Breda University of Applied Sciences

BEST PRACTICES BASED ON EXPERIENCE:

LIGHTING

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Introduction

This document essentially contains practical recommendations given by people with experience in lighting for virtual production shoots. The information is split up into different sections, the overarching themes are named in the colored headings. These practices are meant to help students with lighting their set, hopefully able to remind them of small things that are easily forgotten or not thought of in the first place.

This document is part of a capstone research report, the research being about finding a technique to best match the physical lights with the virtual lights at the XR Stage at BUas. Interviews with industry experts and conversations with other people with experience led to the realization that there were a lot of insightful suggestions. Given my conviction that acquiring a comprehensive understanding of those practical recommendations would benefit the process of lighting design for students during virtual production projects, I created this document.

Unreal Engine

- **You can manipulate your virtual light sources by using flags** just like you can do with your lights on set. You can do this by using a cube and making it an absolute black material. This will ensure that it will not reflect or allow any light through and can make your light only hit specific items in your virtual environment if that is what you're aiming for.

- **Add as little lights as possible**, move them around and manipulate them before you add more. Too many light sources can cause interference and will cause errors in your environment.

Light Spill

- **Never point a light directly at the screen.** When you set up a light, there is a big chance that there is light spill on the LED wall. Light spill can make your image on the wall look greyish or washed out. To check whether you have light spill, you go to Helios on the computer and on the bottom left there is a button called Blackout. When you press this, the wall will turn black, and you will be able to see the light on the wall. If you have multiple lights present on set, you will want to check them one by one to see what effect they have. **To get rid of or at least minimize the amount of spill on the wall, you can set up c-stands with black flags next to the light to block the light from spilling.**

Color Temperatures

- **Matching the color temperatures is incredibly important.** Something that can be useful in achieving this is DMX.

- **If you don't know what the color temperature of a certain light source would be, look it up instead of guessing.** Using the color temperature that that light source would have in real life will help with making your scene look more realistic.

Lighting Set/Actors

- **Focus on light hitting the short side of an actor's face and wrapping it around.** You can do this by starting with a harder light and placing a softer light next to it, which will wrap the light around your subject.

- **Harsh shadows on a person's face are rarely flattering.** Unless it truly makes sense with the place of the scene/the amount of life, soften your lights by placing white flags in front of them or make use of filler lights to fill some of those harsh shadows.

- If you're using hard lights, you have to keep in mind that it is more difficult in LED volumes due to the diffused light from the screen.

- When you're **struggling to figure out what the lighting in a specific situation should look like**, for example how light would look like through a window of an old building, try to visit a similar real location to just look at what light naturally does. This will make replicating that easier, and your shot will look more realistic.

- **Break it into pieces**: Look at what each light does individually to your set and change it accordingly before adding more and more.

- **Blending the virtual and physical is one of the most important things to make your scene look realistic**. Achieve this by placing your physical lights at a similar angle as your lighting in Unreal Engine and preferably at the same color temperature.

Camera

- If you're figuring out your lighting setup, always **check how it looks through the camera or on the monitor instead of directly looking at your scene in front of you**. A camera sensor perceives light, and colors differently than the human eye does and since your final footage will be shot with the camera, it's important that it looks best through the camera's view.

- **If you have a scene where it is supposed to be dark, you should still light your set properly**. Instead of minimizing the number of lights, try changing the t-stop (aperture) on the camera to a higher number. This can prevent moiré and that your footage turns out to be too dark. It's always easier to darken it in post-production than to attempt to make it lighter.

LED Wall
- **The LED Wall should not be your main source of lighting**. If you only use the ceiling and wall to light a person, they will have a reddish or pinkish color because the LED wall has a narrow color spectrum only with peaks in the colors red, blue and green. - To **change the brightness of the wall**, you can go to Helios on the computer and on the bottom left there is a button named 'Image Settings'. In there you can easily adjust the brightness of the wall.