

Wilberforce Colorblind Effect

Introduction

Colorblind Effect (CBE) is a Fullscreen Camera Effect for Unity 5 (5.4.0 or higher)

You can buy Colorblind Effect at [Unity Asset Store](#).

- Three most common types of colorblindness
- Simple setup and control
- Compatible with all Unity rendering paths (Forward, Deferred and Legacy) and anti-aliasing
- No perceptible performance hit

Up to 8% of men (and about 0.5% of women) are affected by some type of color vision deficiency. This plugin lets the designer see how is their game perceived by colorblind people.

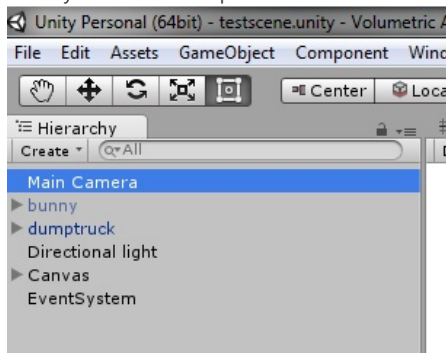
Contact us at projectwilberforce@gmail.com for additional support.

Requirements

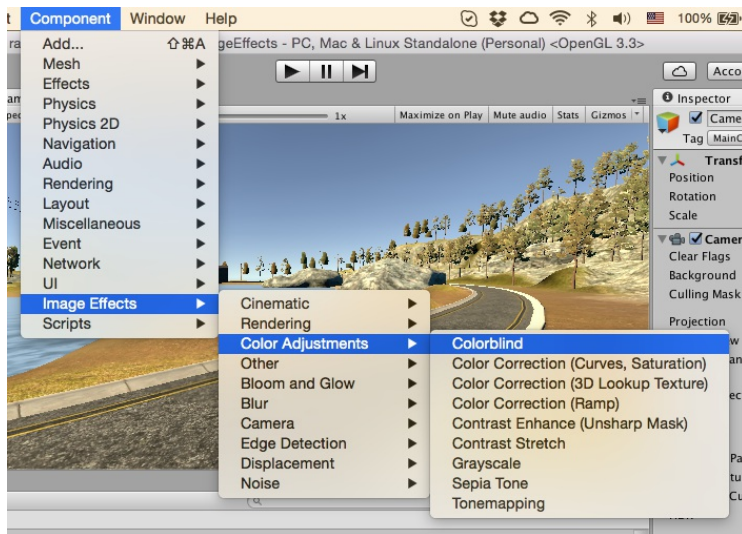
- Unity 5 (5.4.0 or higher; all editions including Personal)
- Shader Model 3.0:
NVIDIA cards since 2004 (GeForce 6)
AMD cards since 2005 (Radeon X1300)
Intel cards since 2006 (GMA X3000)
- Works on desktop platforms: DirectX 9.0c and higher, OpenGL
- Windows, Mac, Linux

Installation

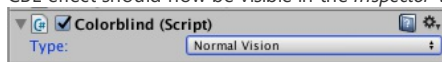
1. Import from Asset Store.
2. Select your camera component.



3. From *Component* menu select *Image Effects* -> *Color Adjustments* -> *Colorblind*.



4. CBE effect should now be visible in the *Inspector* window.



Human Vision

This section contains a brief overview on how human eye perceives colors.

Eye's retina is covered with two types of cells - rod cells and cone cells. Rod cells lets us see at low light intensities while cone cells work at normal light levels. Normally cone cells come in three variants - each sensitive to different wavelengths of visible light. One for long, one for medium and one for short wavelengths (which our brain then interprets as red, green and blue colors.) This means every color we see is in fact a mix of three basic colors perceived by our eyes - this is called trichromatic vision.

Colorblind people are however missing (partially or completely) one variant of cone cells - this means that their visible color spectrum is mixed from only two colors - reducing the number of colors they can see and making it hard for them to discriminate between certain shades and colors. This is called dichromatic vision and is natural for certain kinds of animals (e.g. dogs are dichromats.)

While it is very rare, more than one variant of cone cells could be missing - such person sees effectively in black and white (monochromatic vision.) Simulating this is not covered in our plugin as it can be achieved with common grayscale effect.

This plugin simulates three main types of colorblindness - Protanopia, Deuteranopia and Tritanopia (blindness to red, green and blue respectively)



Normal color vision



Protanopia



Deuteranopia



Tritanopia

Parameters

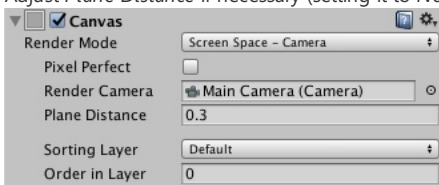
CBE plugin behaviour is controlled by a single parameter.

Type Lets you switch between normal vision and various types of color vision deficiency.

Unity GUI

To make CBE work on GUI assets:

1. Select your canvas
2. In canvas inspector - set the *Render Mode* to "Screen Space - Camera"
3. Set *Render Camera* to the camera component of your project
4. Adjust *Plane Distance* if necessary (setting it to *Near Clipping Plane* of your camera is the same as "Screen Space - Overlay" mode)



Contact Information

In case of questions or further issues, please contact us at projectwilberforce@gmail.com