Light & Shadow AR App

A photo lighting workshop in Augmented Reality

Paulo V Majano
Kwantlen Polytechnic University
paulov@live.ca

ABSTRACT

The Light and Shadow App is an immersive photography studio lighting workshop in Augmented Reality. The App allows photo enthusiasts to virtually step into a full-size photo lighting studio and visualize the placement of studio lights for portrait photography in three dimensions. With the Light and Shadow App, users can use smartphones or iPads, and Augmented Reality, to move around the photo studio scenes and study the position of lights from different points of view. The App was originally developed for university level photography students at Kwantlen Polytechnic University during the covid-19 restrictions of 2020 and 2021 when in-person learning was not possible. The goal of the app is to recreate the learning environment of the photo studio and allow students to visualize the effect of lighting on the portrait in an interactive and immersive format.

CCS CONCEPTS

• **Applied Computing**;

KEYWORDS

virtual learning, augmented reality, photography, portrait photography, lighting

1 INTRODUCTION

During the pivot to remote learning brought on by Covid -19 restrictions and lockdowns students at all levels faced challenges such as isolation, disruption of access to learning spaces, and the need to learn courses at home. Traditionally, the photography classes I teach at University level include a section on studio lighting for portrait photography taught in person in a photo studio. I developed the Augmented Reality App Light & Shadow to give my students the option to use their smartphone or iPad as a camera that allows them to look into a virtual life size photo studio to study the effect of different light setups on the portrait subject.

1.1 The in-person learning environment

The in-person learning environment of the photo studio provides a space where students can see the effect of different light setups on the portrait subject directly. The photo studio allows students to see the entire portrait lighting scene and move around it to study it from different angles. The photo studio also lets students interact with the lights directly and try the setups themselves. The ability to see the entire scene, and the relationship between the lighting and the portrait subject, is useful in order to judge distances and light intensity needed to achieve different types of light effects on the portrait. The in-person learning environment provides an immersive space where learners can see the lighting setups from different points of view, and it also offers the possibility form interactivity, as students practice moving the lights around to create different types of portraits and view the scene from afar or focus on the portrait and the face. The Augmented Reality App Light and Shadow was developed to bring some of these aspects of in-person studio lighting lessons available for those working in a home learning environment.

1.2 Visualization in Augmented reality: Learning with an AR photo studio

Making use of Augmented reality and smartphones and iPads as teaching tools, the Light and Shadow App provides a learning option that aims to recreate some of the immersive and interactive aspects of the actual photo studio for those learning on their own. The App uses 3D objects and a 3D scanned portrait model in an Augmented Reality virtual space that allows for visualization in the round. Using the App with a smartphone or tablet, users can step into a full-size portrait lighting studio workshop anywhere they are. Users can learn about light placement for portrait photography by physically moving around the virtual portrait studio and visualizing the relationship between the portrait subject and the placement of lights. There are nine lighting setups showing the use of one or two lights for portraiture. Each scene includes a text panel describing the light set up and the typical use of it in portrait photography. Originally developed for university photography students at Kwantlen Polytechnic University in Surrey, BC. Canada, the Light and Shadow App is available in the Apple App Store for free to everyone with an interest in photography and portrait lighting.
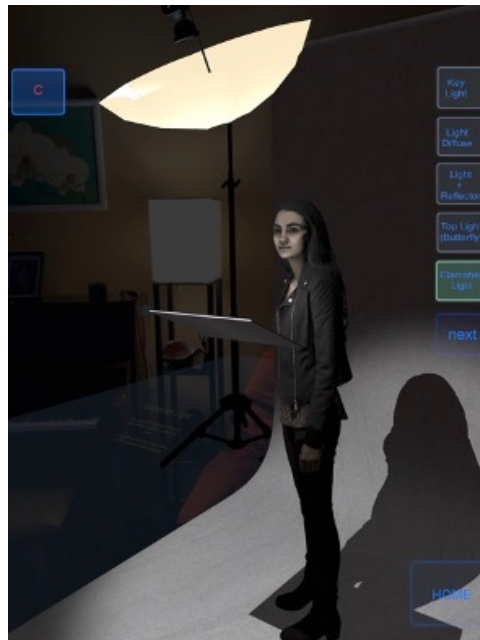
1.3 Figures

Figure 1: Screencapture - iPad view of Light & Shadow Augmented Reality App. Black and White mode.

Figure 2: Screencapture - iPad view of Light & Shadow Augmented Reality App. Color Scene Mode.