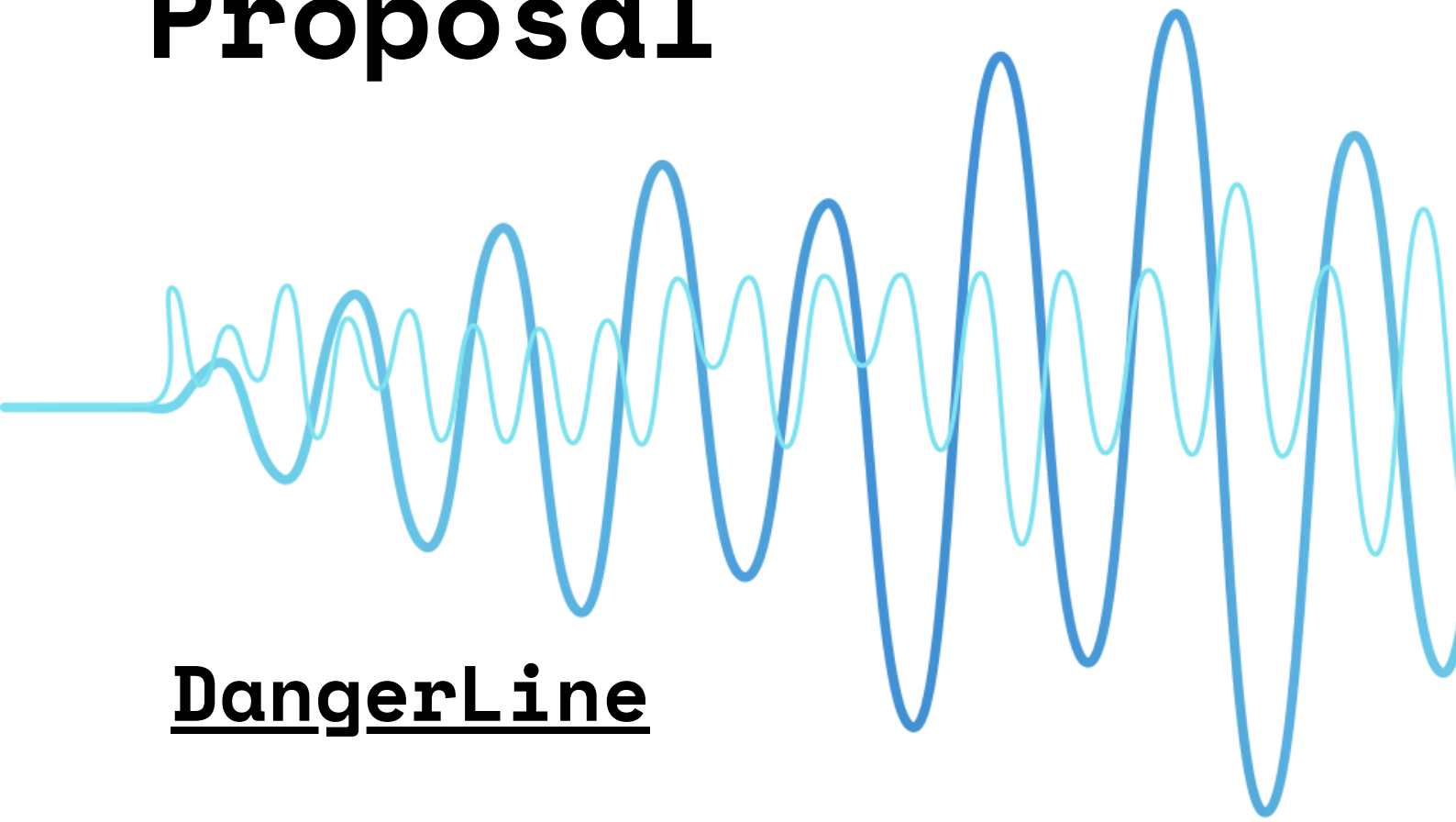
Davis Lang

Project Proposal



DangerLine

An exploration of sound in video games.

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Abstract

Video games predominantly rely on visual interfaces, often overlooking the potential of sound as a core gameplay mechanic. "The importance of sound is quite well known in video games. Although frequently in the past sound was simply used to increase the immersion of the player. Now there is a growing interest in using sound as a means for providing the player with additional information" (Ng & Nesbitt, 2013, p. 1).

My proposal aims to introduce a game where sound becomes a pivotal element, equal in importance to any visual aid. This game draws inspiration from the immersive treasure hunting mini game experience found in 'Red Dead Redemption 2,' emphasising auditory cues for navigation and progression instead of traditional maps or HUDs (heads-up displays). Inspired further by the design philosophies of 'Journey' and 'Mirror's Edge,' it offers a non-violent experience focusing on stealth and parkour mechanics to outmaneuver surveillance cameras and patrol robots. By prioritising sound and minimal lighting, this proposal aims to deliver an innovative and immersive gaming experience that redefines conventional game design boundaries.

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Introduction

DangerLine is a simple yet captivating 3D stealth game where sound and lighting take center stage in guiding players through a heavily surveilled cityscape. Players embark on an auditory journey, following an evolving, drone-like sound that serves as their sole companion and directional guide. "Interactive audio has evolved from a mere tool for player immersion to a crucial element capable of enhancing overall player experience" (Collins, 2008).

In this immersive experience, players navigate the city's shadows, mastering the art of stealth and parkour without access to weaponry."The incorporation of parkour in digital games emphasises its capacity to introduce dynamic movement and enhance player interaction with the virtual environment" (Friedrich, 2018). The game-play revolves around utilising the environment and their senses, relying on the ever-evolving sound attempting to avoid detection while progressing through the narrative.

Lighting, plays a secondary role to the intricate sound design, serving to enhance the game-play and atmosphere. The intentional brevity of the game ensures a concentrated, impactful experience, emphasising the importance of sensory immersion and strategic decision-making.

Developed using Unity, DangerLine uses the platform's capabilities to create an interactive, environment that revolves around the nuances of sound.

Conceptual research

Figure 1. Journey. Cover Art. Retrieved from ActuGaming. (2018).https://static.actugaming.net/media/2018/12/journey-pc-889x500.jpg

Journey, is an indie adventure game created by Thatgamecompany, directed by Jenova Chen.

In Journey, the player controls a robed figure in a desert, traveling towards a mountain seen in the distance. Along the way players on the same journey can be discovered, and two players can meet and assist each other, but they cannot communicate via speech or text and cannot see each other's names until after the game's credits.

The only way to for players to communicate with one an other is through a musical chime, which transforms dull pieces of cloth throughout the levels into vibrant reds, this effects the game world and allows for players to progress through the level. Most importantly the games music composed by Austin Wintory, dynamically changes in response to players actions. The game takes into account the velocity of the players movements as well as the soft or heaviness of button presses to guide the games soundtrack. Such a mechanics brings forth ideas of sound as a dominant gameplay feature instead of an accompany backup mechanic, placing it equal in the hierarchy to visuals.

Figure 2. Screenshot of application [Digital screenshot]. Retrieved from Microsoft Store. https://store-images.s-microsoft.com/image/apps.15969.68416368999479584.89b36c57-6423-4e10-945f-b73fe790db76.e1df7c2e-c104-43f5-a1e3-49b65605db53?mode=scale&q=90&h=1080&w=1920

Mirror's Edge, released in 2008 by DICE and published by Electronic Arts, is a first-person action-adventure game renowned for its unique visual style and the absence of conventional weapons. Players embody Faith Connors, a skilled runner navigating a dystopian city through parkour and fluid movement, emphasising agility over combat.

A notable element is the soundtrack by Solar Fields, an electronic and ambient masterpiece that enhances the immersive cityscape experience. Synchronised with Faith's movements, the music adds a dynamic layer, creating a rhythmic and momentum-driven atmosphere. Overall, "Mirror's Edge" stands out for its innovative gameplay mechanics, emphasising movement, and its impactful soundtrack, contributing to a memorable gaming experience.

Figure 3. Red Dead Redemption II [Digital photograph]. Retrieved from Xbox website. https://compass-ssl.xbox.com/assets/64/02/6402981a-9446-46d8-8289-e370f3158746.jpg?n=Red-Dead-Redemption-II_GLP-Page-Hero-1084_1920x1080.jpg

Red Dead Redemption 2 (RDR2), created by Rockstar Games, is a massive open-world game that encapsulates the Wild West of the USA. The game boasts a multitude of mechanics, making it almost impossible to list them all. However, one simple yet sometimes overlooked mechanic is the treasure-finding experience.

Players receive treasure maps as they progress through the game. These maps only indicate the general location of the treasure, leaving it up to the player to pinpoint the exact spot using a sound emanating from the treasure.

Technical Research

Unity

Unity, a dynamic game engine widely embraced by developers, Unity offers a comprehensive platform for creating diverse and interactive digital experiences. known for its user-friendly interface in both 2D and 3D game development, Unity stands out with an integrated audio system that allows creators to craft immersive soundscapes, enhancing the overall gaming experience. The engine's accessibility, coupled with its audio capabilities, makes it a fantastic choice for my interactive.

Ableton

Ableton also known as Live is a digital audio workstation (DAW) well known for its prominence in music production. Ableton has an intuitive interface and robust features, Live aims to empower producers to compose, arrange, and refine music seamlessly, making it a preferred choice for producing the sounds necessary in DangerLine.

Zoom h5

The Zoom H5 is a versatile handheld audio recorder known for its compact design and advanced recording capabilities. Featuring a modular mic system, it will allow me to attach various interchangeable microphones, adapting to different recording needs. The Zoom eill be mainy used to gather field recordings.

Generative synthesis

Generative audio synthesis is an approach in sound design that involves creating sound in a dynamic and evolving manner through algorithms and computational processes. Unlike traditional synthesis methods, generative audio synthesis focuses on real-time, algorithm-driven generation of soundscapes, producing unique and often unpredictable experiences.
coupling generative synthesiser recordings with Abletons power audio manipulation will allow me to create dynamic soundscapes.

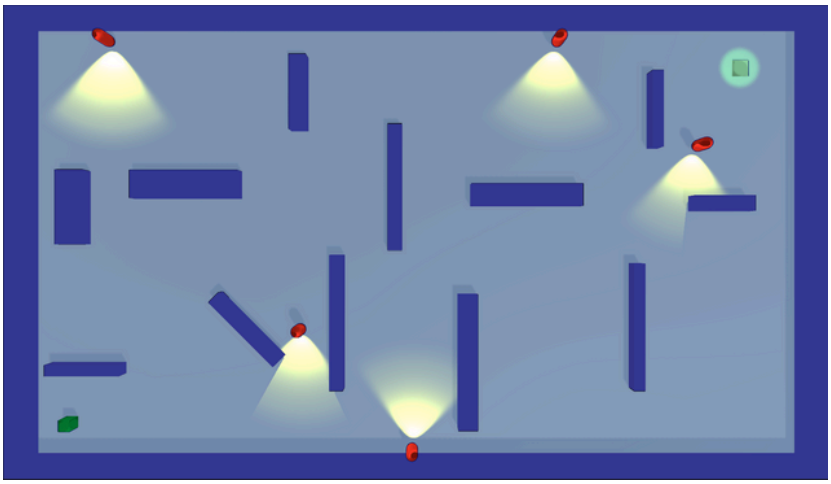
Proposed approach

DangerLines primary mechanics revolve around utilising sound and low lighting for navigation progression, deviating from conventional mini-maps and weaponry.

Faced with surveillance cameras and patrolling robotic adversaries, players must employ stealth and parkour skills to outmaneuver their high-tech foes. DangerLine will maintain a minimalist aesthetic.

Surveillance

I aim to integrate ray casting as a fundamental technique to simulate surveillance cameras. Ray casting involves projecting virtual rays into the game environment to gather information about the scene.



HenrySpartGlobal has a GitHub repository that delves deeper into stealth mechanics within Unity, and I plan to use it as a starting point for my surveillance system.

Figure 4. GitHub commits page [Webpage]. Retrieved from GitHub. https://github.com/HenrySpartGlobal/Unity_Stealth_Game/commits?author=HenrySpartGlobal

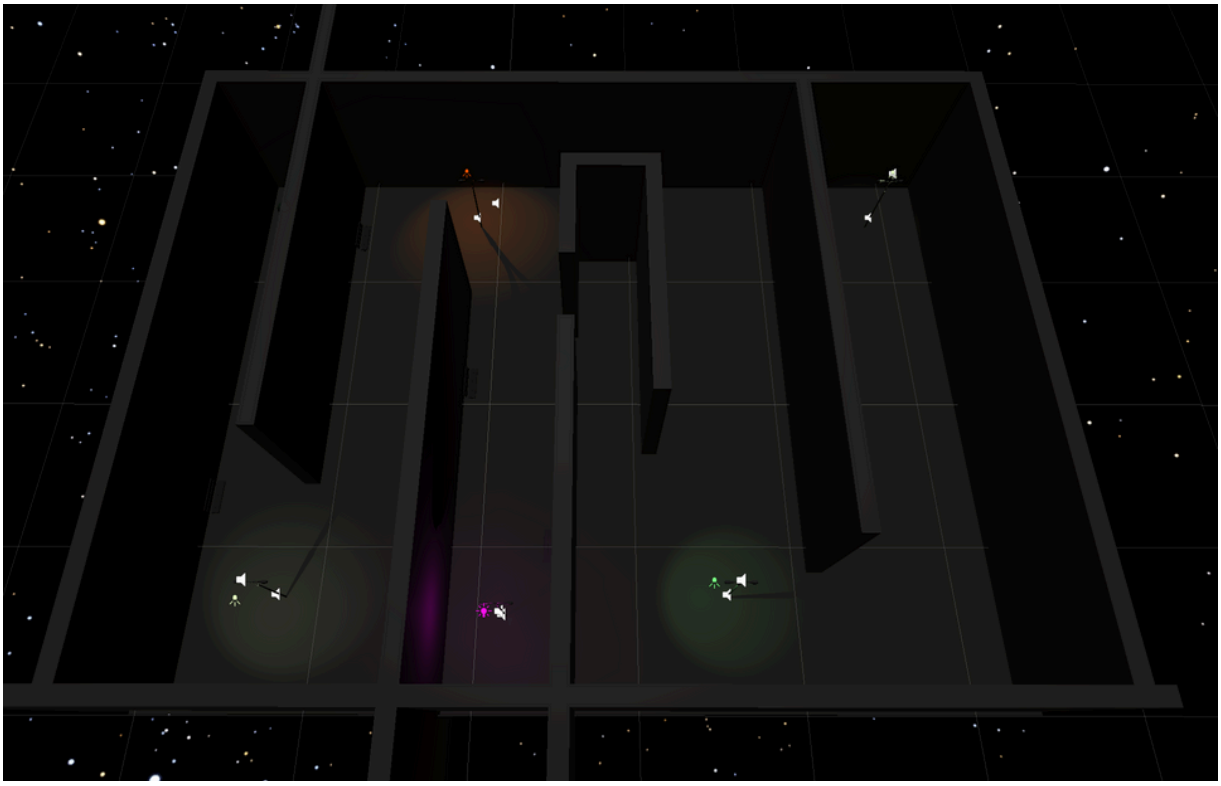
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class WaypointFollower : MonoBehaviour
{
    [SerializeField] GameObject[] waypoints;
    int currentWaypointIndex = 0;

    [SerializeField] float speed = 1f;

    // Update is called once per frame
    void Update()
    {
        if (Vector3.Distance(transform.position, waypoints[currentWaypointIndex].transform.position) < .1f)
        {
            currentWaypointIndex++;
            if (currentWaypointIndex >= waypoints.Length)
            {
                currentWaypointIndex = 0;
            }
        }


        transform.position = Vector3.MoveTowards(transform.position, waypoints[currentWaypointIndex].transform.position, speed * Time.deltaTime);
    }
}
```

The above script defines a "WaypointFollower" class in Unity, enabling an object to smoothly navigate between a set of specified waypoints. The script utilises a simple algorithm in the Update method, continually moving the object towards the next waypoint and cycling back to the first waypoint when it reaches the last one.
This in combination with ray casting is how I plan to bring my surveillance robots to life.

Audio

I intend to use generative synthesis techniques and capture ambient sounds using a Zoom H5 recorder. I will refine these sounds within Ableton to create the games soundtrack and sound design.

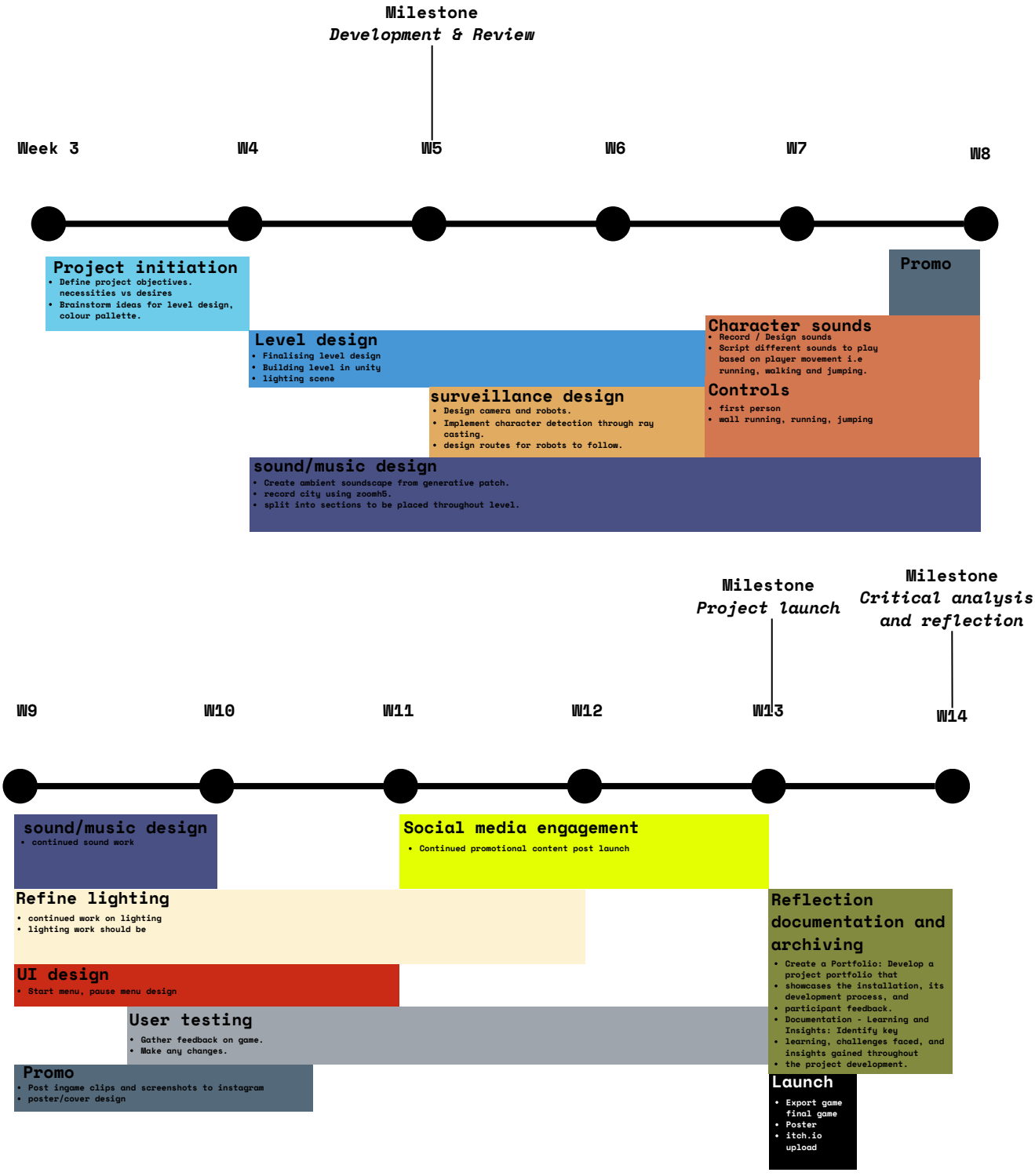
Experimenting with sounds as a means of navigation.



The provided screenshot illustrates a simple maze created using Unity. As players navigate through the maze, they will be guided by a basic chord progression, accompanied by dynamic lighting, leading them from the starting point to the endpoint. The Unity inbuilt audio object facilitates the implementation of audio, with volume intensifying as the player approaches the source at the center.

I intend to use a similar, more refined approach for the drone-like sound that will help players navigate their way through my DangerLine project.
Drawing from Journey and Mirror's Edge, I also intend to implement dynamic changes in sound depending on certain button presses.

Milestone


Milestone
Development & Review
Week 3
W4
W5
W6
W7
W8
Project initiation
• Define project objectives. necessities vs desires
• Brainstorm ideas for level design, colour pallette.
Promo
Level design
• Finalising level design
• Building level in unity
• lighting scene
Character sounds
• Record / Design sounds
• Script different sounds to play based on player movement i.e running, walking and jumping.
surveillance design
• Design camera and robots.
• Implement character detection through ray casting.
• design routes for robots to follow.
Controls
• first person
• wall running, running, jumping
sound/music design
• Create ambient soundscape from generative patch.
• record city using zoomh5.
• split into sections to be placed throughout level.
Milestone
Project launch
Milestone
Critical analysis and reflection
W9
W10
W11
W12
W13
W14
sound/music design
• continued sound work
Social media engagement
• Continued promotional content post launch
Refine lighting
• continued work on lighting
• lighting work should be
Reflection documentation and archiving
• Create a Portfolio: Develop a project portfolio that
• showcases the installation, its development process, and
• participant feedback.
• Documentation - Learning and Insights: Identify key
• learning, challenges faced, and insights gained throughout
• the project development.
UI design
• Start menu, pause menu design
User testing
• Gather feedback on game.
• Make any changes.
Promo
• Post ingame clips and screenshots to instagram
• poster/cover design
Launch
• Export game final game
• Poster
• itch.io upload

Proposed outcome

Deliverables

- Executable game - 10 minutes experience
- Game play walk through recording.
- Soundtrack
- Promotional Stills
- Digital poster for game

Career development

- A depiction of my ability to incorporate sound in video games in hope of employment in the gaming industry.
- A side income through donations on itch.
- Beginnings as an indie game developer.
- Gain Experience working on a project from start to finish.

References

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Multmedia Designer

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About Me

I'm a passionate multimedia designer living in Melbourne, Australia with a keen interest in exploring the realm of interactivity, particularly at the crossroads of sound and interaction.
I am fascinated by the way immersive auditory experiences come to life through creations such as games, animations, and web applications.

Work Experience

Freelance designer — 2022 - present

Web development, Animation, 3d/2d Graphics

Animator / Video Editor — 2023 - present — Link

Circuit Breaker (Record Label)

Sound Designer — 2023 — Link

Yanwen Wang (Animation) — Link
semi-finalist NY film festival

skills

- **Web Development** — JavaScript, CSS, HTML, React, BootStrap
- **Adobe Suite** — Illustrator, Premier, After Effects, Photoshop
- **Game Development** — 3d Modelling, lighting, Animation, scripting, Unity
- **Audio** — Generative synthesis, Ableton, Mix Engineering, Mastering

Education

- **Diploma of Sound Engineering**
  SAE, Sydney
- **Bachelor of Design (Digital Media)**
  rmit university, Melbourne, Australia