BEAUTIFY

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Introduction

Thanks for purchasing!

Beautify is a full-screen image processing effect that improves the image quality in real time producing incredibly crisp and vivid scenes.

Beautify uses several intelligent algorithms in a single-pass resulting in a very fast image effect:

- Analyses local pixel contrast, enhancing visual features and producing sharp images.
- Reduces or completely removes banding in gradients, usually seen in sky boxes due to color quantization.
- Adjusts pixel saturation, boosting pixel color without over saturating the image.
- Factory presets or global effect slider, which takes care of all effect details in one step.
- Beautify implements several heuristics to prevent artifacts over edges or thin objects, like wires.

Beautify is very easy to use, just add the image effect to your camera, choose a preset and that's all.

It works with forward and deferred rendering paths as well as linear and gamma color spaces.

Two shader variants are included, one optimized for speed.

Demo Scenes

Two demo scenes are included to quickly play with the different presets.

Quick Start

1. Add the Beautify script to your main camera in your scene.

2. Choose one of the preset and that’s all!

You can of course customize any of its parameters to match your game mood and requirements.

Beautify parameters

General Settings

- **Quality**: chooses the shader variant. The “Best performance” variant uses less texture fetches and includes some extra optimizations which results in a faster performance with less accuracy making it suitable for mobile devices (real performance depends on device GPU power and the number of enabled effects).

- **Preset**: quickly choose a factory combination of values for the parameters below.

- **Compare Mode**: shows a side by side comparison of Beautify effect.

Image Enhancements Options

- **Sharpen**: sharpen intensity. A higher value will produce a dramatic result but can show some undesired artifacts with thin objects or whitish backgrounds. Use the following extra settings to control those artifacts:
    - **Min/Max depth**: allows you to choose the depth range where sharpen will be applied. Decrease max depth to remain skybox untouched. Increase min depth to cause an effect similar to depth of field.
    - **Max Depth**: will compute depth difference around pixels to detect edges. When the depth delta is greater than this value, sharpen will not occur. This will protect thin objects like standalone wires or lines.
    - **Luminance Relaxation**: sharpen is more subtle on high contrasted areas. This parameter tunes this relaxation. Reduce this value to preserve thin edges or bright areas.
    - **Clamp**: irrespective of sharpen intensity or above params, clamp controls the maximum effect applied over a single pixel.
    - **Motion Sensibility**: reduces sharpen effect while camera moves/rotates. This option can reduce flickering and produce a cheap motion blur effect. Set this value to 0 to disable this option.

- **Dither**: dither function shifts pixel RGB values according to a pseudo-random pattern to reduce banding.
    - Min Depth: by default, dither is applied to entire image. Use this parameter to make dithering only occur beyond given depth (set this value near 0.99 to make it only affect sky).

Color Grading Options

- **Vibrance**: controls the intensity of adaptative saturation. This algorithm takes into account current saturation of each pixel, so low saturated pixels receive more importance than high saturated pixels.

- **Tint**: multiplies scene pixels by a given color. Alpha controls the transparency of the tint effect.

- **Daltonize**: similar to vibrance but mostly accentuate primary red, green and blue colors to compensate protanomaly (red deficiency), deuteranomaly (green deficiency) and tritanomaly (blue deficiency). This effect does not shift color hue hence it won't help completely red, green or blue color blindness. The effect will vary depending on each subject so this effect should be enabled on user demand..

- **Contrast** & **Brightness**: these two paramters adds a final contrast + brightness adjustment to the image.

Extra FX NEW!

This section contains several optional visual effects. All of them are optional meaning that if disabled they won't make the shader slower. You can also combine many of them to create very nifty results!

- **Vignetting**: darkens or tints with a custom color the border of the scene. The alpha component controls the effect intensity. This effect can be combined with Night Vision or others to add great depth and special feeling to your scene.

- **Bloom**: produces fringes of light extending from the borders of bright areas, contributing to the illusion of an extremely bright light overwhelming the camera or eye capturing the scene. Use intensity and threshold (light sensibility) to adjust bloom effect.

- **Frame**: adds a white or colored border to the screen. The alpha component controls the size of the border.

- **Outline**: adds a white or colored border around objetcts in the scene. The alpha component controls the edge detection threshold.

- **Sepia**: creates a classic sepia color effect! Simple but elegant.

- **Night Vision**: the night vision effect will allow you to see in complete dark. You can customize the color (greenish by default) and the luminance using the alpha component of the color picker. This effect is completed by noise and scan line effect. Works great with vignetting enabled (set a black vignette with an alpha of 32).

- **Thermal Vision**: this effect is similar to night vision but just shift color hues to simulate termal sensitivity. It also distorts the image to give the impression of temperature. This effect is also completed with noise and scan lines.

- **Lens Dirt**: adds dust and dirt effect to your camera when looking to a light source. You can control the intensity and the brightness threshold (brightness sensibility). If you want to use different dirt textures, just assign your own texture into the Dirt Texture slot (two sample textures are provided in this asset inside the Textures folder).

FAQ

Can Beautify work with other image effects?

Yes – however you need to experiment with image effects order. Beautify works better after Tonemapping and before Antialias. It can work alone as well.

A typical effects stack would be:

- **HBAO / SSAO**
- **Tonemapping**
- **Beautify**
- **Antialias (SMAA preferred)**

If you use Antialias experiment with different order, for example, before and after Beautify. Depending on the antialias algorithm, the resulting effect may dramatically vary.

Skybox banding is not completely removed. What can I do?

Enable HDR in your camera to improve dithering effect and banding removal.

What differences exist between the mobile and desktop quality?

Beautify includes two shader variants – one for desktop with all the goodies and best algorithms and one for mobile.

The mobile version has reduced quality across the shader. It's a little bit less accuarate and bloom is implemented in a different way.

When I launch a build, it takes lot of time to complete. What can I do?

Bautify shaders make use of multi_compile options to ensure only the useful code in shaders are included. Multi_compile are directives that are included in the .shader files that make the compiler create different variants for each shader, mixing different shader options in each variant. This way,

when you enable one option or another (eg. outline, night vision, …) Unity will pick up the appropiate variant which has optimized code for that combination of features.

To reduce the build time, just edit the .shader files and locate the lines starting with #pragma multi_compile and remove the keywords corresponding to features you're not using. For example, if you don't use the frame feature, just remove the line #pragma multi_compile FRAME.

As you remove unused keywords, the compiler will generate less shader variants which reduces build time and resulting binary size.

Support

Please visit kronnect.com for questions, support and more info.