBlock | 1 (Pixel matching) |
| ImageSegmentation | 0 (Off) |
| DepthEstimationMode | 0 (Fully Automatic) |

Table 2 Disparity search range used for depth estimation for each view

| View number | Minimum disparity | Maximum Disparity |
|---|---|---|
| 1 | 40 | 240 |
| 2 | 80 | 320 |
| 3 | 200 | 400 |
| 4 | 200 | 500 |
| 5 | 100 | 440 |
| 6 | 100 | 500 |
| 7 | 100 | 300 |
| 8 | 40 | 300 |

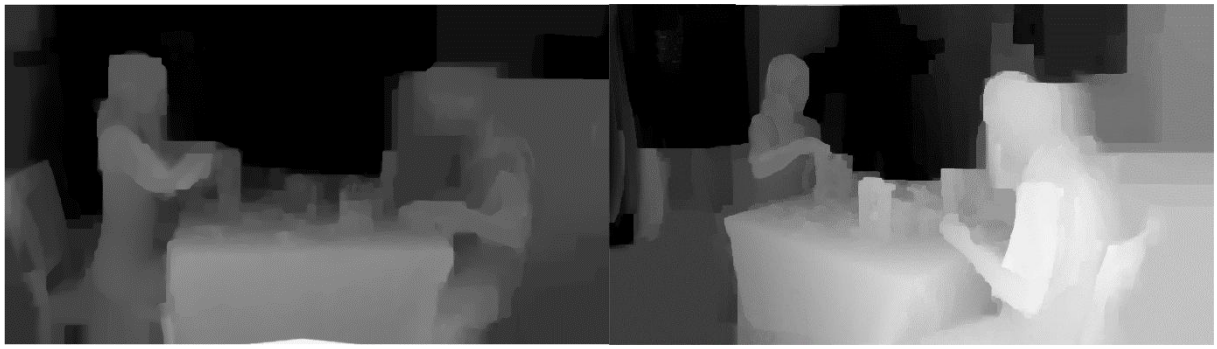

Figure f1. Exemplary depth map frame from view 4 and 8 of Poznan Block sequence

We have estimated 50 frames for eight views of the sequence. Exemplary results are presented in Figure f1.

The obtained results are satisfactory, but in many cases, effect of over-smoothness has been observed, even though relatively low value of the smoothing coefficient (1.0) has been used for depth estimation.

# 3 Conclusions

- Preliminary versions of depth maps for Poznan Blocks sequence is available on FTP site.
- Quality of the depth maps is satisfactory, but there is still some work to be done.
- Depth maps are too smooth even though low value of smoothing parameter has been used.

# 4 References

[1] M. Domański, A. Dziembowski, A. Kuehn, M. Kurc, A. Łuczak, D. Mieloch, J. Siast, O. Stankiewicz, K. Wegner, " Poznan Blocks - a multiview video test sequence and camera parameters for Free Viewpoint Television", ISO/IEC JTC1/SC29/WG11 MPEG2014/M32243, January 2014, San Jose, USA.

[2] K. Wegner, O. Stankiewicz, M. Tanimoto, M. Domanski, „Enhanced Depth Estimation Reference Software (DERS) for Free-viewpoint Television” ISO/IEC JTC1/SC29/WG11 MPEG2013/M31518, October 2013, Geneva, Switzerland