

The Joys of Gardening

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fulfilment of the requirements for the degree of

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In

Creative Technologies, School of Visual Arts

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ABSTRACT

The Joys of Gardening is a virtual experience in which the viewers are invited to roam and explore a garden maze scattered with features including a greenhouse, a fountain, a gazebo, and a variety of personal gardening videos. One of the main attractions includes an opportunity to interact with a tomato plant and observe different stages of its growth. These elements combined are essential to the piece's purpose: to spread the passion and joys of gardening. There are many therapeutic effects to gardening such as: the sun helps people be happy, working with the soil allows a sense of giving life, and watching a plant grow can inspire the joy of gardening and the joy of discovery. As the viewer inhabits the space, they are engulfed into a world of butterflies, birds chirping, and serene lighting. This experience has a set aesthetic, narrative, and user interaction. By utilizing these elements, they are able to enjoy a relaxing stroll through the maze. This paper will discuss the influence behind the experience, stylistic choices, and user interactions. This experience continues to explore the potentials of blending the physical landscape and the digital landscape.

The Joys of Gardening

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GENERAL AUDIENCE ABSTRACT

The Joys of Gardening is a virtual experience that provides the viewer an opportunity to explore a garden maze. The maze is filled with different elements with which they can interact. These include videos of my personal garden, a greenhouse with an interactive tomato plant, and a gazebo and a pond filled with koi fish. The project offers a digital space for viewers to escape into a world filled with butterflies, flowers, and the sounds of birds chirping. The purpose of this piece is to inspire and spread the joys of gardening to anyone and everyone. This paper will discuss the style, audio, and interaction choices to create the full project.

Acknowledgments

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My wonderful gardening partner in crime, John Bullock

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Introduction

The Joys of Gardening explores the idea of bringing the physical landscape into the digital landscape. In this virtual experience, the viewer is invited to explore a serene, garden environment in which they can roam around a garden maze scattered with interactive attractions. These attractions include a greenhouse, an interactive tomato plant, spaces for relaxing by a fire and a tranquil koi pond, a fountain, and multiple videos of my personal garden. The project comes to life through aesthetics, narrative, and user interactions. These elements combined create a peaceful experience. Hopefully, they will leave with a sense of joy and some inspiration to go out and create their own gardens.

Personal Influence

As a young kid, I have always been interested in the natural world around me. Everything was new and unique. There was never a replicated moment when I was outside. I used to (and still do) think that nature has a voice. When I interact with my plants, I can hear them. Not with my ears, but I know what they might need. There is a reason people genuinely love soaking up the sun. Many people use the act of getting out into nature as an emotional outlet.

When it comes to plants, I believe that they have a personality. As I watch them grow, I have immense love for nurturing them. They fall in love with human nurture. I care for them and they care for me. Plants do not judge. They are honest. I strive when they strive. I suffer when they suffer.

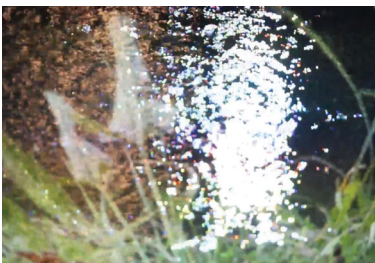
I always knew I had to be involved with the natural world in some way. It was a passion that was instilled in me at a young age. As early as eight years old, my parents knew my extreme love of the outdoors and sent me to an adventure camp focused on outdoor skills (primitive skills, canoeing, caving, hiking, and climbing). It was my second home. It was here that I learned to experience nature in a much different light.

It is called Camp Palawopec. We canoed, climbed, caved, hiked, and created some of the best memories I will ever have. My experiences there taught me outdoor skills, a love for nature, and what a community means. I met some of my best lifelong friends here. I would not be doing what I am doing without that experience

The first year I immediately fell in love with learning outdoors and caring for the natural world around me. I eventually became an adventure camp counselor to spread the amazing knowledge I had learned up until this point. As the years went on, camp not only taught me a love for nature, it also gave me desire to share my passion with others who may not otherwise be able to have these opportunities. It is the reason I am inspired to make the art that I create now and the main reason behind this project.

As I started my undergraduate career, I went into environmental science hoping to utilize my passions in a helpful way. However, as a visual learner, I realized that this was not the best route for me I was never good at reading comprehension. Visuals were always the easiest way for me to understand and interpret the world. Although I love the Earth and had wanted to be an environmental scientist for years, the career path was not the right fit. I wanted to be able to *show* the uniqueness of the world. I wanted to be able to let others *see* what I saw in the natural world. At that point, I decided to go into digital and immersive art.

Early on in my artistic career, I worked with video and projection. I was fascinated by the idea of projection of a digital



render of natural elements onto other actual natural elements, such as water, trees, the body. But again, there was something lacking.



I always knew that I wanted to inspire people in some way shape or form. I started producing projects that little by little kept growing into more educational pieces. At

this point, I found my blend. Using this medium has allowed me to express my knowledge and experience through a creative and visual outlet.

One of the first projects I created provided a way for viewers to experience a coral reef, a forest, and a beach. The viewer was able to approach characters in the ecosystem and learn facts about certain organisms. This only allowed my passion for virtual education to evolve. As I entered Virginia Tech, I started to experiment with different elements of visual communication and interaction within immersive and digital environments.

Then Covid hit.

During my quarantine experience, I struggled with the same feelings many others had. I knew I had to find an outlet, so I turned to gardening. My partner and I thought everything was going to shut down and accessibility to certain produce would be limited. We needed a solution: producing our own vegetables, herbs, and fruit.

It was a humbling and incredible learning experience. One of my favorite parts of learning to grow for the first time was watching the pole beans



and cucumbers spiral their vines up and all around the patio. Everytime I walked outside, I would have a big grin on my face while dancing and singing, "*It's raining beans! Hallelujah, it's raining beans!*" It was pure joy.

As the world was altering into a new way of life, we needed to alter *our* new way of life. The season progressed, I realized the importance of knowing how to garden more and more. Many of my neighbors would come to ask us to help them germinate and transplant. According to Charles A. Lewis, many community gardens play a role in revitalizing slums and helping create a neighborhood (1979). Before I knew it, there were gardens popping up all around. It got me thinking how wonderful it was to inspire others to create and care for their gardens. I knew then that this is the project to create.

Winter arrived and my plants started to slowly die with the cold weather. Those feelings of isolation and separation started to creep back in. I could not go through more long months of



no gardening. So, we decided to build a greenhouse on the patio. (This is the greenhouse that inspired the one in my virtual environment). That joy started coming back. Even in the winter, I was able to stay cozy and hang out with the plants. After a wonderful 4 months of growing in the greenhouse, our landlords made us take it down. This is a result of having no land of our own. I was heartbroken. We had no clue what to do with it, but we knew it could not be through. Luckily, we came across a family with kids starting a gardening journey on their new farm. So, one snowy day our plants found a new home.

Benefits of Gardening

I have always thought that there is creativity in everyone. Gardening is just one outlet that many people can use to express themselves. It is natural. As humans, we almost have a “sixth sense” to interacting with nature. In an article by Therese Eriksson, she states:

These experiences brought to the forefront thoughts of themselves as being competent and somewhat creative persons, which inspired them to try new activities in the garden.

They became more self-confident in their way of thinking of themselves in relation to, for example, work and family, which gave them new insights. (Eriksson)

That is my hope for this project. To inspire those to nourish their inner gardener inside of them and dive into their creativity.

There are many other benefits to gardening: it improves physical, emotional, and social health. When it comes to physical health, one of the main benefits comes from the vitamin D one gets when out in the sun. Gardening allows those to get outside and soak up the sunshine, which provides a great deal of vitamin D. Vitamin D can not only help regulate the amount of

calcium and phosphate in a body, but also assists bones, teeth and muscle health. Another benefit of vitamin D is an increase in immune health. (Thompson)

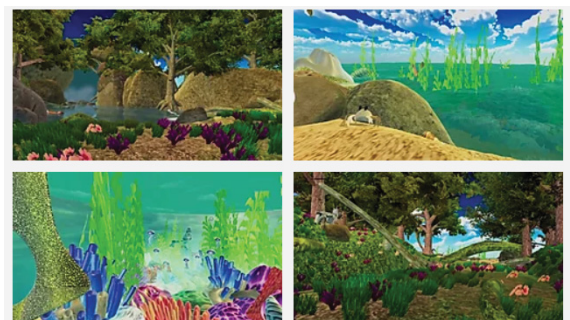
This is very near and dear to me. When I was younger, I was diagnosed with a chronic autoimmune disorder. It has been something that I have dealt with my whole life. This is not meant to complain, but to push my passion to spread the advantages gardening can provide. I am no stranger to the doctor's office. My life has been full of figuring out which vitamins I need, what hormones I am not producing, how that may harm me, etc. My doctors have always suggested getting out and exercising, eating healthy foods, and going out under the sunshine more often! It was not until recently that I realized the importance of this advice.

Ever since I started gardening, my mood and health has improved significantly (I even have blood work to prove it). Getting out in the sun, focusing on the health of my plants, and working with my garden has made me feel healthier and stronger. It not only helped me physically, but mentally as well. And, it only made my passion for gardening grow stronger.

As I was researching, one of the most fascinating facts I came across was about a bacteria that lives in soil called *M.vaccae* (Dabney). As one touches the soils, this common bacteria increases the levels of serotonin in the human body. Serotonin is the hormone that stabilizes mood and happiness. Especially in the midst of Covid, I believe that inspiring others to garden can provide a therapeutic outlet for those dealing with quarantine depression.

Previous Projects

One of the previous projects I created was called *Exploration: A Virtual Experience*. This piece explored the idea of using a 3D environment that viewers can roam and learn informational facts about certain organisms in a forest, coral reef, and beach. Viewers were able to walk through the space as they pleased and experience a relaxing digital outdoor environment. It was mostly geared towards a younger



audience, but to my amazement audience of all ages were able to find satisfaction throughout the digital spaces. It was within this project that I found my artistic niche.

There is a distinct style of aesthetics and open world exploration. I tend to use very bright and lively colors in my work. I find that by doing this, viewers appreciate the space more in terms of digital outdoor worlds. This was one of the first projects that I implemented some type of interaction with the viewer and the objects in the scene. This included less text based objects in my environment, as it proved to not be a successful visual cue. Audio is an important component in guiding viewers through an experience without blatant instructions.

At the start of Covid, I constantly thought about everything that was shutdown, especially parks. When you adore hiking and the outdoors, how do you deal with no accessibility to the places you love? I started thinking about how I can find my relaxation space in a world of isolation. With this, I came up with the idea of creating a digital hiking experience.

This project continued to expand on these ideas of interaction between the user and the



space. *Sounds of Nature* is a virtual experience that provides viewers with the opportunity to create their own soundtrack as they stroll through a virtual hike. The audio drives most of the piece. I intend for the aesthetic to welcome viewers into a digital forest that will allow them

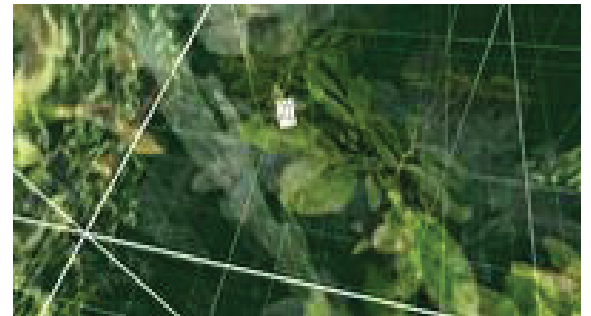
to enjoy the surrounding elements. They are able to do this by clicking on the sign for each sound they felt to be relaxing. It could be one sound or all. It was during this project that I realized giving the viewer more options to freely use the digital space was successful.

The project also allows those who were not able to go outside and hike the opportunity to hear the wonderful sounds of nature as they please in a digital landscape. It is meant to be relaxing while providing a space that reminds viewers of the outdoors during the time of quarantine. The audio drives most of the piece, however, the visual style creates a delightful walk through a digital forest.

While creating my previous project, I solidified my aesthetic of combining audio from the natural world, realistic animations of flora and fauna as well as water moving through the landscape, bright colors and textures, and open world maps. Throughout these two projects, I have maintained a consistent intention: to inspire more people to get outside and enjoy the natural world around them.

Artistic Influences

I have three main artistic influences: Char Davies, Paisley Smith, and Auriea Harvey. I am inspired by their aesthetic, innovative ideas within digital spaces, and artistic narrative. Char Davies's *Osmose* is a VR experience. She is inspired by natural elements that are



blended into a digital world. When the viewer breathes in they go up in the world and as they breathe out they descend. In this way, she uses breathing as a technique for movement in the digital landscape which enhances the full body component

of Virtual Reality.



Paisley Smith's *Unceded Territories* is a VR experience. One of the elements I love most about her work is the abstract and almost cartoony use of shapes and colors. Smith provides the player with a wand with which they change the tree textures from realistic to a

cartoony aesthetic. She uses these interactions between the user and the space to visualize important issues such as climate change and colonization.

Auriea Harvey's *Endless Forest* is an online multiplayer experience where players can interact with other players in a magical forest as deer. This combines a unique digital landscape, along with an interesting virtual type of communication. By putting the player into a deer's body, they are able to become part of the mystical forest and interact as if it was their own space.

When building my own worlds, I look to these artists. Davies's use of innovative player

movement intrigues me and I aspire to create innovative techniques like hers. Smith's colors and texture are bright and colorful, which I enjoy and use in my own practice. Harvey's work is playful and creative, a technique I enjoy using within my own work.

Project Itself

As I was creating *The Joys of Gardening*, I found myself feeling a bit contradictory in my purpose for building this world. *A digital artist creating an experience to inspire people to not be in the digital?* That just did not make sense to me. However, the more I built and spent time with



my project, I found myself experiencing the same joy I feel when gardening outside. I grew to love my digital plants just as much as my physical plants. I felt as if my personality seeped into the digital plants as I was building them. Bringing the physical world into a digital landscape can have many benefits.

We all have screens in our pockets, living rooms, work, etc. They are all around us. So why not use this medium to the extent of its opportunities and possibilities.

One of the reasons I have always created the natural world in my projects is because the digital world is an artist's oyster. To create a world from scratch means endless opportunities. The program I used to create this project is called Unity. It is a vast virtual world-building software with a variety of 3D building tools that one can find in other 3D software but Unity also allows one to add C# code. The program offers pre-made C# scripts as well as an environment to create one's own code. By creating natural landscapes, artists can bring an inaccessible area into one of the most accessible places for most.

Another major benefit in the world of digital landscapes is the opportunity to create relaxing spaces that can aid in the effects of mental health. Whether it is depression, anxiety, addiction etc. relaxing immersive experiences can provide many positive benefits. It



Another major benefit in the world of digital landscapes is the opportunity to create relaxing spaces that can aid in the effects of mental health. Whether it is depression, anxiety, addiction etc. relaxing immersive experiences can provide many positive benefits. It provides an opportunity to step out of a world that is causing pain, into a world that has none of that pain. One of the reasons I love creating virtual worlds is because of the opportunity to experiment with this type of visual communication.

This can be seen in *The Joys of Gardening* experience. The project is a virtual experience allowing viewers to roam around a garden maze. Spread throughout the maze are multiple viewing stations that display videos of our gardening experience during quarantine. These are an important elements of the project as they show the connections and happiness our plants brought us and continue to bring us. There are also multiple attractions for the viewer such as a greenhouse, a fountain, and a gazebo.



One of the parts of gardening that I mentioned previously is the community it creates. One of the videos that are available to watch documents our neighbor Kathy gave us our first plant. Kathy has been our plant grandma ever since. It is these types of personal interactions that I want to share with

others. Many of the videos have snippets of John and I when we are around the garden. They make me smile so I put them in. These videos remind me of scrolling through my phone and finding joyful moments of gardening. I find that these videos successfully blend the digital space and the physical space in a cohesive way.

As the viewer goes throughout the piece they can see the butterflies fill the space and create a lovely and lively atmosphere.. Butterflies, as pollinators, are vital to a garden thus it was important for me to





gardening addiction, so we built a greenhouse on our patio. Building our greenhouse, not only taught us more about caring for our plants, but brought our neighborly community together. It was a significant moment during our time in isolation, which is why I replicated a digital

version of our greenhouse.

As the viewer explores the maze, they will come across an area with our replicated greenhouse. When they approach the door, the viewer is able to enter the space as butterflies guide them to seed a tomato plant and watch it grow.

Here is where I expanded the player's visual interaction. I programmed the interaction as follows. When the player enters the greenhouse, the butterflies fly to and land on a table, indicating there is something special there. On the table the player will see a pile of seeds. Once the player clicks the seeds, a bucket of water appears. The butterflies now fly to the water bucket.



Once the player clicks the water, the butterflies fly to a planter filled with soil. If the player clicks the soil, the tomato plant will begin to grow. Watching a tomato plant grow in our garden was awe-inspiring. I never thought a plant could be so beefy. As I explored utilizing this interaction, I expanded my understanding of visual communication in a 3D environment and hope to continue to build upon it in future projects.

Another major element to this piece is audio. Just like my Sounds of Nature project, I feel as if audio is very important in bringing a digital landscape to life. The sounds of birds chirping



allow for a serene and peaceful stroll through the maze, inviting you to escape into the surroundings. You may notice this as you approach the gazebo later on in the piece.

The garden maze also has elements of previous projects in the way the map works. Viewers are free to roam around and explore. Maybe they get lost and come across a different attraction; maybe they just want to watch the videos. The idea is that it is up to them to use the space as they please, just like the butterflies. I think creating a maze added a great component to this piece and I will continue to use this tactic in the future.

In another part of the map, there is a gazebo with a relaxing fire to enjoy. There are vines climbing throughout the structure. Surrounding the gazebo is a pond containing koi fish.



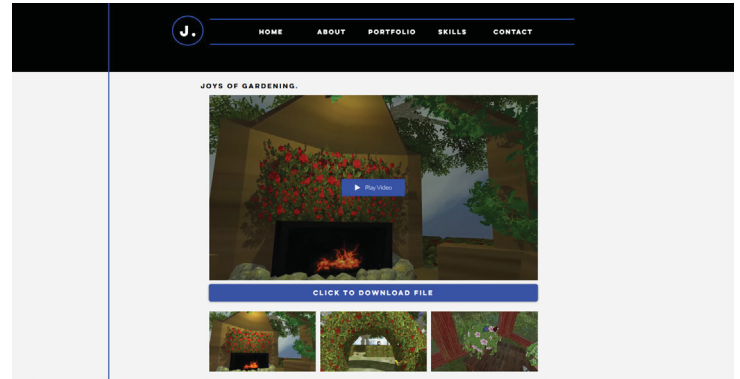
Here I chose to use lively colors to make the space feel warm and sunny. Which is the last element I would like to bring up. I believe that the lighting is comfortable and calming. The dynamic shadows add an element of liveliness to the piece. If you look closely you can see the shadow of the leaves waving on the ground. At moments, shadows of butterflies and birds will glide across the video projections. Once again, blending the digital world with the physical. The videos become part of the virtual world around them.

Going Forward

Creating this project not only made me fall in love with my digital space, but gave me the opportunity to explore the potential of varying the digital landscapes and the chance to test a range of visual communication methods. I believe that a digital space can be just as relaxing as a physical space. This provides a lot of opportunities for growth in the art space. What potentials can a digital landscape provide as this medium continues to progress?

As the viewer ends their experience in the garden, my hope is that this digital landscape will provide players a space to enter on their worst days and even to make their best better and come out feeling a sense of joy. That is what it has done for me and my only hope is to share that experience with others.

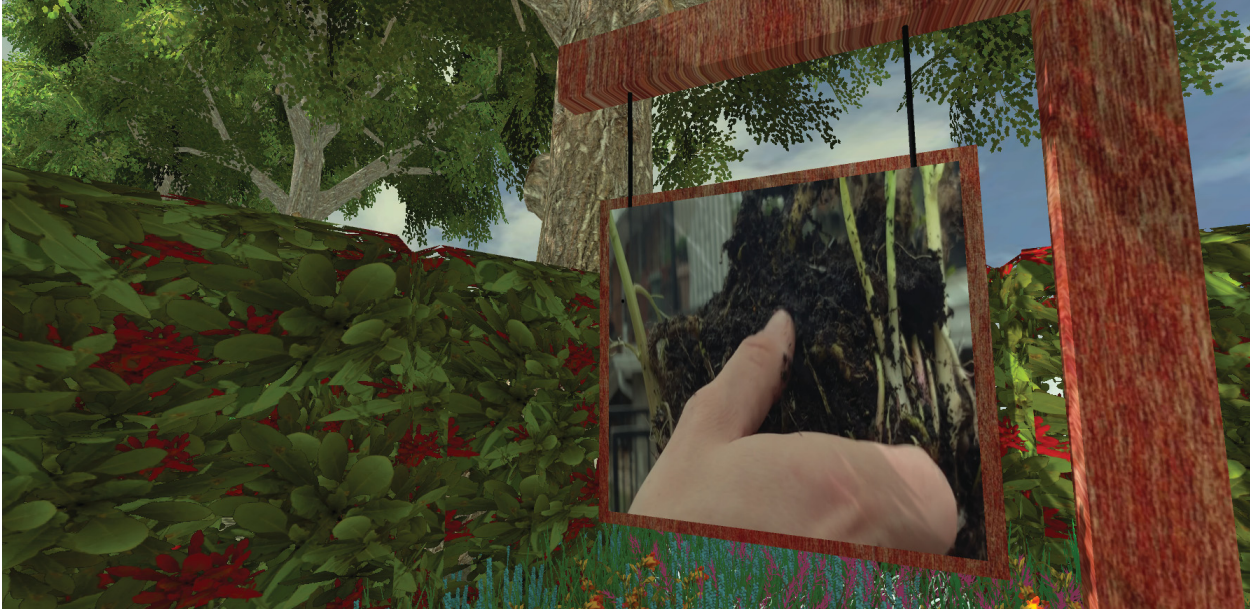
Going forward I will continue to develop innovative ways of building visual and digital communication through meditative spaces. After all, we live in a digital world. I do hope to create more accessible environments for those who do not have frequent and easy access to the natural world. This piece was originally supposed to be in VR. But due to lack of equipment accessibility for viewers it was not ideal. Because of this, the project was documented with videos on a website.



Viewers who are able to download the file are able to do so on this website. In the future, I hope to build these digital spaces for VR immersion as well. I also hope to make these digital projects more accessible. And lastly, to continue to do what I can digitally and physically to spread the joys of gardening. If one person is inspired, then I have done my job.

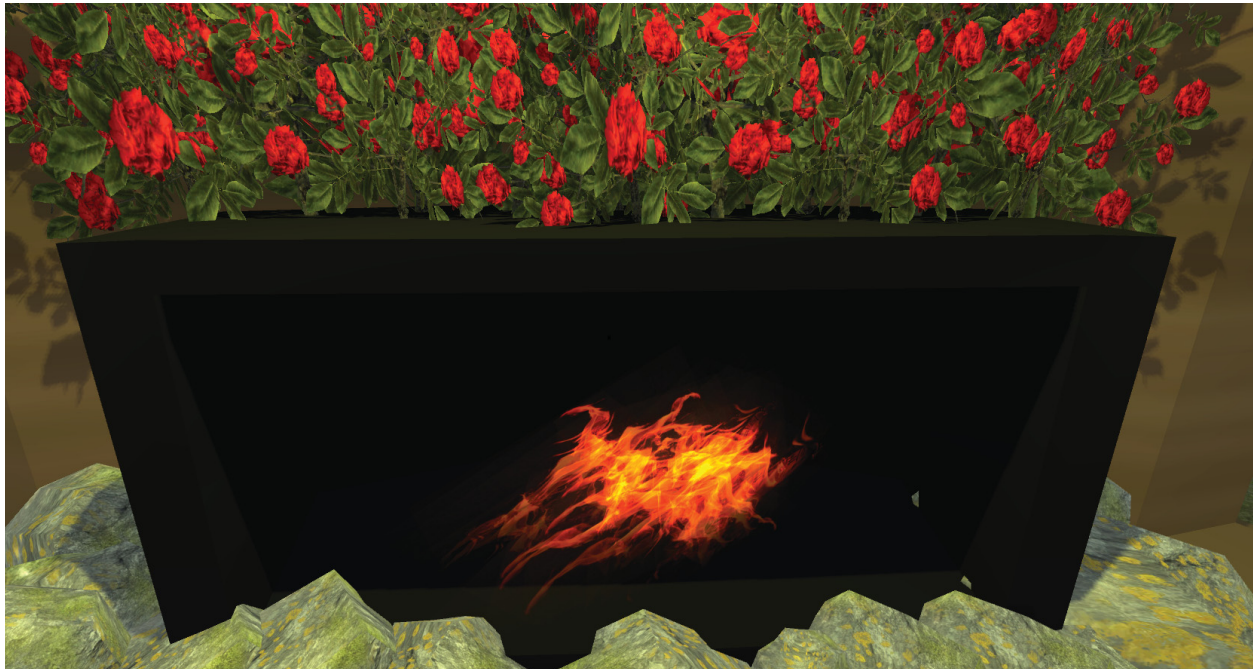
Photo Documentation

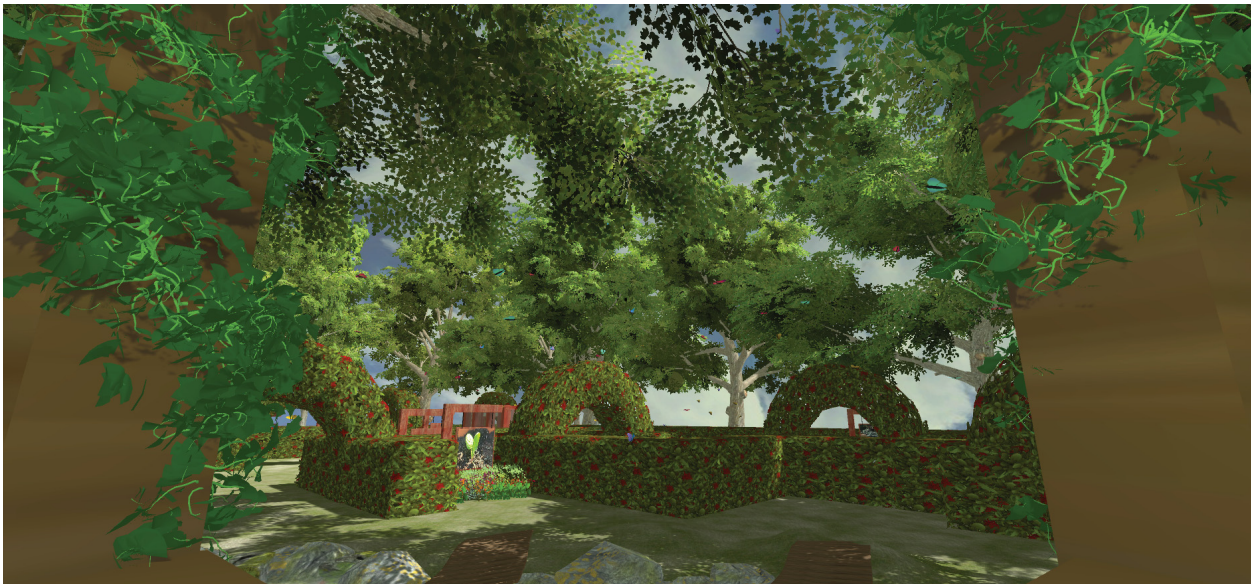
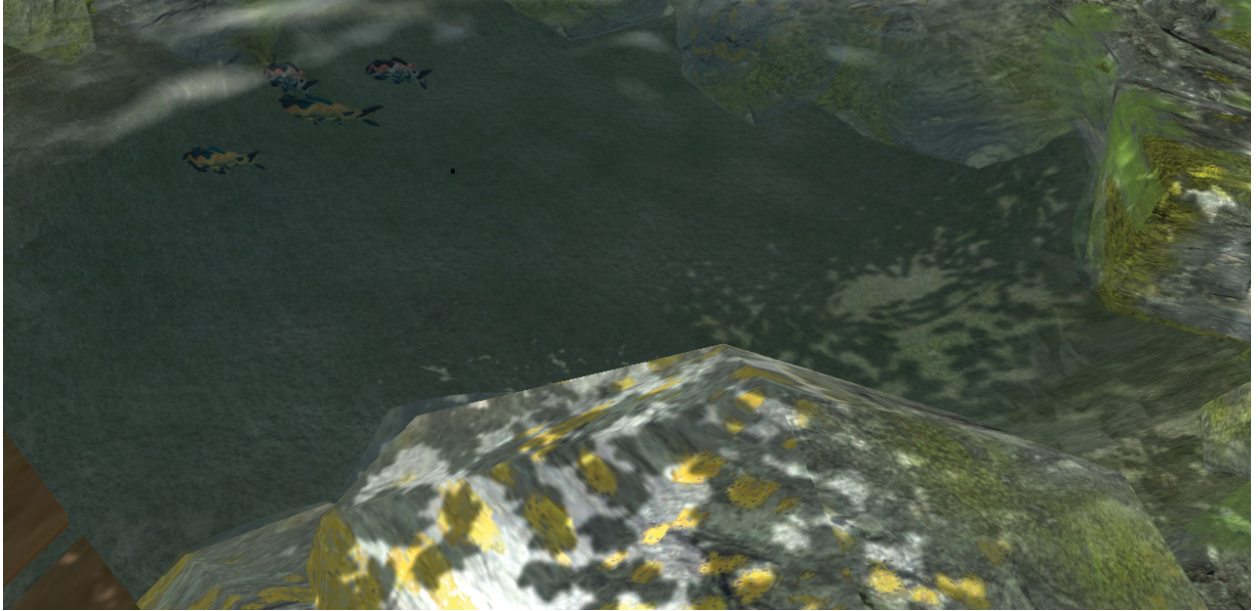












Final Website

<https://www.jshahstudio.com/thejoysofgardening>

Final Project Download

<https://jrshah.itch.io/the-joys-of-gardening>

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Appendix A: Unity Assets:

Generic Terrain Brushes

Grass Flowers Pack Free

Mountain Creek

#NVJOB Simple Boids (Flocks of Birds, Fish, and Insects)

Ornamental Flower Set

Standard Assets

Terrain Tools Sample Asset Pack

Yughues Hedges