Cognitive Musicology with AR/VR: Visualisation of Musical Structures and Music Narrative

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BACKGROUND

- **Cognitive Musicology** refers to the study of musical thinking. Musical thinking is a complex involving memory, emotion, culture, metaphorical thinking, musical language and cross-modal associations. Bulat Galeyev stated that **'Synesthesia** calls forth such notions as "melody line," "the hearing space" and "tone color," and makes it possible to perceive sounds and chords as "sharp," "dull" or "high." Synesthesia (and the particular case of "color hearing") is the essential component of musical thinking, first of all, in music intended to evoke images.' (Galeyev, 2007).

- **For visualisation of music and music narrative**, specific music analysis based on archetypes of musical texture to map the dramaturgy of music narrative development.

- Synaesthesia arts reflects on sensory aspect of music perception and cross-modal neural network of sensory modalities, examples of art on music encouraging non-synaesthetes to think visually.

METHOD: CASE STUDY

- In this presentation, we explore what technology such as Augmented and Virtual Reality (AR and VR) can offer for visualisation of classical music: to reflect on musical structures and music narrative.

- Our methodology is a series of three case studies.

CASE #1

First Augmented Reality Classical Concert is an AR/MR experience developed in 2017 and based on **Gustav Holst's "The Planets" Op. 32**

First case is an example of mixed reality (MR) to experience classical music with additional layer of content: visual music narrative/ AR goggles. View through Augmented Reality glasses for classical music concert. Screenshot from video "First Augmented Reality Classical Concert." https://vimeo.com/219373289

CASE #2

Our own development using synaesthesia art on music as an enhancement of multisensory experience for AR:
Intermezzo Brahms Op. 117 N2 with AR animation & Piano by Dr. Svetlana Rudenko
https://vimeo.com/556654065) Synaesthesia Art by Timothy Layden, to use indoors during the concert
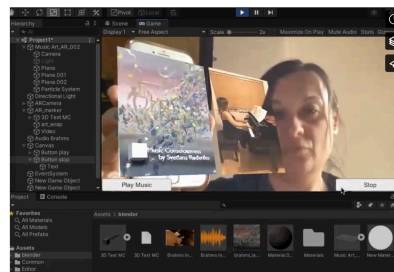
CASE #3

Prototype for VR: Scriabin Sonata N5 with visuals reflecting on **archetypes of musical texture** and music narrative by Prof. Maura McDonnell. Music analysis by Dr. Svetlana Rudenko, Art by Timothy Layden.

https://vimeo.com/382956724

LATEST WORK: SYNAESTHESIA GALLERY AR

Synaesthesia Gallery AR app as an enteractive locative game of exploration art sensory outdoors featuring 15 episodes of music by Liszt, Chopin, Schumann, Scriabin and others painted by artists-synaestehtes with augmented reality art images. Haunted Planet platform- CEO Prof. Mads Haahr. *Synaesthesia Gallery AR* app featuring music painted by artists-synaestehtes with augmented reality art images.

Area Map used to orient yourself

Radar to find Art/ Music encounters

Augmented Reality View

Back Button to exit the app

Casebook of Art photographs taken

Take a photo of Artwork in location

Scan to download the Synaesthesia Gallery AR App for iOS and Android

Art by Carol Steen, Shcumann Piano Quintet Op.44, AR photo in the scene.

DISCUSSION

- In conclusion, applications in AR/VR for classical music could be important tools for music education, stimulating associative thinking and creativity.

- AR can be used in multiple contexts from the concert hall to the open air local park.

- Cases #1 and #2 show that AR applications can add an additional layer of information to music performance, music analysis, epoch of composer and associative imagery.

- Case #3 prototype for VR employs music analysis based on archetypes of musical texture making possible symbolic visualisation of music narrative. VR offers a more interactive experience of classical music for the general audience.

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