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**CODING OF MOVING PICTURES AND AUDIO**

**ISO/IEC JTC1/SC29/WG11 MPEG2019/M46253**

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| **Source** | **Philips** |
| **Status** | **Input contribution** |
| **Title** | **ClassroomVideo Blender scripts** |
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# Introduction

Scripts are provided to raytrace more or different views of ClassroomVideo or ClassroomImage [m44762] using Blender 2.79.

The scripts are simplified from the original ones and may require some minor improvements. We encourage regenerating one of the existing ClassroomImage views to verify correctness. Notice that the noise pattern will be different so the result will never be exact.

* ClassroomVideo\_raytrace.sh: The top-level script that runs Blender first to transform the scene, and a second time to raytrace frames.
* ClassroomVideo\_transform.py: A script that uses the Blender Python API to transform the original scene and save it under a different name.
* OpenInBlender.bat: A batch file that opens Blender and applies the transformation. This script is useful for debugging the ClassroomVideo\_transform.py script.
* ClassroomVideo.json: As provided in the CTC [N18089]. Only the camera positions are used. (Not included in the archive.)
* ChangeUserSettings.py: A script to change a setting of Blender on a compute server without OpenGL support. Without this setting the blinds on the window do not load.

There are many comments in the scripts to explain all the steps and details. Some highlights:

* Parallelism is possible by setting a suitable number of threads, but also by splitting frames across multiple computing nodes.
* Texture and depth output is in 32-bit OpenEXR format. The depth format is a linear range from [0, 10] meter.
* The output is split top-bottom and should be averaged for textures. This is a work around because the omnidirectional stereo code path of Blender is more reliable.
* The animated length is 300 frames.

The script may be modified for other Blender scenes, but many parts of the transform script are specific to the Class room scene, as explained in our contributions.

# Intellectual property right statement

The original source material is obtained from Christophe Seux, Class room, Blender project, url: <https://www.blender.org/download/demo-files/>, and according to that website, the Classroom material is subject to the CC0 license.

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