

**INTERNATIONAL ORGANIZATION FOR STANDARDIZATION  
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ISO/IEC JTC 1/SC 29/WG 04 MPEG VIDEO CODING**

**ISO/IEC JTC 1/SC 29/WG 04 m64703**

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**Title** [MIV] Summary of MPEG immersive video 2nd edition Core Experiments 3

**Source** PUT

**Authors** Dawid Mieloch

## **Abstract**

This document presents the summary of MPEG immersive video 2nd edition Core Experiments 3. It is recommended to continue this CE.

## **1 Introduction**

**Owner:** Dawid Mieloch (PUT)

### **Participants:**

- Philips (contact person: Bart Kroon)
- PUT (Dawid Mieloch)
- UPM (Eduardo Juarez)
- ETRI (Gwangsoon Lee)

### **Goals and description:**

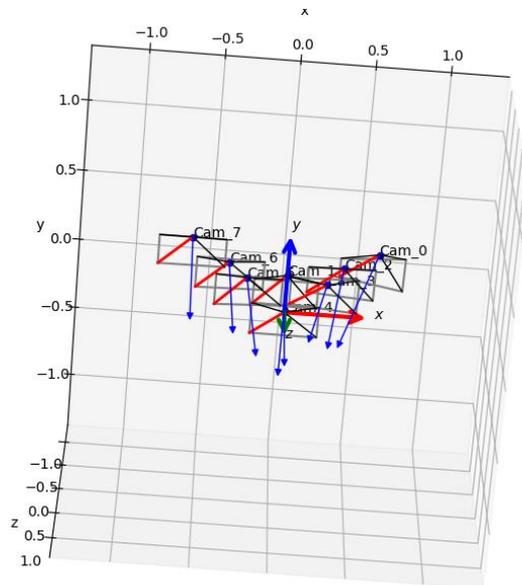
The goal of this CE is to use depth-camera-captured content in MIV coding. To provide this possibility, the following activities will be done:

- Preparation of depth-camera-captured content for MIV experiments.
  - CoffeeTime sequence will be updated in order to include TMIV-compliant JSON file with the sequence configuration. Depth maps acquired by depth cameras will be refined by modified IVDE to include depth for all pixels (as some parts are currently missing).
- Extension of IVDE to allow input of depth maps from depth cameras.
- Coding of prepared sequence with MIV Main anchor.
  - Coding will be done using refined depth maps.
- Coding of prepared sequence with MIV Extended DSDE.

Coding will be done using modified TMIV and IVDE in order to estimate missing parts of depth maps in MIV Extended DSDE decoder.

## 2 Results of the experiment

ConferenceTalk sequence had to be updated to include a TMIV-compliant JSON file. Positions of cameras acquired from modified parameters are shown below.



The possibility of using (as input depth maps) depth maps represented as distance from the camera, measured in millimeters, was added to the IVDE. Z near and z far values were taken from Kinect manual. Acquired depth maps proved that the calibration for the sequence was done correctly. A comparison of estimated depth maps can be found below.

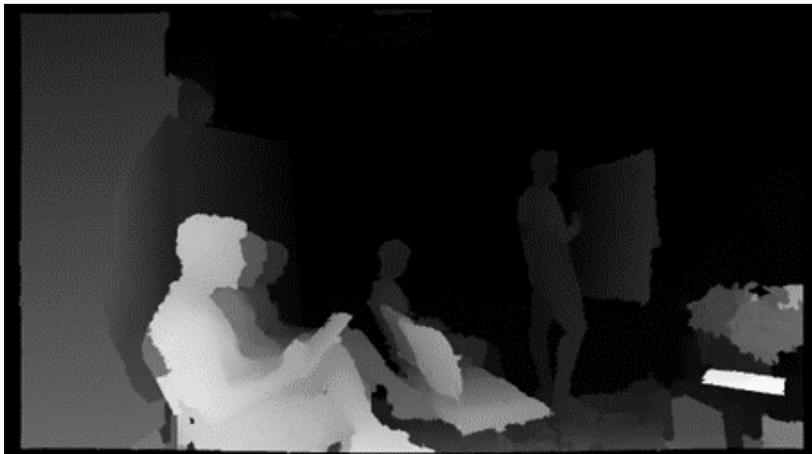
Depth map estimated using IVDE without depth map assistance:



Depth map acquired by Kinect depth sensor:



Depth map estimated using IVDE with depth map assistance:



It was noted that the stability of depth maps is too low to provide satisfactory results of encoding. The coding of sequence using MIV Main and MIV Extended DSDE profiles is yet to be performed. The implementation of MIV Extended DSDE in TMIV is currently in progress.

### 3 Recommendations

It is recommended to continue this CE.

### 4 Acknowledgement

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