Perspective 2025

Roaming Calton Hill

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Project Content

Roaming Calton Hill

1.1 Roaming Video

https://media.ed.ac.uk/media/DMSP_Dogs+perspective_Final/1_pf29xqjh

1.2 Documentary

https://media.ed.ac.uk/media/DMSP_Perspective_25_Documentary_Final/1_x0eymsjq

1.3 Session File

- Video (Editing by Adobe Premiere Pro)

https://uoe-my.sharepoint.com/:u:/g/personal/s2714848_ed_ac_uk/EckNuCCz0g9BhKCgUbgXLiEBK3BCFnsEkOyjuO_-zEtxbA?e=MxsrrQ

- Audio (Editing by Protools and Reaper)

https://uoe-my.sharepoint.com/:u:/g/personal/s2714848_ed_ac_uk/EQMYFUvhaftFkDMqC5yzDDoBtGjYXHRO1th_iEpdc6wSFA?e=yqb9L3

https://drive.google.com/drive/folders/1oAIC2jwkBv_PLoSIGBilGvIknLvv0ZJO?usp=share_link

-MAX

https://drive.google.com/file/d/18VtVyBSB_TXkSPUOz0npl_-im6KSij-Z/view?usp=share_link

Project Overview

2.1 Project Description

This project explores Calton Hill through a shifting perspective between human and dog, aiming to construct a unique urban soundscape of Edinburgh. By alternating between these two modes of perception, the work presents a multi-layered sensory journey that offers different ways of experiencing and interpreting the world.

The human perspective focuses on building a detailed and immersive environmental soundscape, capturing the subtle textures and rhythms of the city. In contrast, the dog's perspective embraces abstraction, using experimental sound and video to convey the cultural and historical resonance of key sites around Calton Hill.

Inspired by projects like Night Walk for Edinburgh, the project combines field recording, multi-camera shooting, sound design, visual effects, and a real-time interactive system by MAX to create a poetic and experimental audiovisual experience.

2.2 Project Highlights

- Human Perspective： Reconstructing the Sounds of Calton Hill

By blending natural and human sounds, we restored the soundscape, allowing the audience to hear and feel the emotions and memories of this place.

- Dog's Perspective： Expressing History Through Abstract Sound

By abstract sound design to convey the historical and cultural depth of key locations, imagining how a dog might emotionally perceive the hidden stories within the landscape.

- Switching from Human and Dog Perspective

By shifting between human and canine viewpoints, the project invites audiences to experience familiar urban spaces in unfamiliar, thought-provoking ways.

Project Development

Week 7

Project Redirection and Rebuilding

·Project Theme: Piper Boy - Dog Perspective

·Location Confirmation: Calton Hill

Week 8

Initial Shooting and Demo Production

·Initial Shooting and Recording

·Demo Production and Testing

Week 9

Synchronous Recording and Shooting

·Route Planning and Shooting

·Ambience Recording

Week 10

Audio-Visual Development and Route Testing

·Video Design

·Sound Design

·Tested the Roaming Route

Week 11

Finalization and Completion

·Final Cut

·MAX Setup for the Live Experience

·Equipment Testing for the Presentation

3.1 Phase 1 Pre-production

After the submission 1, we completely abandoned all ideas related to the Piper Boy and redefined the project with a new perspective: using the dog's perspective as a starting point to start a new immersive travel experience. The new perspective inspires us to understand space from a lower height, with more acute hearing and greater reliance on smell.

The shooting and sampling locations are tentatively determined to be: National Museum, Royal Botanic Gardens and Calton Hill.

We met with our professor, Jules, and got the following advice:

-Location can be focused on Calton Hill.

-For sound, you can try to superimpose near and far sounds.

-Study the multi-sensory system of puppies (vision, hearing, smell).

-Use more experimental techniques to expand expressiveness.

Based on our current understanding of the project, we created a mood board:

Figure 1 Mood Board

3.2 Phase 2 Testing

We visited Calton Hill and the location recommended by Andrew-Jacob's Ladder. We did some initial shooting and sound recording. Based on the collected material, we produced the first version of the demo. After presenting it to Andrew, we confirmed the feasibility of the project and received initial feedback.

The link of Demo:

https://media.ed.ac.uk/media/demo1/1_ilqmfsxw
https://media.ed.ac.uk/media/demo2/1_6kayilzd

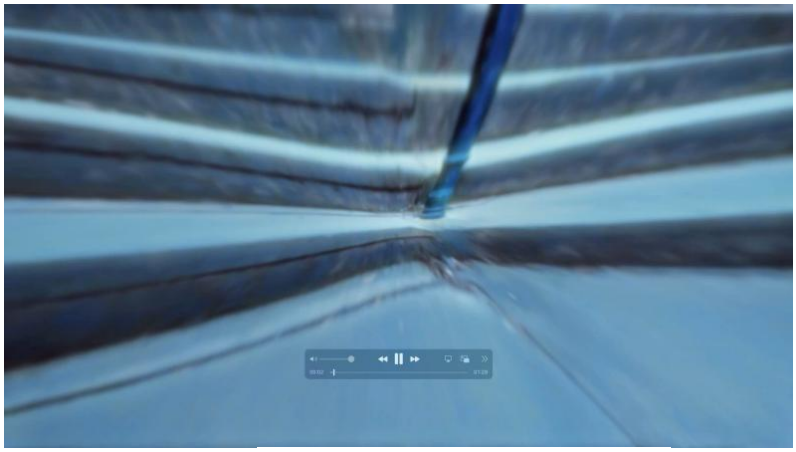

Figure 2 Demo Screenshot 1

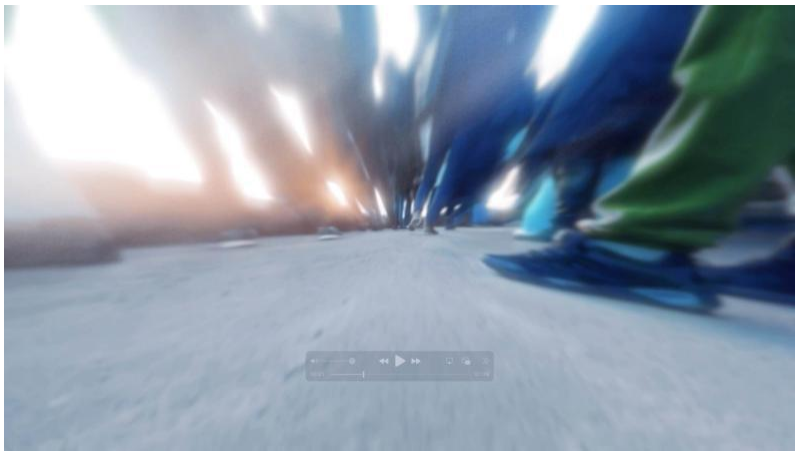

Figure 3 Demo Screenshot 2

3.3 Phase 3 Project Execution

As the project officially moved into production, we carried out multiple shooting and recording sessions at Calton Hill. For the visual component, we used two cameras to simulate the contrasting perspectives of a “human” and a “dog.” We mapped out the roaming route and identified key shots and stopping points, including the National Monument, Arthur’s Seat, and Princes Street.

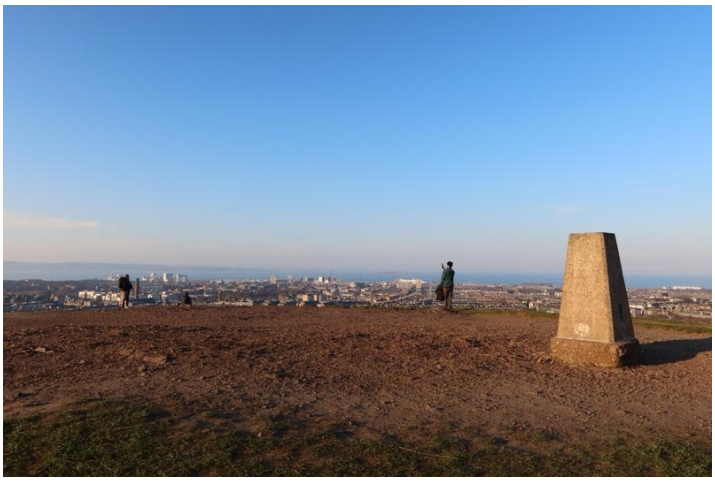

Figure 4 Roaming Starting Point

Figure 5 Stopping Point 1

Figure 6 Stopping Point 2

Figure 7 Stopping Point 3

Figure 8 Stopping Point 4

On the audio side, we recorded environmental sounds both on Calton Hill and in the surrounding areas, such as Princes Street, St Mary's Episcopal Cathedral and so on.

Based on the collected materials, we began advancing the project through ongoing refinement and development.

3.4 Phase 4 Refinement and Testing

After completing the production of the roaming video, we returned to Calton Hill for another round of testing. Based on the existing version, we made further adjustments to the editing rhythm.

In addition, we set up an on-site interactive experience point at the start/end of the route. Using Max, we built a real-time visual and auditory experience, enhanced with a MIDI controller that allows the audience to interact and adjust the experience themselves.

We also created a guide map and promotional brochure — both to support the practical implementation of the project and to encourage broader audience participation in the experience.

Figure 9 Guide Map

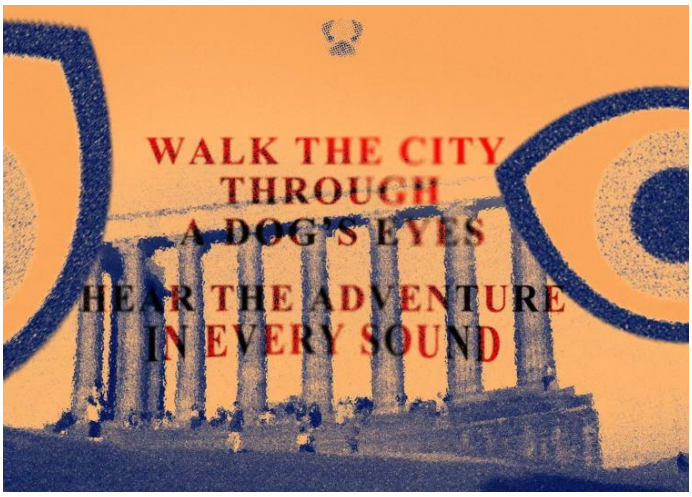

Figure 10 Promotional Brochure _Front

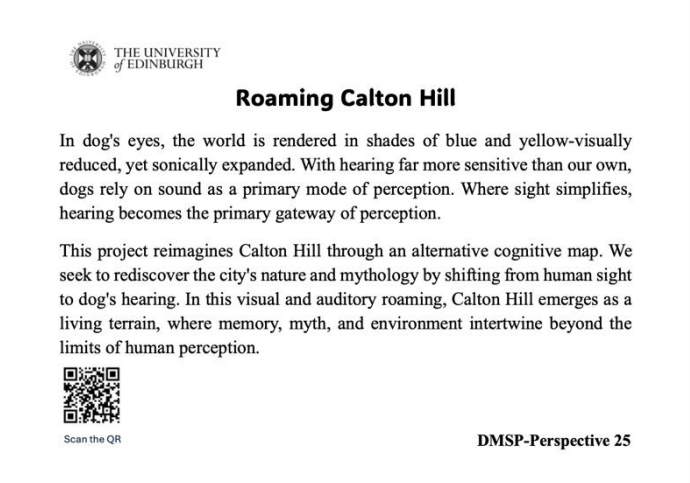

Figure 11 Promotional Brochure_ Back

3.5 Phase 5 Project presentation

Equipment was deployed on site at Calton Hill, with three devices distributed in three different directions to collect sound and images. After receiving the cards and maps, participants followed the video for a 10-minute immersive walk experience. After the walk, a real-time interactive display of Max sound and images was performed at the starting area. Feedback from each participant was collected to provide reference for future and optimizations.

Video Design

4.1 Filming

After deciding on a video-based format, we discussed how to create an immersive experience that also highlights the differences between a dog's and a human's perspective. Through two rounds of prototype testing, we finalized the current presentation style.

The format involves a dog and its owner roaming Calton Hill together, switching between the dog's and the owner's viewpoints to help the audience appreciate the uniqueness of the canine perspective. To better understand canine behavior, we consulted Mia, a dog expert, who provided valuable insights. This greatly helped us mimic a dog's state during filming.

We attempted to use a GoPro mounted on a real dog to capture the roam but encountered two major challenges:

1) We couldn't find a dog that would fully cooperate, and renting one exceeded our budget.

2) Although a kind stranger on Calton Hill allowed us to test with their dog, the dog was unwilling to work with the GoPro harness, so we had to abandon this approach.

Ultimately, we conducted three formal shoots and cleverly edited footage from all three sessions into the final film. We were fortunate to have good weather for all shoots, which made it easier to blend the footage seamlessly.

4.2 Post-Production

In terms of vision, dogs differ from humans in several key ways:

Color Perception: Dogs have dichromatic vision, seeing primarily shades of blue and yellow, while red and green appear as shades of gray.

Visual Acuity: Dogs have poorer visual acuity (about 20/75), meaning they need to be much closer to objects to see them clearly compared to humans.

Motion Detection: Dogs excel at detecting motion due to more rod cells in their retinas and a higher flicker fusion rate (~75 Hz).

Field of View: Dogs have a wider field of view (about 240° depending on breed) but narrower binocular overlap (about 60°), resulting in reduced depth perception.

Light Sensitivity: Dogs are more sensitive to brightness and shades of gray, thriving in dim environments, while humans are optimized for bright light and color differentiation.

Based on this research, I used color curves in editing software to adjust for canine vision characteristics, including edge distortion and color grading. To simulate the difference in depth perception, I selectively blurred parts of the image. For the human viewpoint, I applied a LUT to make colors more natural and vibrant, emphasizing the contrast with the dog's perspective.

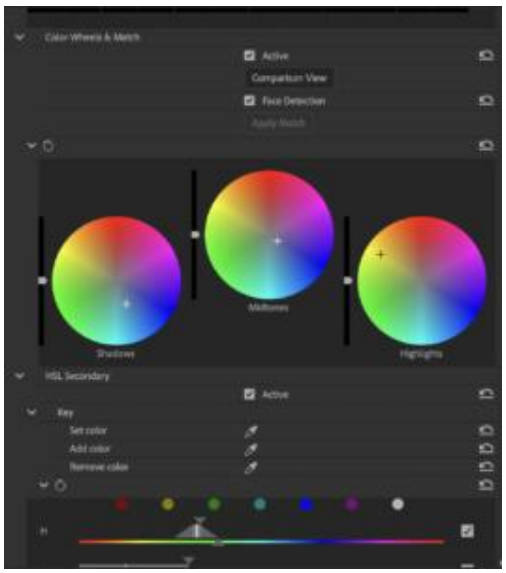

Figure 12 LUT Setting 1

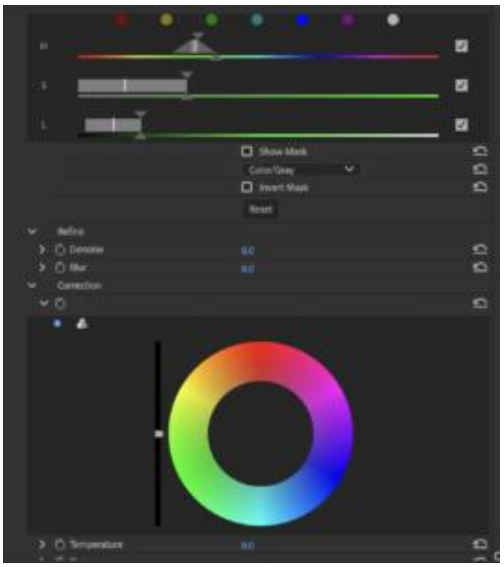

Figure 13 LUT Setting 2

4.3 Specific Editing Steps

Step 1: Adjust Color Perception

Use the **Lumetri Color** effect on the dog's clips or an adjustment layer.

In the **Curves Panel**, utilize the **Hue vs Saturation Curve**:

Reduce saturation for red and green tones.

Enhance saturation for blue and yellow tones.

Step 2: Simulate Reduced Visual Acuity

Apply the **Gaussian Blur** effect to the dog's clips or adjustment layer.

Set the blur radius to subtly reduce sharpness without making the footage unrecognizable.

Use masking tools to isolate areas and feather edges for a natural look.

Step 3: Adjust Field of Vision

Apply **Lens Distortion**.

Adjust curvature settings to slightly widen the perspective, creating a fisheye-like effect.

Sound Design

5.1 Design Goal

By simulating the auditory perception of dogs, combining environmental atmosphere with sound design, we can build an immersive and three-dimensional auditory experience to enhance the audience's perception of the scene and narrative.

5.2 Sound Design Concept

The sound design of this project is start from the auditory characteristics of dogs, it integrates real environment recording and sound effect design. Through multi-layered sound superposition, spatial distance simulation, dynamic triggered sound effects and other methods, the audience is given an immersive experience of "a dog walking" on Calton Hill.

5.3 Sound Collection and Recording

·**Preliminary collection: ambient sound**

Recording equipment: Zoom H6

Goal: Obtain natural ambient sound from all directions to establish an overall sense of atmosphere.

Location:

-Three directions of Carlton Hill: record natural soundscapes such as wind, bird sounds, and distant human voices from different directions;

-Prince Street: the atmosphere of a crowded street in the city;

-Church: outdoor environment atmosphere;

· **Mid-term supplementary recording: point sound source collection**

Recording equipment: Sennheiser MKH416 shotgun microphone

Goal: To obtain a high-directivity, high-quality specific sound source.

Recording content:

-Bells

-Bird calls

-Children playing

-Footsteps on the trail

-Street environment sounds

5.4 Sound Design and Post-processing

- **Post-mixing and processing**

Before editing, we conducted extensive research on canine hearing and vision to inform our audio-visual production choices. Dogs have a wider hearing range than humans, especially in the high-frequency region (up to 60kHz). We decided to enhance the high-frequency elements in the audio to make sounds sharper and clearer, simulating a dog's sensitivity to high-pitched noises. We also added emotional elements, such as reverb and amplifying subtle sounds that humans might overlook, to simulate a dog's heightened emotional response to certain auditory cues.

The overall sound design was developed from two distinct perspectives: that of the human and that of the dog. The human perspective focused primarily on soundscape construction. We combined the natural sounds and human activities we collected to recreate and restore the auditory environment of the area. By blending distant city ambience with nearby sounds such as footsteps and visitors' laughter, we aimed to build the unique sonic texture of Calton Hill. Through this reconstruction, we hope the audience can not only hear the place, but also feel the memories and emotions embedded within it.

The dog's perspective, we centered on using abstract sound and video to express the historical and cultural significance of key landmarks around Calton Hill. We set Arthur's Seat, the National Monument of Scotland, the Portuguese Cannon, Princes Street, and St Mary's Episcopal Cathedral as key stop points. When the audience reaches these locations, sounds related to each site will be triggered. Our goal is to use abstract sound to express the history, culture, and deeper meaning of these landmarks.

Arthur's Seat

To evoke the atmosphere of the Iron Age site and convey its profound historical significance, we focused on designing a soundscape that reflects both the weight of time and the power of the landscape. The sound of turning bearings was introduced as a symbolic element, representing the "wheels of time." As the dog moves toward Arthur's Seat, the auditory experience suggests a reversal of time, with the layers of history gradually unfolding.

At the base of the hill, we constructed a multi-layered soundscape by combining low rumbles, granular textures, rolling stone sounds, and wind. This composition was intended to immerse the audience in the ancient, grounded energy of the site.

These sonic elements go beyond environmental representation—they function as echoes of the past. Through the perspective of the dog, the project aims to express how memory and myth are embedded within the landscape, continuing to resonate in subtle and often imperceptible ways.

Near the Portuguese cannon

To reflect the historical significance of the Portuguese cannon on Calton Hill, we incorporated cannon-related sound design into the project. Although the cannon is now a silent monument, we added the sound of a distant cannon firing to symbolically reawaken its colonial and military past. This sonic element is subtly triggered when the audience approaches the cannon's location, creating a layered experience that blends historical narrative with the present-day environment. The deep, echoing cannon blast contrasts with the natural ambient sounds and evokes a sense of past violence and imperial power, inviting the audience to reflect on the hidden histories embedded in the landscape.

Prince Street: set the city noise to fade in and out, simulating entering Prince Street from Calton Hill;

In front of the church: the bells ring.

The end point: add the sound of the wind and the distant waves and the cry of seagulls.

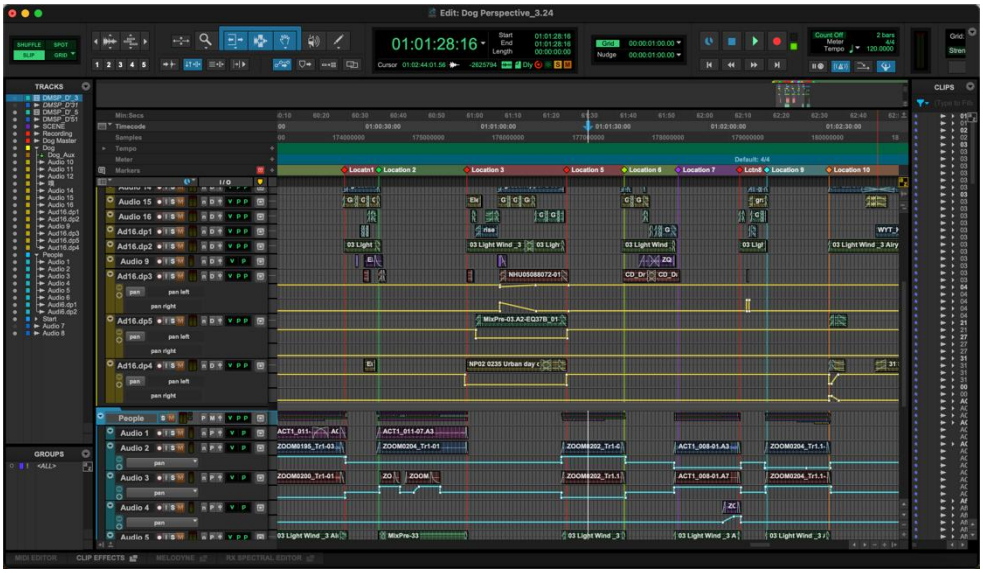

Figure 14 Session Screenshot

Based on the auditory characteristics of dogs, we specifically added several audio effects to the dog's perspective.

EQ and spatial processing

Use EQ to enhance high frequencies to simulate the hearing characteristics of dogs that are more sensitive to high-frequency sounds

Figure 15 EQ Setting 1

Figure 16 EQ Setting 2

D-Verb and Distortion

Based on the auditory characteristics of dogs—their wider hearing range and sensitivity to high-frequency overload—we incorporated both D-Verb and Distortion effects. These audio effects were used to simulate the expanded auditory perception of dogs, as well as the sense of tension or stress they may experience in acoustically overstimulating environments.

Figure 17 D-Verb Setting

Figure 18 Distortion Setting

Max Design

6.1 Live Experience Concept

To further enhance audience immersion and interactivity, we plan to use Max to process real-time video input and simulate a “dog’s-eye view” as a hidden interactive feature within the Calton Hill roaming experience. By incorporating Max’s Vizzie modules, we developed a real-time visual effects system that transforms the video to reflect canine visual characteristics. At the same time, we set up microphones in three directions to capture ambience in real time. These audio signals are routed into the Max system and linked with the visual modules, creating a dynamic feedback mechanism in which sound actively drives visual changes. Through this process, viewers can not only “see” the world from a dog’s perspective but also “hear” the live ambience. This setup offers a unique live experience, blending sensory layers in real time and extending the project’s core exploration of multisensory immersion and non-human perception.

6.2 MAX Setup

I divided the entire patcher into three parts.

·**Dog’s vision**

Based on the patcher from Andrew’s workshop, Jules’ detailed explanation of the Vizzie modules and the ‘help’ for each Vizzie component. I experimented and created a version of how I imagine the world looks through a dog’s eyes. I focused on three main aspects to represent a dog’s vision:

-**Color**: Mostly blue, with yellow and gray as secondary tones

-**Blur**: Dogs see with less clarity than humans

-**Glow**: Dogs are more sensitive to light movement, and fast motion can create a glowing effect

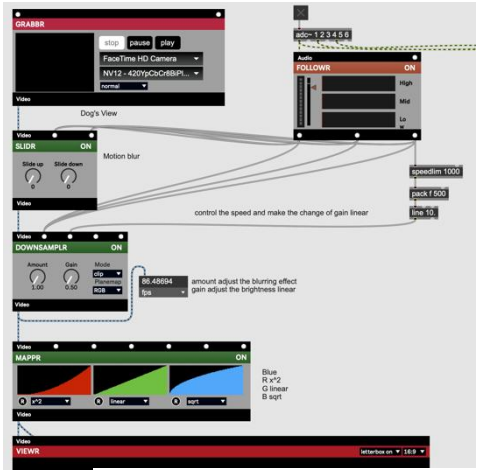

Figure 19 Dog's Vision Setting

·Thermal imaging effect

For this part, we still use vizzie to simulate the thermal imaging effect and add the effect of gas to combine it with the video to simulate the sense of smell of dogs. For the color part, I used '2 TONR' to retain the blue and purple to simulate the video effect captured by the thermal imager. Then I collected the smoke effects online and mixed them using the addictive mode of MODEMIXR.

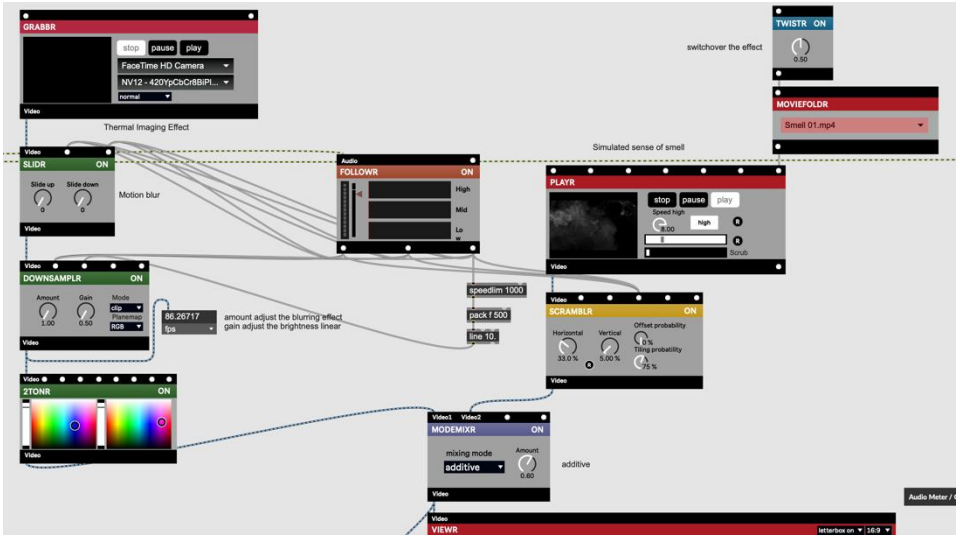

Figure 2 Thermal Imaging Effect Setting

·Dog's mood

The design of this part is very simple. I only kept the yellow color and then adjusted the frequency of the screen flickering through sound. Because dogs have very sensitive hearing, even the slightest change in sound will attract their attention, even many subtle sounds that we humans never notice.

In addition, each video corresponds to a different microphone. I input the sound into different modules to influence the changes in the video, making the auditory stimulation to the audience more visual. Then I also did a simple mix by MAX to enable it to adjust the frequency of the real-time sound. Additionally, I added the reverb and distortion effects to make the ambience heard by the audience closer to the hearing of a dog.

We used the ZOOM H6 Essential as an audio interface to record live ambience. Following Andrew's suggestion, we also added a MIDI controller, allowing the audience to interact with

the system and adjust parameters themselves. This addition enhanced both the interactivity and immersive quality of the experience. I configured the setup so that the audience can use six knobs: three assigned to control video channels and three for audio channels. By turning the knobs, participants can mix visuals and sound in real time.

6.3 Detailed Explanation of Max Patcher

https://media.ed.ac.uk/media/t/1_a41mxuyi

Problems encountered and solutions

·Dog's perception

One of the main technical challenges we faced early in the project was imagining how dogs perceive the world, due to our limited understanding of their sensory systems. To address this, we researched canine perception and learned that dogs hear frequencies from 15Hz to 60kHz—well beyond human capacity. This informed our sound design, where we enhanced high-frequency elements and added bands beyond human hearing to more accurately simulate a dog's auditory experience.

During color grading, I spent considerable time trying to achieve a stronger yellow tone, but adjustments often introduced unwanted green due to the proximity of yellow and red on the spectrum. After testing, I chose a cooler, blue-toned version to contrast with the human perspective. With more time, I would further refine the grading to enhance the yellow tones for a more satisfying result.

·MAX setting

When attempting to simulate canine vision through color adjustment, I found that none of the existing Vizzie modules could fully represent how I imagined a dog's world. Initially, I tried to use the jit.gl.pix object to completely filter out the red channel, but after multiple attempts, it still didn't achieve the desired effect. Eventually, I used the Mappr module's primary color functions to approximate the visual experience of a dog.

On the technical side, Max also encountered some issues when connecting to the camera and microphone, such as difficulties establishing a connection with the Zoom H6 Essential, and the switching between three video perspectives proved to be complicated. With the help of Jules and Andrew, we were able to successfully connect Max with the necessary devices. In addition, we incorporated a MIDI controller to allow smooth transitions between audio and video channels. In the final presentation, we showed only the mixed version to the audience, which resulted in a noticeably improved overall experience.

Outlook and Improvement

・Video Design

On the one hand, in order to maintain the completeness of the roaming experience, the full video lasts for 10 minutes. However, the content we presented lacks sufficient variation, making it difficult to keep the audience fully engaged or continuously surprised throughout the entire duration. On the other hand, we continuously explored ways to switch more naturally between the dog's and the human's perspectives, but in the end, we were unable to find a shooting method or visual effect that achieved the desired result.

・Sound Design

One area for improvement in this project is the use of binaural recording to enhance immersion. Although we considered this approach, there were two main limitations. First, the dummy head recorder was too heavy and impractical for use during mobile field recording. Second, the limited time available for post-production prevented us from producing a complete binaural audio version. In future projects, incorporating lightweight binaural solutions and allocating more time for post-production could significantly improve the spatial depth and realism of the auditory experience.

・MAX Design

In the part of live experience, all three cameras we set up were fixed in position, which limited our ability to present more dynamic or engaging perspectives to the audience. Additionally, the ambient sound recorded on-site could only be adjusted in volume through the control knobs, without any changes in the left-right stereo field. These are aspects that are worth reflecting on and improving in future iterations of the project.

Conclusion

From conception to on-site recording and shooting, and then to complete video and interactive display, this project reflects the team's multi-dimensional collaborative capabilities in creativity, technology and practice. The creative approach of approaching the work from a dog’s perspective provides new inspiration and possibilities for urban exploration artworks, and also explores more dimensions for the combination of sound design and interactive installations.

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