

HOW DO YOU FEEL?

for custom 4.1 digital audio multichannel format

by

YIFAN WU

A TERMINAL PROJECT

Presented to the School of Music and Dance of the University of Oregon
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“How do you feel? – for custom 4.1 digital audio multichannel format” is a project prepared by Yifan Wu in partial fulfillment of the requirements for the Master of Music degree in the School of Music and Dance. This terminal project has been approved and accepted by:

Chi (Iris) Wang, Chair of the Examining Committee

Date

Committee in Charge: Chi (Iris) Wang, Chair
 Akiko Hatakeyama
 Jon Bellona

Accepted by:

Director of Graduate Studies, School of Music and Dance

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How Do You Feel?

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4. PNG file titled “Kyma Speaker Setting Layout” and “Kyma Spatialization Layout”
5. MP4 file titled “HOW_DO_YOU_FEEL(Stereo)”
6. Kyma timeline archive files in the folder “Kyma Timeline Archive for Stereo and SoundWear” includes:
 - folder titled “Car Sounds” – contains 2 audio files
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 - folder titled “Samples for SoundWear” – contains 23 audio files, 1 Kyma spectrum files
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 - folder titled “Footsteps” – contains 1 audio file
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 - folder titled “Samples for SoundWear” – contains 23 audio files, 1 Kyma spectrum files
 - KTL file titled “TP_V26.ktl” – Kyma Timeline file to perform piece
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Abstract

How Do You Feel? -- for custom 4.1 digital audio multichannel format is a fixed media composition with video for Bose SoundWear™ Companion® speaker and quad audio multichannel intermedia listening environment. This project is an experimental intermedia composition, focusing on sounds' 3-dimensional spatialization design. The designation "4.1" refers to the 4 discrete, full bandwidth (20-20kHz) channels –Left (L), Right (R), & Left surround (Ls), Right surround (Rs) – and the ".1" refers to the wearable loudspeaker that can be worn around human's neck. (for this composition, I chose to use the wearable loudspeaker "SoundWear" manufactured by Bose, the transmission frequency band of operation is 2400 – 2483.5MHz.) The piece begins from a lifelike scene and then unfolds into different abstract sections. The spatialization sound design is mainly completed in the Symbolic Sound Kyma sound synthesis environment. For the production of this composition, I chose to use Ableton Live for playback video and audio channels configuration with the speakers and SoundWear devices. When the primary sound object is moving in three-dimensional virtual space, Kyma reports and sends the object's X, Y, Z axis data to custom software created using Processing programming language through OSC (Open Sound Control) protocol. Visual representation of the sound object is generated in Processing and is controlled in real time using X, Y, Z data sent from Kyma. The recordings of the sound objects include the sound of walking, open and close doors, paper rubbing, rocks clicking, raining, and thunder, etc. For this project, my goals are to study 3-dimensional spatialization sound design using Kyma system as well as to design the surround speaker configuration with the latest wearable loudspeakers (2018 version) with the conventional quad multichannel speaker placement.