Binaural Audio with End User Control: A Binaural, Virtual Reality Nature Walk for Oculus Quest 2 with User Controllable Equalization

Dustin Painter – MFA in Recording Arts and Technologies

Primary Advisor: John Merchant | Secondary Advisors: Cosette Collier and Michael Fleming

ABSTRACT

The creative and technological benefits of binaural and 3D audio production have continued to evolve. A primary factor driving audio content advancements for immersive experiences is the need for individualized content to ensure a different listening experience for each user. This research explores the development of interactive content for the Oculus VR platform that allows users to customize the binaural equalization of the soundscape using a user interface. The technology was implemented by designing an interactive binaural equalization system that allows users to adjust frequency bands on a graphical user interface. The resulting application, "The Majestic Naturescape," was designed to provide a virtual nature experience that allows users to control the binaural equalization of the soundscape in real-time. The application was developed using Unity and features interactive binaural equalization controls that allow users to customize the listening experience. The results demonstrate the potential for creating user-controllable binaural equalization systems in immersive virtual reality experiences.