A Virtual Reality Volumetric Music Video: Featuring New Pagans

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ABSTRACT

Music videos are short films that integrate songs and imagery produced for artistic and promotional purposes. Modern music videos apply various media capture techniques and creative post-production technologies to provide a myriad of stimulating and artistic approaches to audience entertainment and engagement for viewing across multiple devices. Within this domain, volumetric video (VV) capture technologies (Figure 1) have become an emerging means of recording and reproducing musical performances for new audiences to access via traditional 2D screens and emergent extended reality (XR) platforms, such as augmented and virtual reality (AR/VR). These 3D digital reproductions of musical performances are captured live and are enhanced to deliver cutting-edge audiovisual entertainment. However, the precise impact of VV in music video entertainment is still in a state of flux.

1. SUMMARY

The proposed VR Volumetric Music Video demonstration will help establish how users respond to VV representations of music performance via VR technology. As a sophisticated, interactive music video that can be accessed and presented via multiple XR platforms, we will demonstrate new workflows on how volumetric music videos may be captured, edited, and accessed for virtual live performance. This approach to contemporary music interactions will show how audiences are likely to react to music videos in an XR context and offer insights into how future music video research may be further developed.

2. ARTIST STATEMENT

Finding new ways to visualize and communicate musical performance in VR is driven by artistic creativity, a desire to innovate technologically, and a need to capture new and existing audience attention. It has long been accepted that "Artificial reality is the authentic postmodern condition, and virtual reality its definitive technological expression" [1, p.169]; therefore, it stands to reason that postmodernist art representations can be expressed within VR. Immersive volumetric music videos are being studied at V-SENSE as an emergent art form in and of themselves

Figure 1. Volumetric Video Capture

as many emergent XR technologies are being applied in this endeavor, such as stereoscopic and 360° audiovisual spatial recording technology. These capture technologies have expanded the traditional viewing medium to include further dimensions of immersion, interaction, and imagination for the audience and were closely tied to advancements in home PC GPU/CPU speeds, HMD optics, software data processing capabilities, and AI.

Figure 2. Scenes from within the proposed VR demonstration.

The study of XR music videos has been used to inform V-SENSE's user-centered design of a custom-made VV VR music video experience, featuring the New Pagans' track Lily Yeats (Figure 2). The project's pilot study initially highlighted the specific qualities that audiences seek during the consumption of such materials [2]. Iterations of this novel application area are expected to focus on differences between traditional media and new XR experiences and expose and build upon existing HCI studies that focus on music and technology in use, specifically those concerning how users experience music videos presented via 6DoF XR technologies.
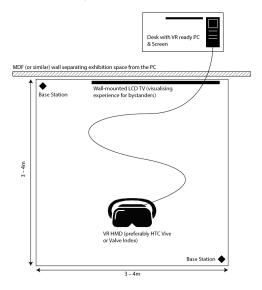
Figure 3. Floor plan

3. TECHNICAL DESCRIPTION

The authors propose demonstrating the outputs from our ongoing research in this area to the delegates of SMC 2022 that can attend in person. Therefore, a virtual reality installation for the conference is presented that uses (dynamic) VV and (static) 3D world-building techniques combined and displayed using the Unity game engine. Figure 3 highlights the specific requirements for viewing.

4. ACKNOWLEDGMENTS

5. REFERENCES

[1] B. Woolley, *Virtual worlds: A journey in hype and hyperreality*. London: Penguin, 1993.

[2] G. W. Young, N. O'Dwyer, and A. Smolic, "Audience experiences of a volumetric virtual reality music video," in *2021 IEEE Conference on Virtual Reality and 3D User Interfaces*. Christchurch: IEEE, 2022, pp. 775 – 781.