

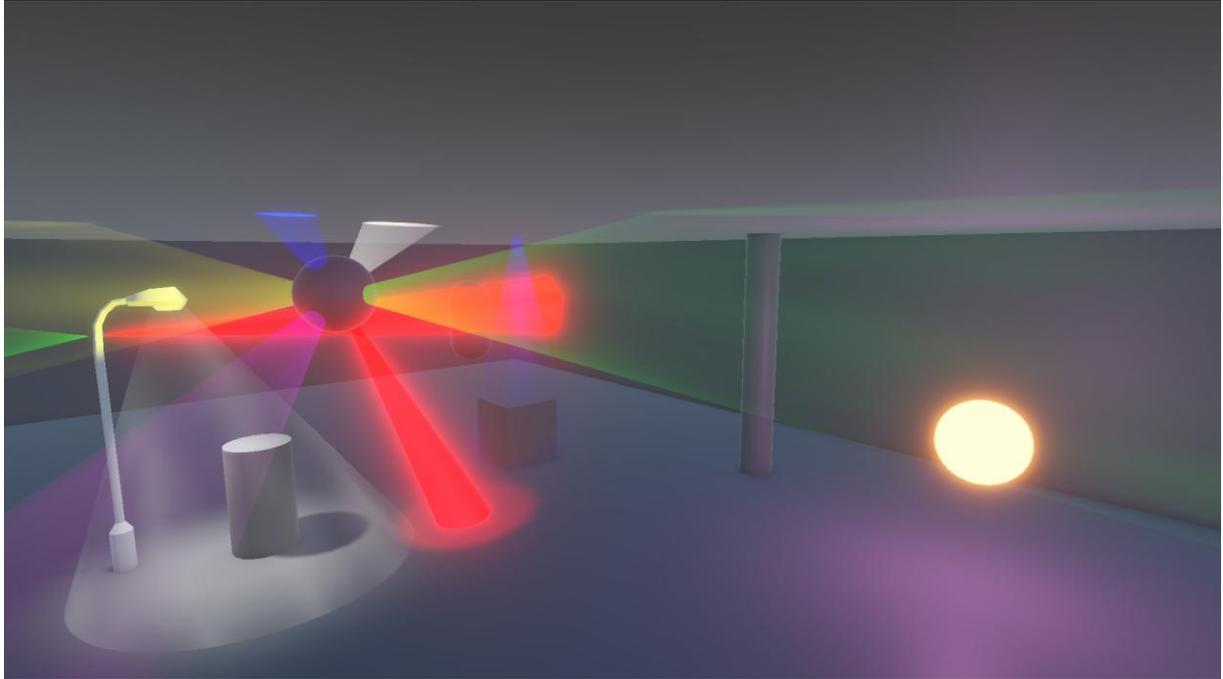
Light Beam System

Cone & Sphere Light – Ultimate Volumetric Toolkit

by TEAM VICTOR & BORIS ☐

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2. INTRODUCTION

Welcome to the Light Beam System!

This toolkit lets you create dynamic, stylized and realistic volumetric light beams in Unity, with real-time mesh & material preview, powerful shader customization, animated effects, and full preset management.

With the included ConeLightSystem and SphereLightSystem, you can easily create torches, headlights, disco lights, projectors, neon tubes, sci-fi effects and more — all URP-ready and Asset Store ready!

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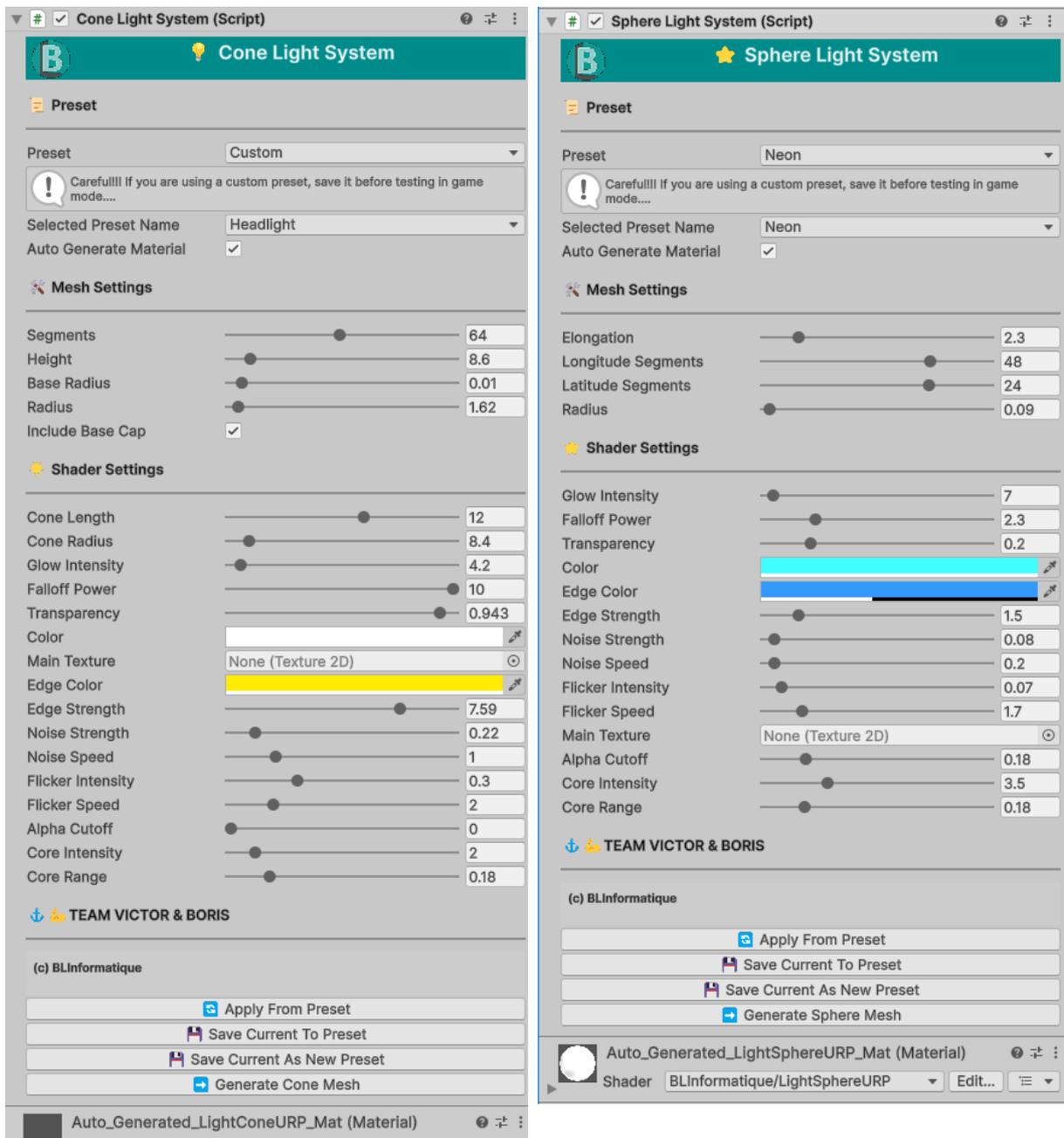
4. QUICK INSTALLATION

1. **Import all scripts, shaders, and the `BLInformatique.EditorTools` package** into your project.
 2. Drag a `ConeLightSystem` or `SphereLightSystem` prefab into your scene, or add the component to any `GameObject`.
 3. Optionally, create your own presets using the “Save Current As New Preset” button.
 4. For instant effect, select a built-in preset (Torch, Headlight, Projector, Neon) or use the Neon preset for a real “cyberpunk” effect!
 5. Tune all parameters live in the Inspector and hit Play to see the magic.
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5. INSPECTOR OVERVIEW:

Describe the interface:

- Mesh settings at the top
- Shader/appearance controls
- Preset management
- Custom color, texture, and animation sliders



6. PARAMETERS & TOOLTIP GUIDE

ConeLightSystem Parameters

Parameter	Tooltip / Explanation
segments	Number of radial segments used to build the cone mesh. Higher values give a smoother appearance but increase geometry.
height	Height of the cone mesh in Unity units. Controls the distance the light beam reaches.
baseRadius	Radius at the tip (base) of the cone, usually matching the lamp's opening diameter.
radius	Radius at the far end of the cone (the open side). Affects the spread of the light.
includeBaseCap	Include a bottom cap (disc) at the wide end of the cone mesh (helps with shadowing or visual closure).
coneLength	Virtual length of the cone for the shader effect (not mesh length). Adjusts how far the glow/falloff appears visually.
coneRadius	Virtual radius of the cone for the shader effect (not mesh radius). Controls where the falloff/halo appears.
glowIntensity	Strength of the cone's glow. Higher values make the beam appear brighter and more intense.
falloffPower	Controls the softness of the cone's light falloff. Higher = edges fade out faster, lower = smoother falloff.
transparency	Material transparency. 0 = fully opaque, 1 = fully transparent.
color	Color at the center of the cone (main beam color).
edgeColor	Edge (rim) color at the outside of the cone. Allows colored halos or stylized edges.
edgeStrength	Edge (rim) intensity/width. Higher values = harder, sharper rim; lower = smoother blend.
noiseStrength	Strength of the animated noise/flame effect within the cone.
noiseSpeed	Speed at which the animated noise/flame effect moves.
flickerIntensity	Strength of the flicker (scintillation) effect. 0 = stable beam, 1 = strong flicker.
flickerSpeed	Speed of the flicker/scintillation animation (Hz).
mainTexture	Optional main texture to apply as a pattern, gobo, or mask on the light beam.

Parameter	Tooltip / Explanation
alphaCutoff	Alpha cutoff at the edge of the beam. 0 = soft border, 1 = very hard cut (stylized spotlights).
coreIntensity	Boosts the luminosity at the center (core) of the beam for neon/laser effects.
coreRange	Relative width of the core/neon center (1 = wide, 0 = thin core).
preset	Choose a preset style: Torch, Headlight, Projector, Neon, or use Custom for full control.
selectedPresetName	Select a custom preset to apply all saved settings instantly.
autoGenerateMaterial	If enabled, automatically creates and assigns a new material with the correct shader when the script is added or reset.

SphereLightSystem Parameters

Parameter	Tooltip / Explanation
longitudeSegments	Number of horizontal segments (longitudes) used to construct the sphere. Higher values give a smoother appearance but increase geometry.
latitudeSegments	Number of vertical segments (latitudes) for the sphere mesh. Higher values give a smoother sphere but use more triangles.
radius	Radius of the sphere mesh in Unity units. Controls the size of the light volume.
glowIntensity	Strength of the sphere's glow effect. Higher values make the light volume appear brighter and more visible.
falloffPower	Controls how quickly the light fades out toward the edges of the sphere. Higher values = sharper, smaller core; lower = smoother, broader light.
transparency	Transparency of the sphere material. 0 = opaque, 1 = fully transparent.
color	Center color of the sphere's light.
edgeColor	Edge (rim) color for the outer halo.
edgeStrength	Edge (rim) intensity/width. Higher = harder edge, lower = smooth transition.
noiseStrength	Strength of animated noise/flame effect.
noiseSpeed	Speed of animated noise/flame effect.
flickerIntensity	Strength of flicker effect.
flickerSpeed	Speed of flicker effect.

Parameter	Tooltip / Explanation
mainTexture	Optional main texture/gobo/mask for the sphere's light.
alphaCutoff	Alpha cutoff/sharpness at the edge of the sphere.
coreIntensity	Boosts the luminosity at the center (core) of the sphere for neon/laser effects.
coreRange	Relative width of the neon core.
elongation	Stretch/elongation factor (1 = sphere, >1 = tube/neon bar).

7. PRESETS & STYLE MODES

Available Presets (built-in):

- **Custom**
Manual mode – every slider is user-controlled.
 - **Torch**
Flashlight/torch effect: warm, small radius, soft edges, gentle falloff.
 - **Headlight**
Car or train headlamp: bright, longer cone, white/yellow, sharper edge.
 - **Projector**
Projector or stage spotlight: wide radius, sharp cutoff, bright center, hard edge.
 - **Neon**
Neon tube / laser / cyberpunk effect: saturated center, colored edge (halo), high glow, boosted core, possible stretch on sphere for tube.
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Example Neon Settings (for Cone or Sphere):

- Color: (0.25, 1, 1, 1) (turquoise) or (1, 0.3, 1, 1) (pink)
 - EdgeColor: (0.2, 0.6, 1, 0.4) (pastel blue) or (1, 0.8, 1, 0.25) (pastel pink)
 - GlowIntensity: 7
 - CoreIntensity: 3–7
 - EdgeStrength: 1.5
 - AlphaCutoff: 0.15–0.25
 - Noise/Flicker: very low but nonzero for a living effect
 - Elongation: 3–8 (sphere, for neon tube look)
 - Transparency: 0.15–0.25
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To use a preset:

- Select it in the Inspector under “Preset Type”
- All sliders update instantly
- Edit further or save as a custom preset with a unique name

8. ADVANCED FEATURES

- **Animated Noise / Flame:**
Adds volumetric fog, fire, or haze effects inside the beam.
Sliders: NoiseStrength, NoiseSpeed.
 - **Edge/Rim Color:**
Set a colored halo or ring around your beam.
Sliders: EdgeColor, EdgeStrength.
 - **Flicker / Scintillation:**
Add a living or broken bulb effect.
Sliders: FlickerIntensity, FlickerSpeed.
 - **Texture / Gobo Support:**
Project patterns or mask shapes onto the beam.
Drag a Texture2D into the Main Texture slot.
 - **Alpha Cutoff (Edge Sharpness):**
Control how “hard” or “soft” the edge of your beam appears.
Slider: AlphaCutoff.
 - **CoreIntensity (Neon/laser):**
Boost the luminosity at the beam’s center without affecting the edge, for real neon/laser looks.
Slider: CoreIntensity, CoreRange.
 - **Elongation (Tube Neon / Bar):**
On SphereLightSystem, stretch the mesh into a tube (elongation slider) for neon bars and sci-fi lamps.
 - **Disco/Club Animation Script:**
For demo scenes, use the **DiscoConeMover** script (see documentation) to make cones orbit or sweep around a central point, simulating a real nightclub or concert!
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9. IMPORTANT!

Always SAVE your custom preset before entering Play Mode!

Otherwise, Unity will reset to the last saved preset, and unsaved settings will be lost.

(This is due to ScriptableObject and Inspector workflow in Unity.)

10. TROUBLESHOOTING / FAQ

Q: The color or edge doesn't appear as expected?

A: Double-check your shader slot assignment, make sure the color parameters in the Inspector and shader are linked, and your URP pipeline is active.

Q: How do I make a disco effect?

A: Use multiple cones or spheres with the **DiscoConeMover** script, each orbiting or sweeping around a center point, and play with different colors.

Q: Why does the texture slot show white by default?

A: If no texture is assigned, the shader uses a white texture internally. Add your custom gobo for pattern projection.

Q: Can I combine all effects?

A: Yes! All effects—color, texture, noise, flicker, edge, core—can be mixed freely.

Q: How to get a real neon tube?

A: Use the Neon preset, pick vibrant colors, boost CoreIntensity, and stretch the SphereLight with the Elongation slider.

11. CREDITS & SIGNATURE

Light Beam System V??.?

📧 **TEAM VICTOR & BORIS**

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Ready for the Asset Store, the club, the train station, or your next sci-fi adventure!

Thank you for choosing Light Beam System. We can't wait to see your amazing lighting setups!