

# Environment Design Lab

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## OVERVIEW

In this lab, you are designing an environment, or background, for a 2D infinite side scroller game. The purpose of this lab is to have practice in making art assets that establish an atmosphere for a game. Additionally, your piece should be layered to create an illusion of depth (parallax effect)

## PARALLAX EFFECT

The parallax effect is created when the background moves slower than the foreground. This is accomplished through having multiple layers to a background and can look like this (**Fig. 1**):

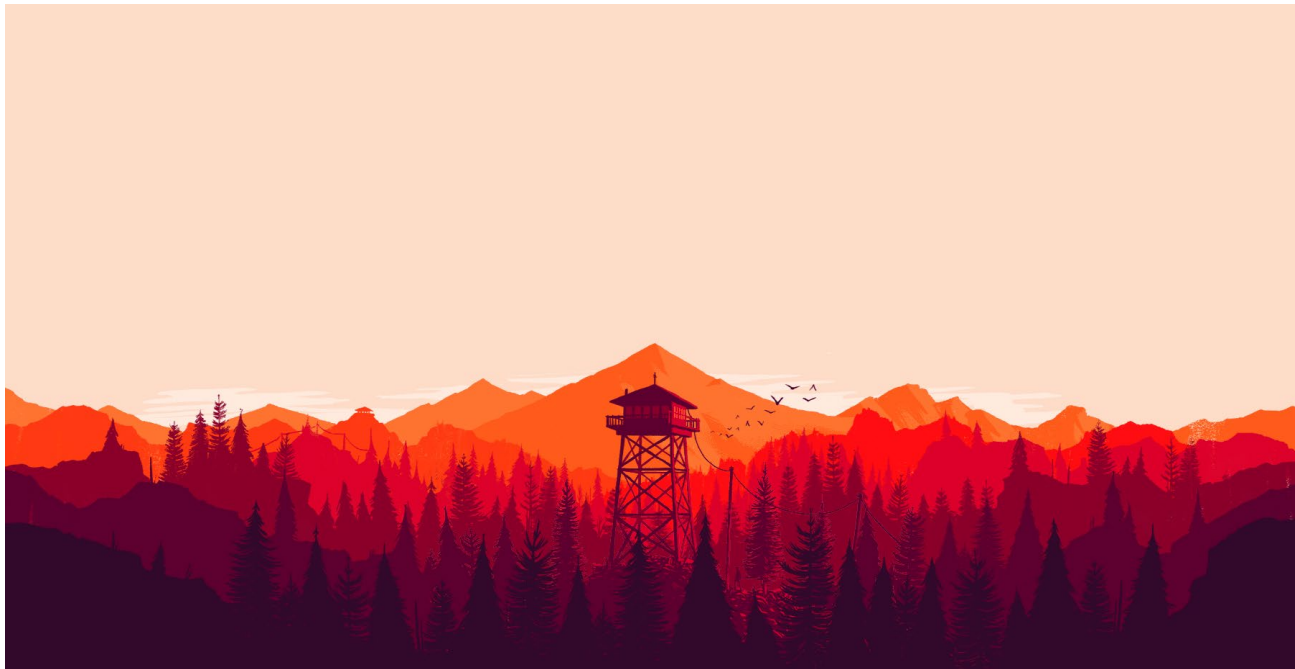


Fig. 1

In order to create depth and the parallax effect, there are the different shades of orange/red with the darker colors in the foreground and the lighter colors in the background. This depth is what is trying to be achieved in this lab.

Please watch this video to understand the parallax effect completely: <https://www.youtube.com/watch?v=z9tBce8eFqE>

There are plenty of ways to achieve depth and a parallax effect. Below are some analyses of different game screenshots and how depth is created.



Fig. 2

Yoshi's Island. Depth is created through the foreground, the orange flowers and bushes; midground, the yellowish/orange field with white flowers; background 1, dark hills with green or pink pasture on top; and background 2, the light blue sky with clouds. In this screenshot, there is the use of scale and shades to create depth. The orange flowers in the foreground are the size of yoshi and baby mario. The hills in background 1 are still big, yet the midground field is bigger in size and detail. Additionally, the hills are staggered

to overlap with the lighter part on the right side in front of the darker part on the right creating more depth. Background 2 contrasts the dark hills with a light blue creating more depth with that contrast.



Fig. 3

**Fig. 2** highlighted to differentiate the foreground (red), midground (green), and background (yellow).





Fig. 4

Ori and the Blind Forest. In this screenshot there is the foreground, the dark flower and rock tower shapes that are out of focus; midground, the brighter grassy pathway where ori (the white spirit) is at and is more detailed and in focus. Directly behind ori there is a cavity that uses the layers of the tree with lighter browns closer to ori and darker browns further from it. This is the opposite of **Fig. 1**. Yet on the right side of the tree there is the fade from the brownish green to the teal green like **Fig. 1**. The use of different

shades of color creates depth in this screenshot. Also, the interruption of the smooth transition between shades of color, like on the left side of the tree, creates a strong contrast and depth.



Fig. 5

**Fig. 4** highlighted to differentiate the foreground (red), midground (green), and background (yellow). Includes focus on the door, shading, and interruption of smooth transition.



Fig. 6

This piece exemplifies what is trying to be accomplished with this lab. There is the foreground with the arrow, the midground which contains the islands across the picture, and the background with large focal elements. Additionally, the background follows the general rule of being less detailed. Contrast of colors is the most prominent feature creating depth in this picture.



Fig. 7

**Fig. 6** highlighted to differentiate the foreground (red), midground (green), and background (yellow).



## HOW TO EXPORT FOR UNITY

For photoshop, got to File>Export>Layers to Files... (**Fig. 8**). Then in the pop up menu, change File Type to PNG-8. Photoshop will export each layer as a separate file and this is perfect for unity.

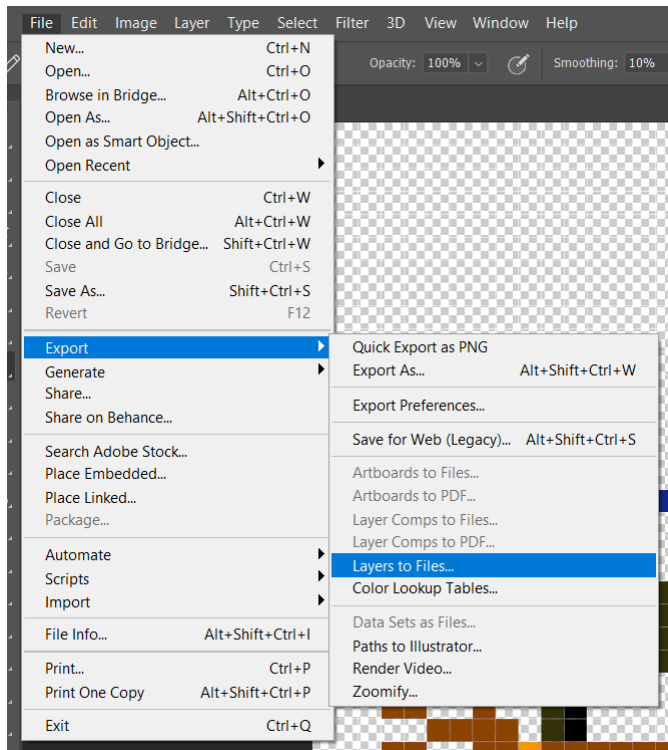


Fig. 8

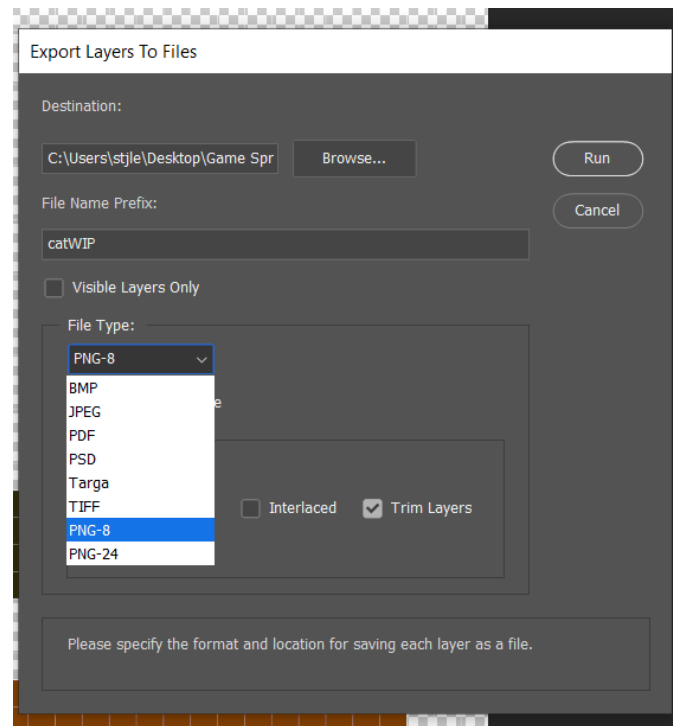


Fig. 9

## TIPS

- Objects of focus should contrast to what is behind it.
- Contrast, by color and/or outline, should be used in between layers of the environment to create depth.
- Each component of the environment (foreground, midground, background) has to be on different layers, otherwise you will not be able to export it (see below).
- MORE IN FOCUS MORE IN DETAIL, LESS IN FOCUS LESS IN DETAIL

## THEMES

Here are the themes of the lab: cyberpunk, fantasy, nature, or apocalyptic

Choose 1 (or more) and create a background that fulfills the check off list.

Essentially, you are making an environment to a scrolling 2D platformer.

## CHECKOFF

- ☐ Panoramic, extending left and right
- ☐ Have the background be able to be repeated, like in an infinite runner game
- ☐ At least 1 large focal element, like the watchtower in **Fig. 1**, or the skull on **Fig. 6**
- ☐ At least 2 foreground elements, like the flowers in **Fig. 2** or **Fig. 4**
- ☐ Have a depth of at least three layers (background, midground, foreground) to create a parallax effect