

OpenSesame

An example of stimulus presentation in Virtual Reality headsets (Oculus Rift DK1)

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Previous considerations and requirements

A Virtual Reality headset can help to improve focus in the stimulus in participants with normal vision, plus it provides additional possibilities with 3D and depth perception. We hope that the initial setup for working with OpenSesame (2.9.5) and VR technology proves to be faster and easier with this brief guide.

We will be working with the first Oculus Rift Development Kit. It has a screen with 1280x800 px. Newer versions have a higher quality screen, so the resolution changes and you must change this value in consequence, but the logic and the basis stay the same.

The setup

In this case we will be setting up 1280x800 px as the resolution of the experiment, as we are working with the DK1. The setup for the stimuli is as follows.

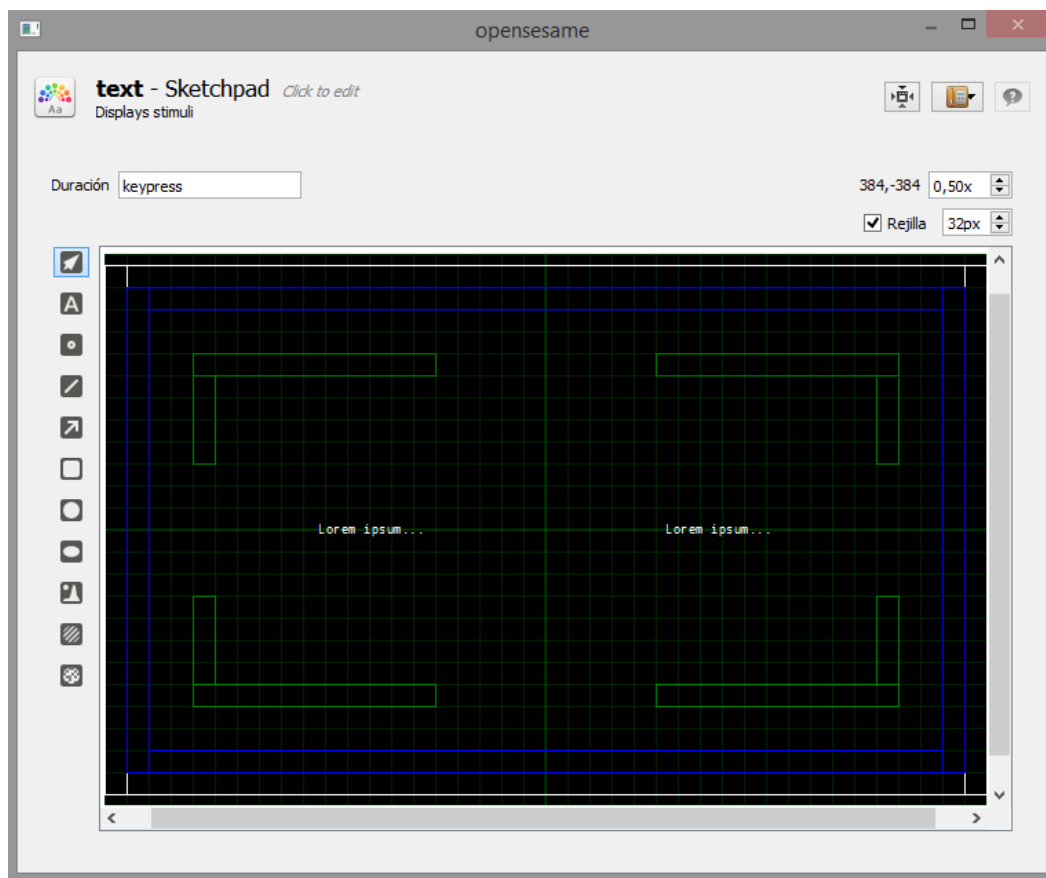


Figure 1. Setup for text stimulus. Vision with the headset beyond the green rectangles is not clear or visible. Same text is placed at “-252” “0” and “252” “0”.

```
# Script for the Figure 1 setup:

# Textlines

draw textline -252 0 "Lorem ipsum..." center=1 color="white" font_family="mono"
font_size=18 font_bold="no" font_italic="no" html="yes" z_index=0 show_if="always"

draw textline 252 0 "Lorem ipsum..." center=1 color="white" font_family="mono"
font_size=18 font_bold="no" font_italic="no" html="yes" z_index=0 show_if="always"

# Visual guidelines (green rectangles)

draw rect -512 -224 352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect -512 -96 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 160 -224 352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 480 -96 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 160 256 352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 480 224 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect -160 256 -352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect -512 224 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
```

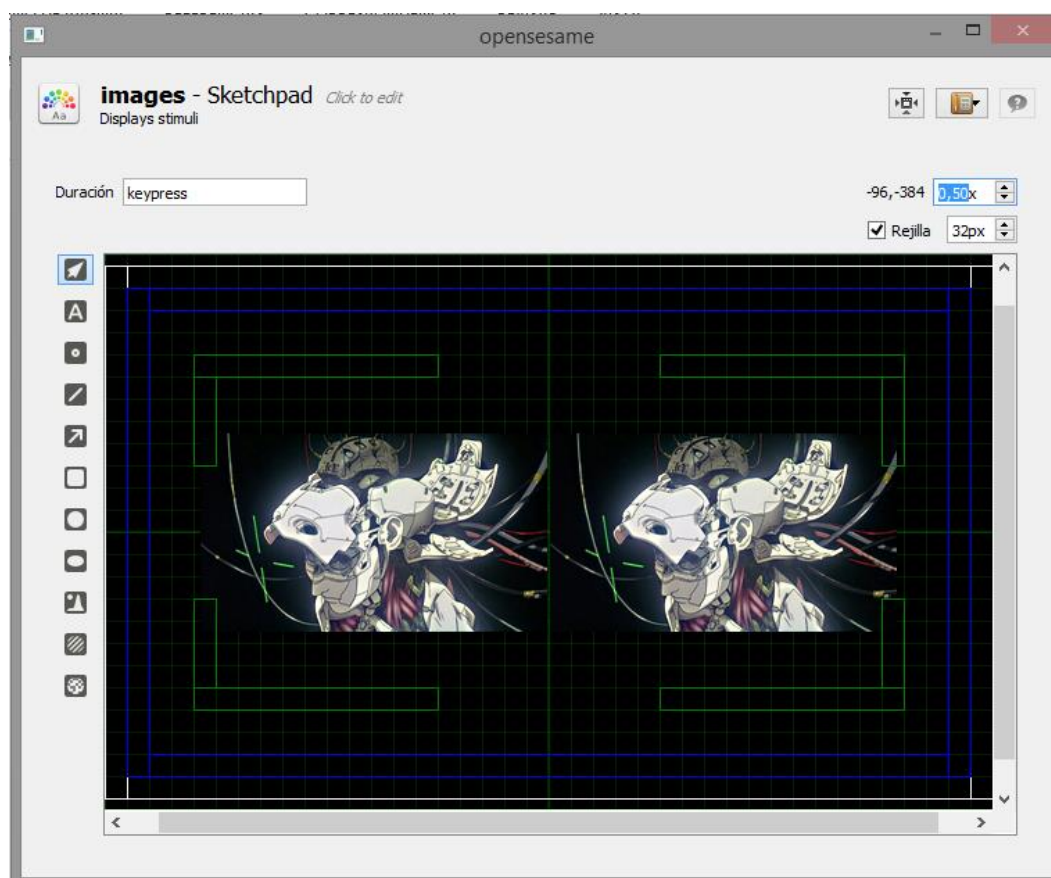


Figure 2. Setup for images. As in the previous figure, the vision beyond the green rectangles is not clear or visible. Same image is placed at "-252" "0" and "252" "0".

```
# Script for the Figure 2 setup:

# Images
draw image -252 0 "gs.jpg" scale=1 center=1 z_index=0 show_if="always"
draw image 252 0 "gs.jpg" scale=1 center=1 z_index=0 show_if="always"

# Visual guidelines (green rectangles)
draw rect -512 -224 352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect -512 -96 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 160 -224 352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 480 -96 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 160 256 352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect 480 224 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect -160 256 -352 -32 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
draw rect -512 224 32 -128 fill=0 color="green" penwidth=3 z_index=0 show_if="always"
```

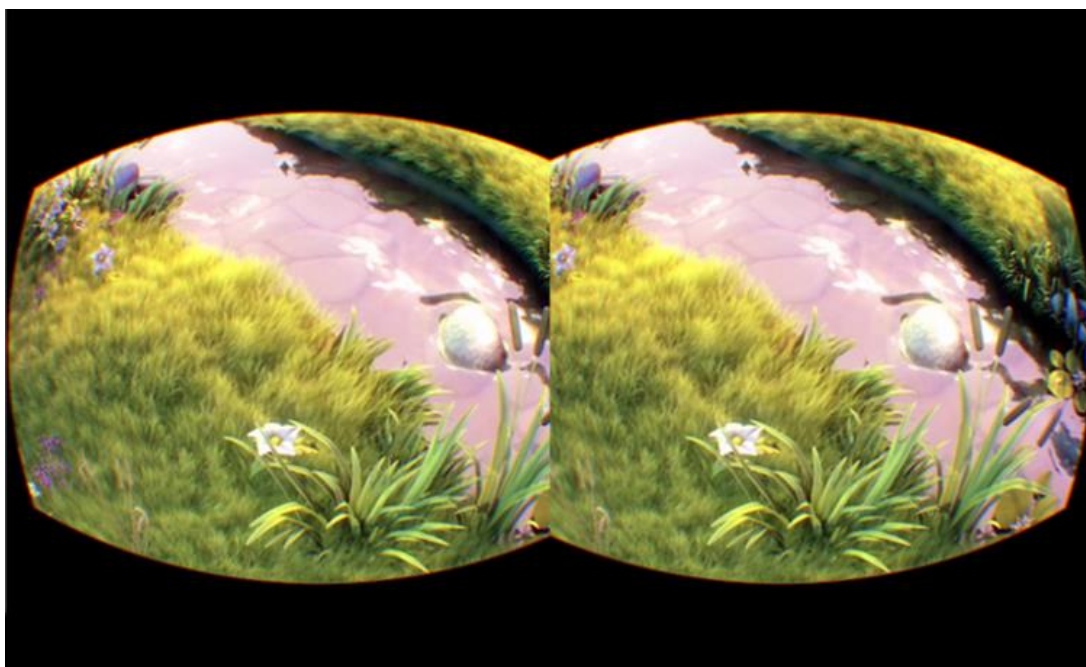


Figure 3. Video is played with the media_player_vlc module and the “fit video to screen” option enabled. The file was converted to a 121.5° H-fov by using HMD Converter. Not all the video is clear or visible.



Figure 4. Another video played with the media_player_vlc module and the “fit video to screen” option enabled. The file was converted to a 90° H-fov by using HMD Converter. Almost all the video is clear and visible, but some black from the background is visible too.

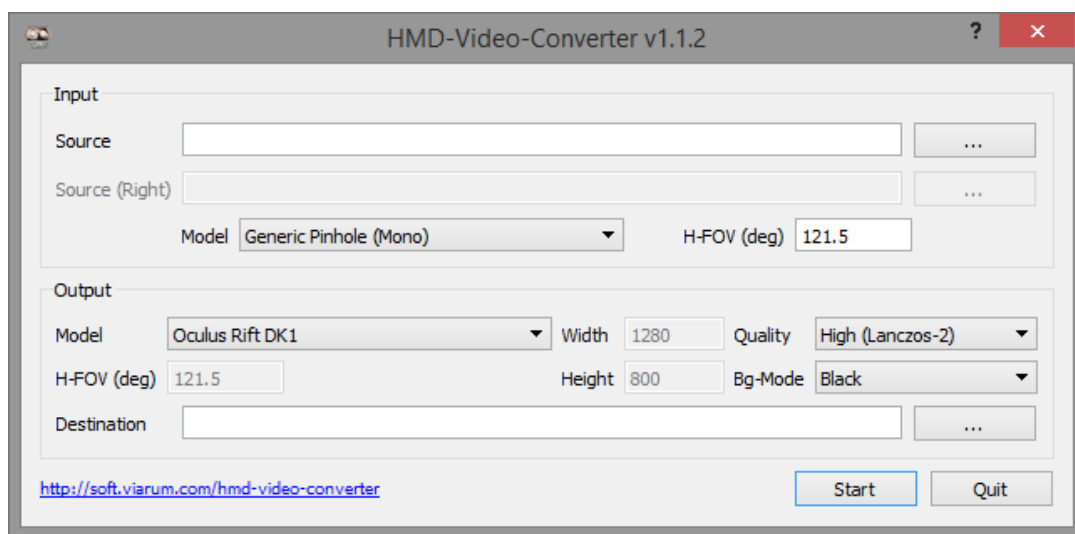


Figure 5. HMD Video Converter. Setup used for Figure 3. Input source was a normal mp4 video.

Download the full example here: <http://dx.doi.org/10.6084/m9.figshare.1394985>

References

- Big Buck Bunny. (c) copyright 2008, Blender Foundation / www.bigbuckbunny.org
- HMD Video Converter. <http://soft.viarum.com/hmd-video-converter/>
- Mathôt, S., Schreij, D., & Theeuwes, J. (2012). OpenSesame: An open-source, graphical experiment builder for the social sciences. *Behavior Research Methods*, 44(2), 314-324. [doi:10.3758/s13428-011-0168-7](https://doi.org/10.3758/s13428-011-0168-7)
- Mamoru Oshii. (1996). *Ghost in the Shell* [Motion Picture]. Japan: Production I.G.