

Working title:

Hearing Colours in Space

Team (nr. 9):

Harpo 't Hart

Philippe Louchtch

Implementation platform:

"C#" (recommended for the Microsoft "Kinect for Windows" SDK)¹

"SuperCollider" (sclang) for real-time audio-synthesis

Intended user group:

Visually impaired

Summary:

Our plan is to make a system for blind people that would allow them to perceive colours and localize them in space through sensory substitution. The idea is to utilize the depth sensor and the RGB camera output of the Kinect input sources and translate them into sound for the user to perceive through a headphone. By attributing certain sounds to certain colours blind people should be able to differentiate between colours. Such a device has already been made by Neil Harbisson who also goes by the name of "Eyeborg". Through his device you can only perceive one colour at a time. Our goal is to make a system that can convey information about multiple colours in an image and their spatial position. This can be accomplished by splitting each video-frame from the RGB camera into different vertical slices and according to the general colour and its distance a sound is generated, the sounds are then all combined into a stereo-soundscape with each slice having a predefined positioning in the stereo field.

The dataset is the world itself.

Research question:

How can you translate visual (colour) and spatial (distance) data into sound in such a way that (visually impaired) people can localize colours in space?

¹ Running on Windows ≥ 7 due to constraints imposed by the "Kinect for Windows" SDK