# Advanced Animation Techniques June 8, 2017

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### **Before we Begin...**

- This will be recorded
- Slideshow PDF will be available
- **KSPs will be available** -
- Computer: 3 GHz 8 Core (16-thread) 2013 Mac Pro, 16 Gb RAM
- If you have questions... -
- **KeyShot Animation & Material Graph** are Pro features



### Topics

- Creating Material Animations
- How to Structure Advanced Animations -
- **Rendering Full Animations** -
- Hands on:
  - Color Fade
  - Number Fade
  - **Complex Hinges**
  - Parts & Model Animations
- **Q & A** -

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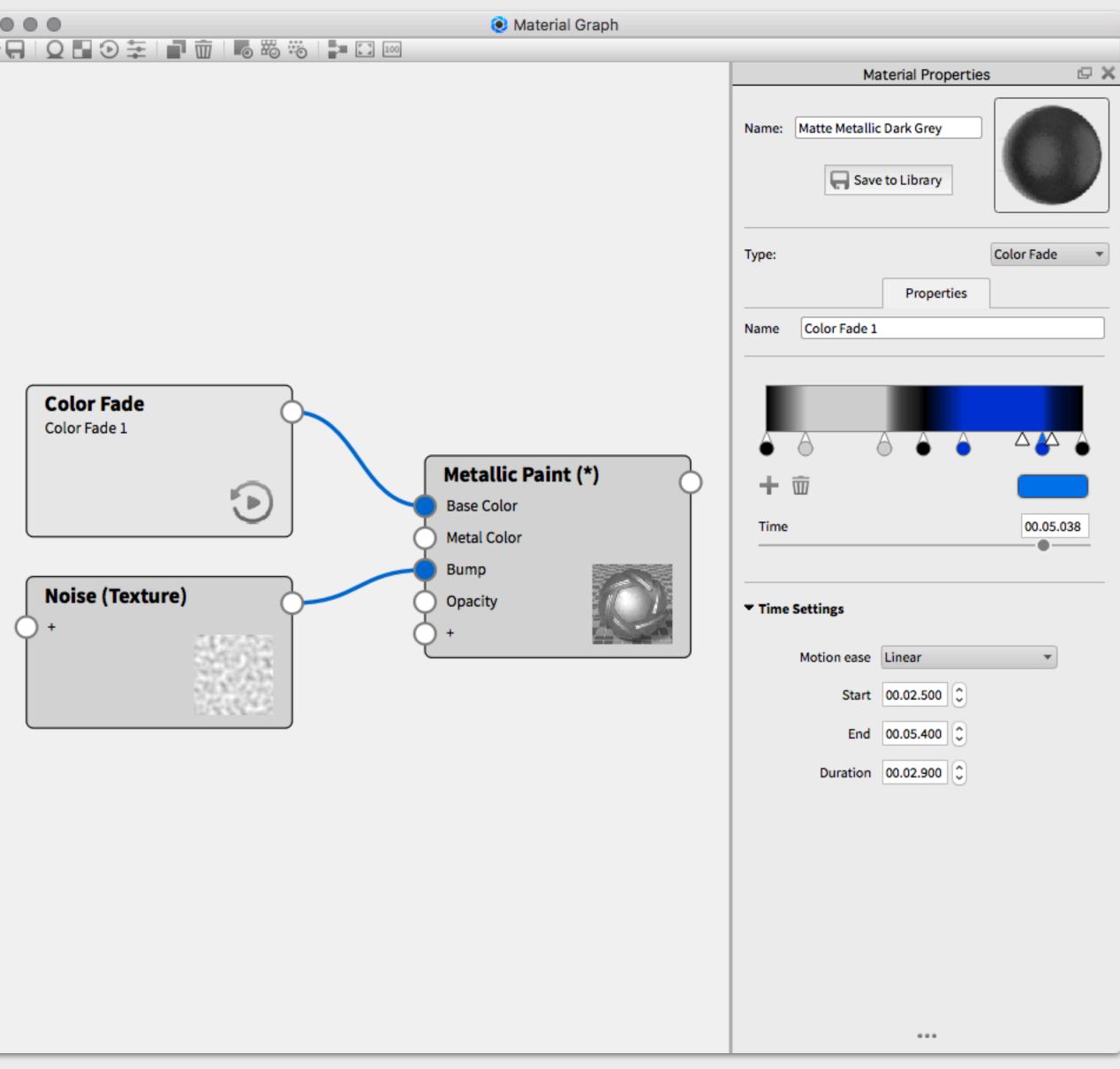
# **Creating Material Animations**

### **Material Animations**

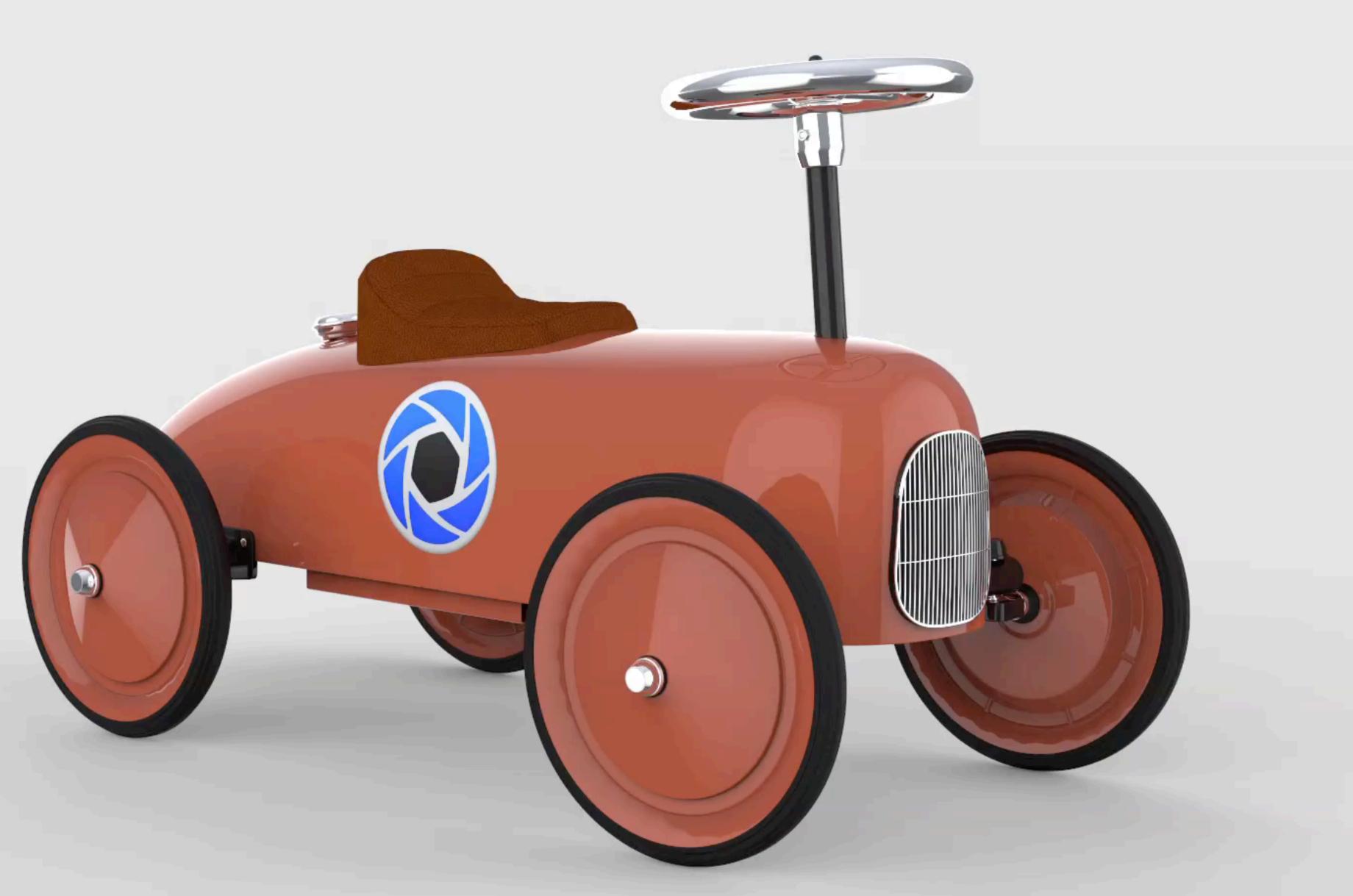


- **Color Fade** -
  - Fades colors over a period of time -
  - ex. Color Variations
- Number Fade -
  - Fades from one value to another over time
  - ex. Changing values in textures
- **Color Fade to Number Utility Node** -
  - Use Colors to drive numerical values
  - ex. Texture moving up and down -

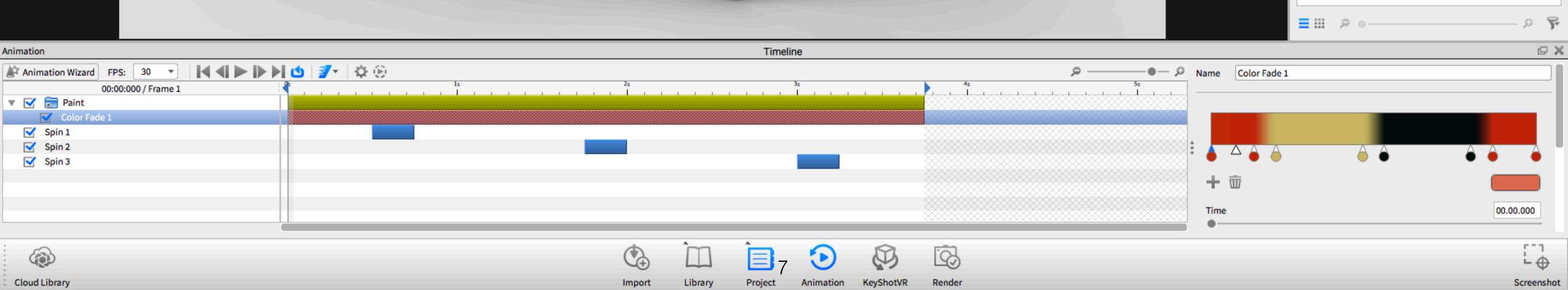




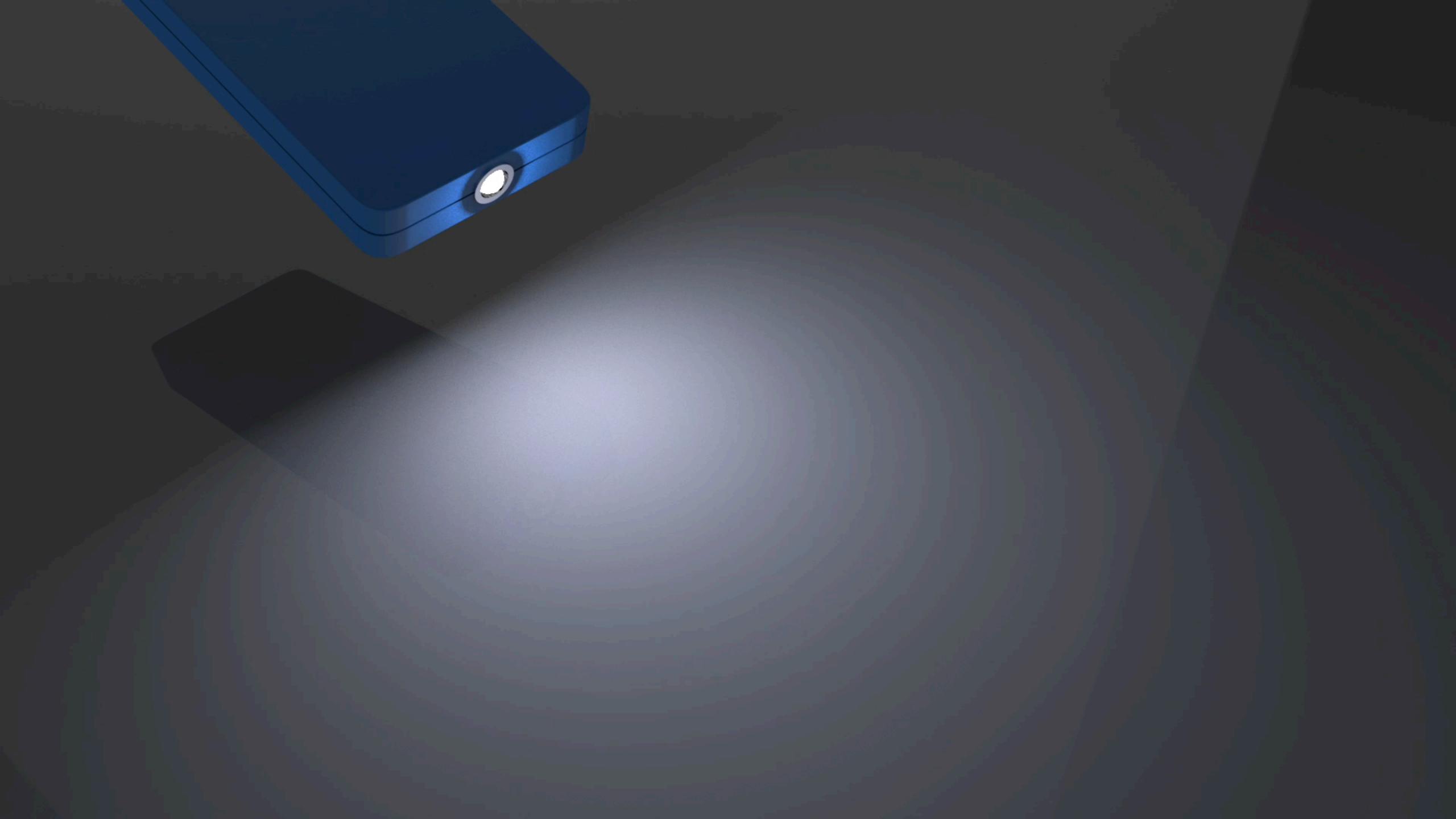


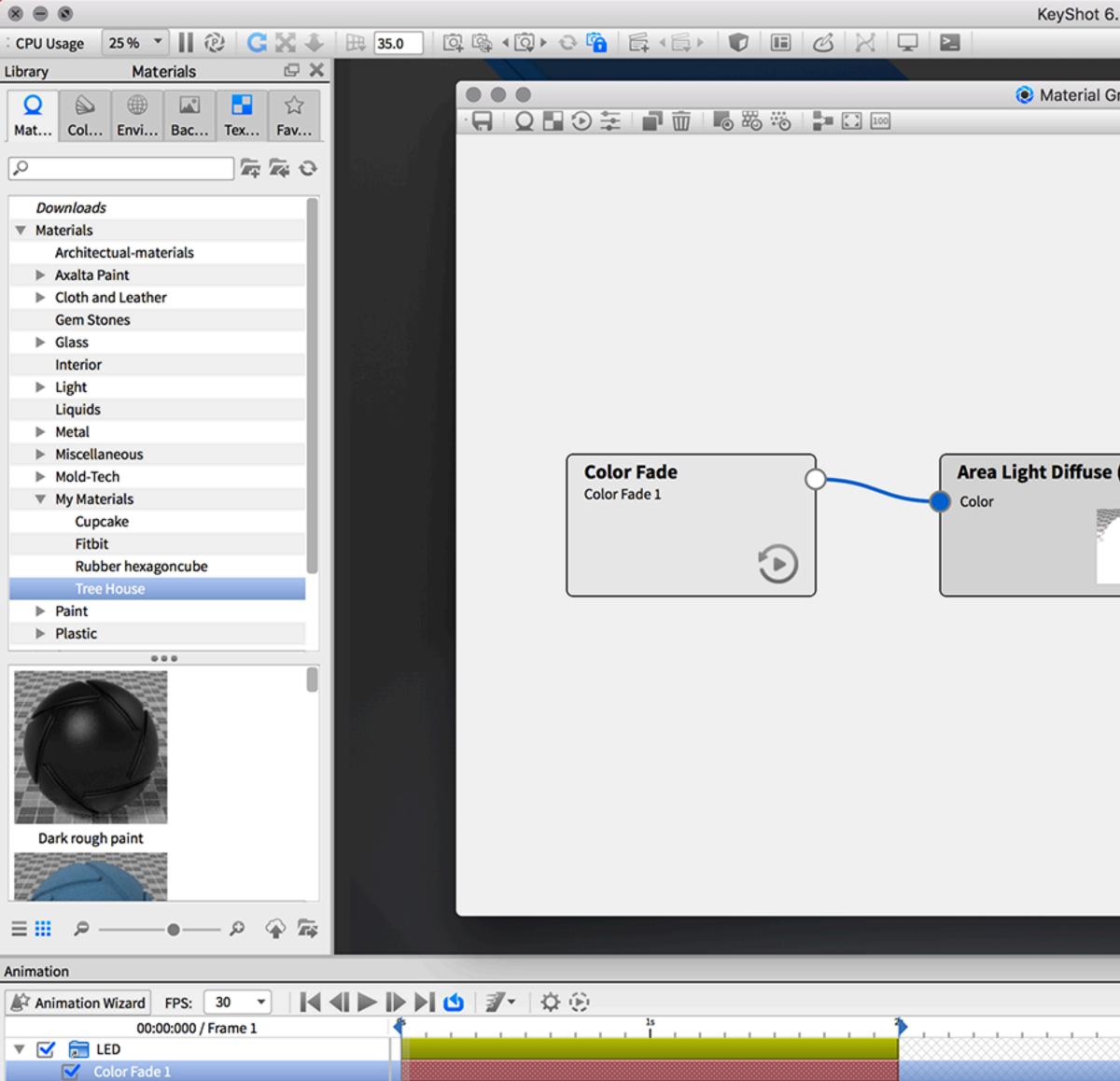






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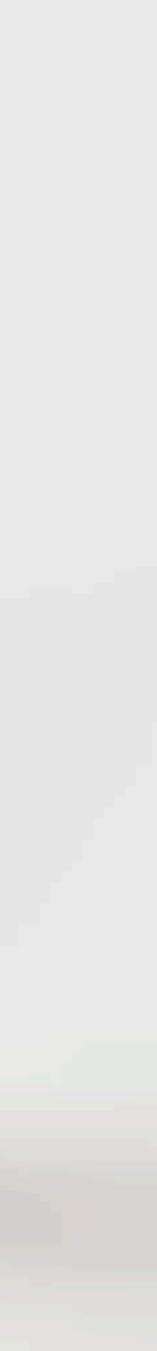
#### KeyShot 6.3 Pro - Flashlight.bip - 64 bit

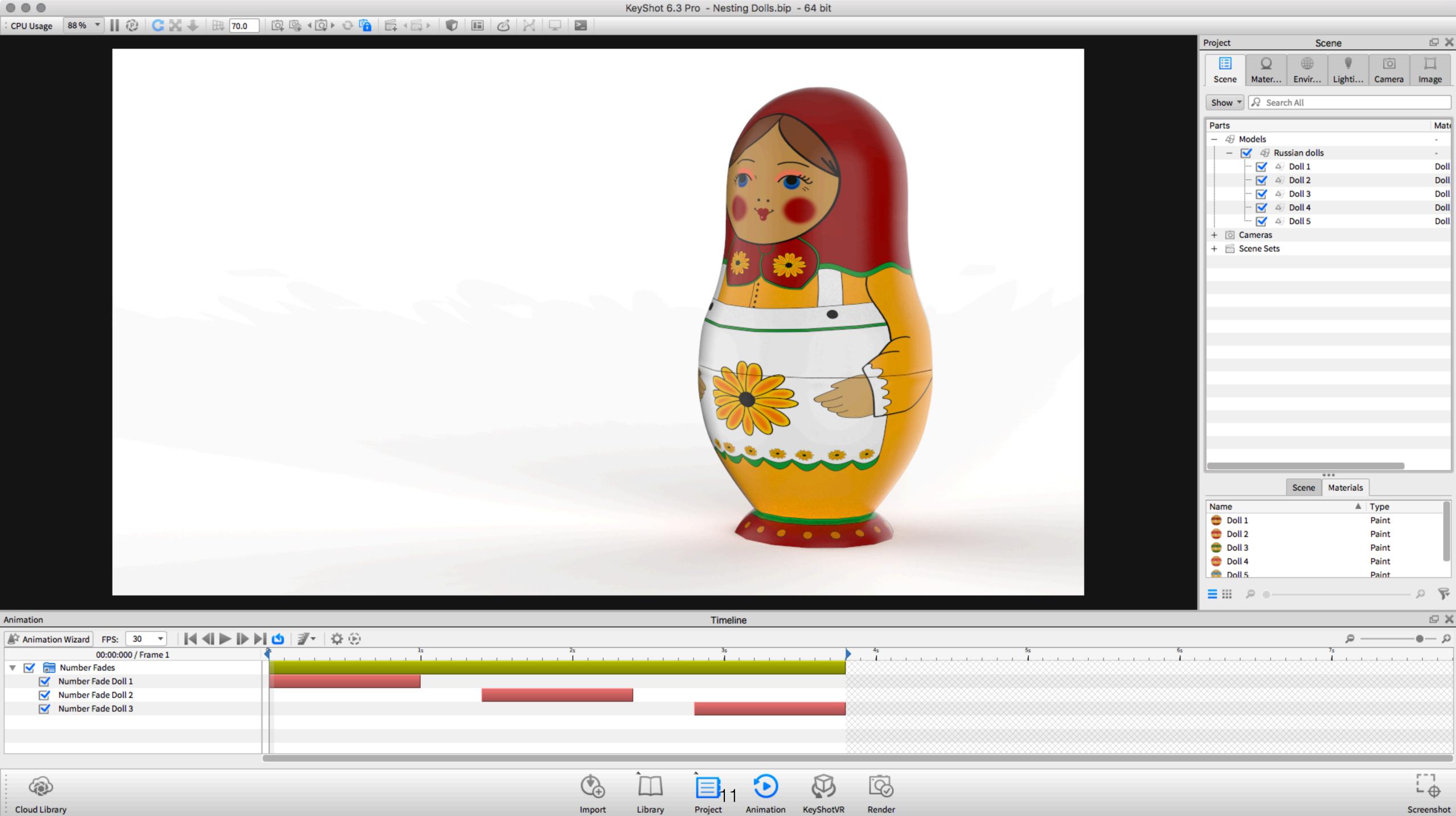
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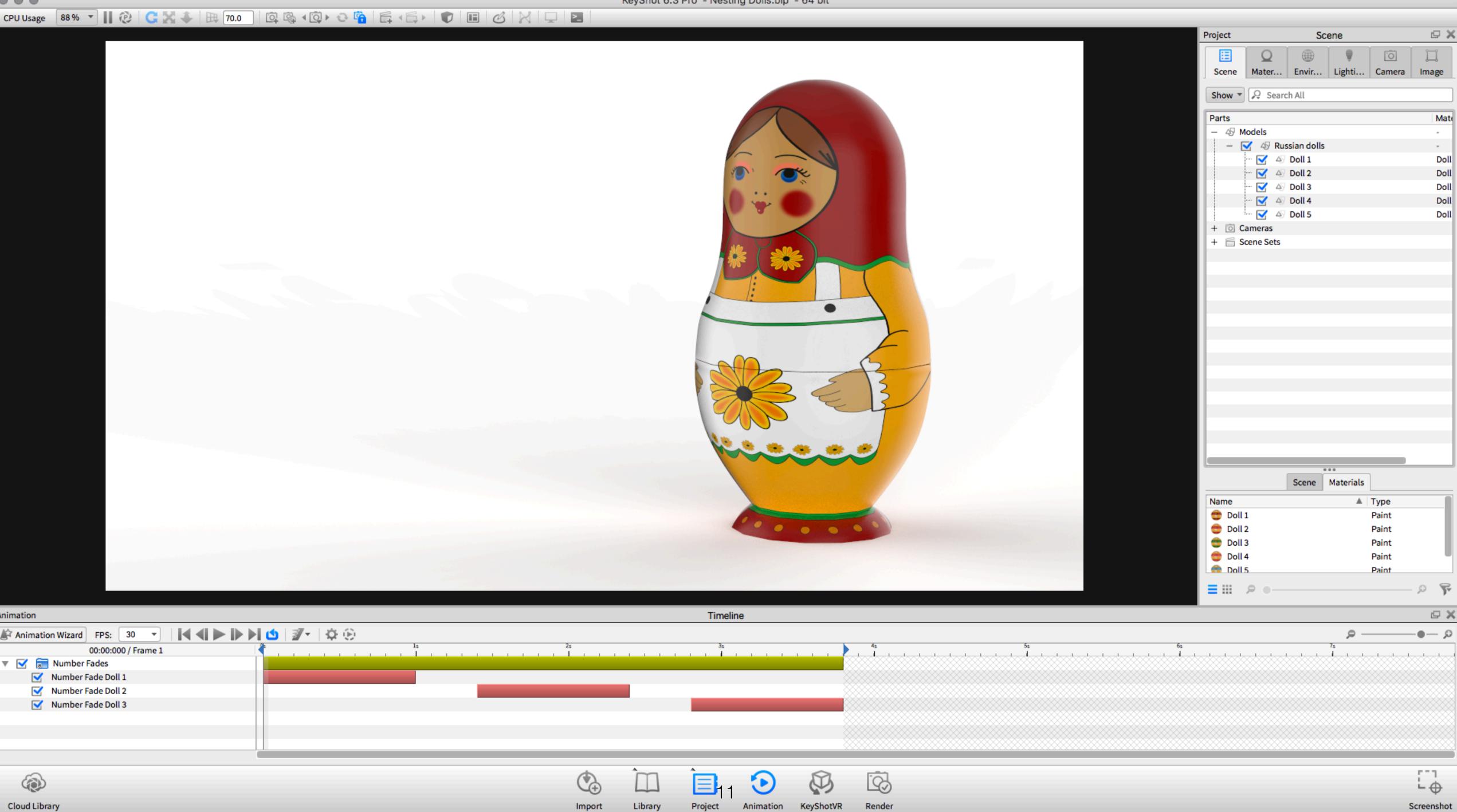


#### Number Fade





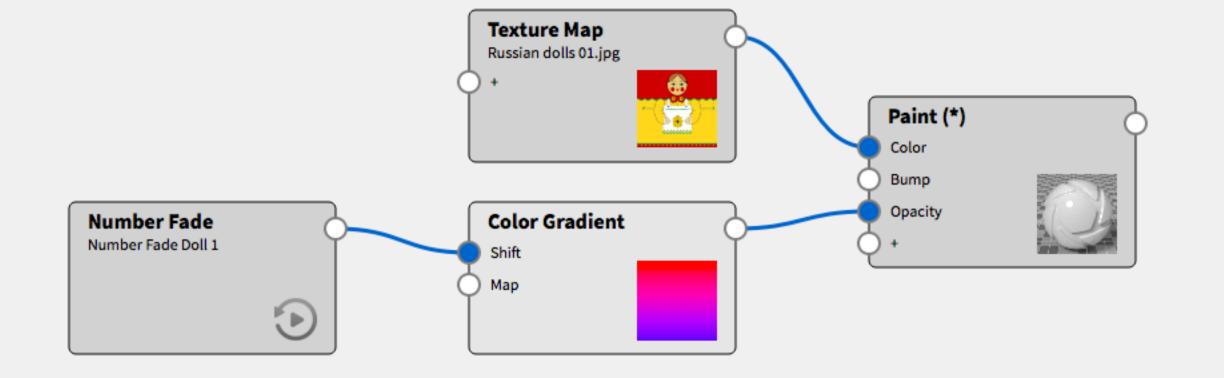




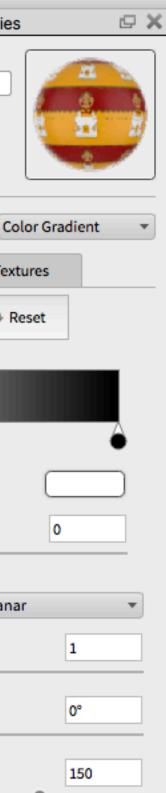




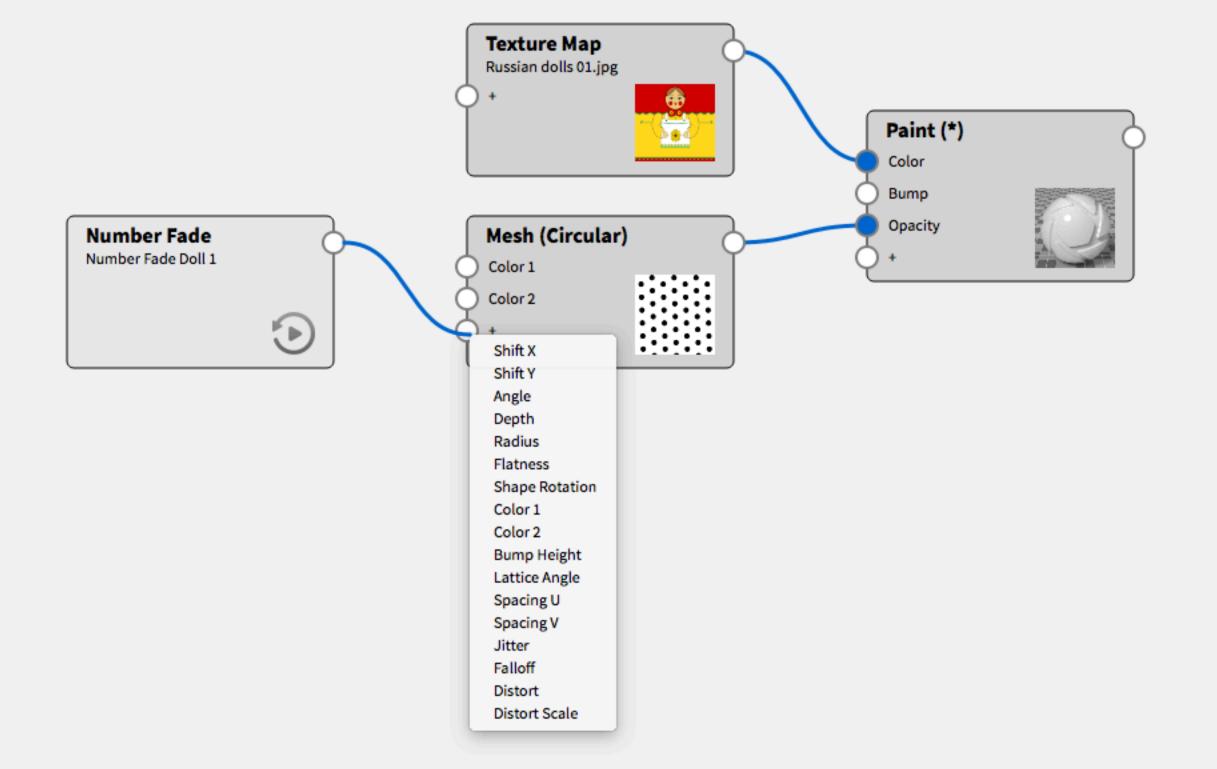
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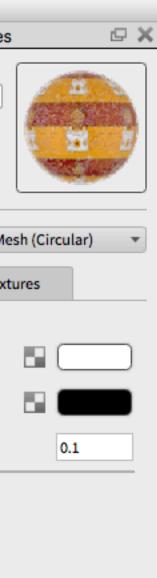
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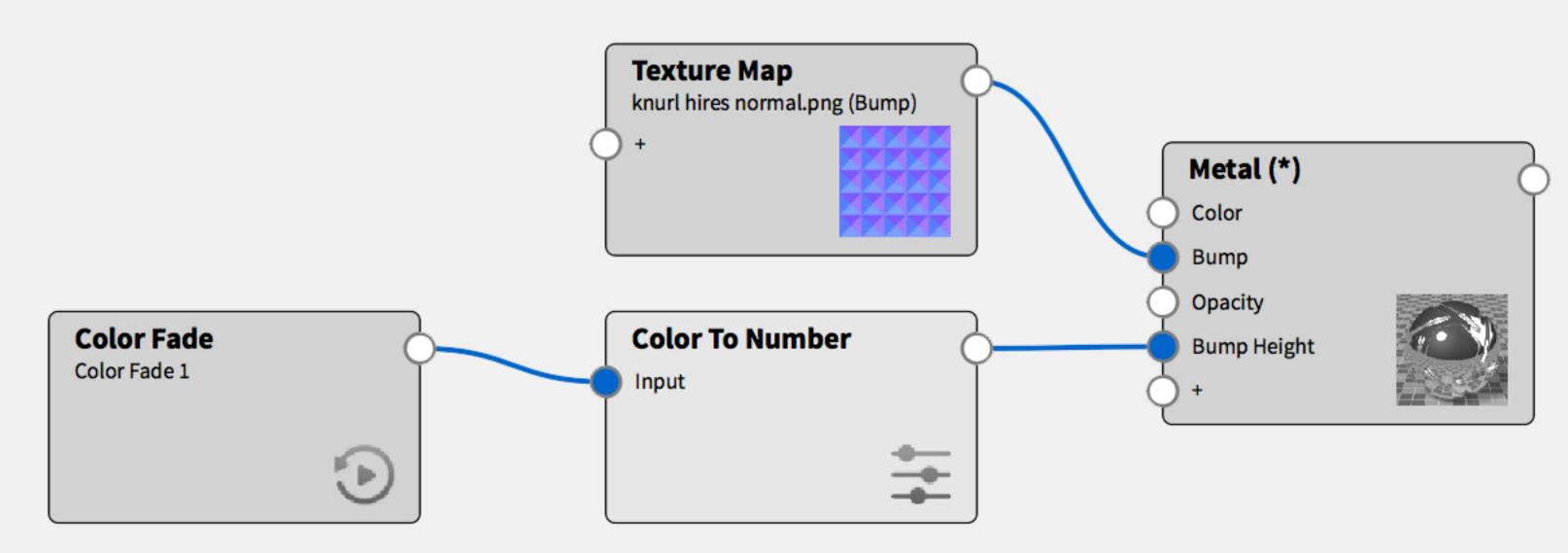


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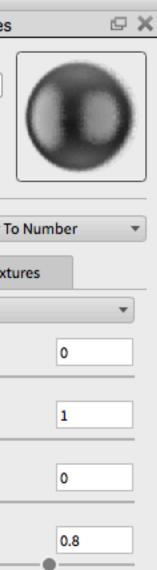


### Color Fade through Color to Number Utility Node



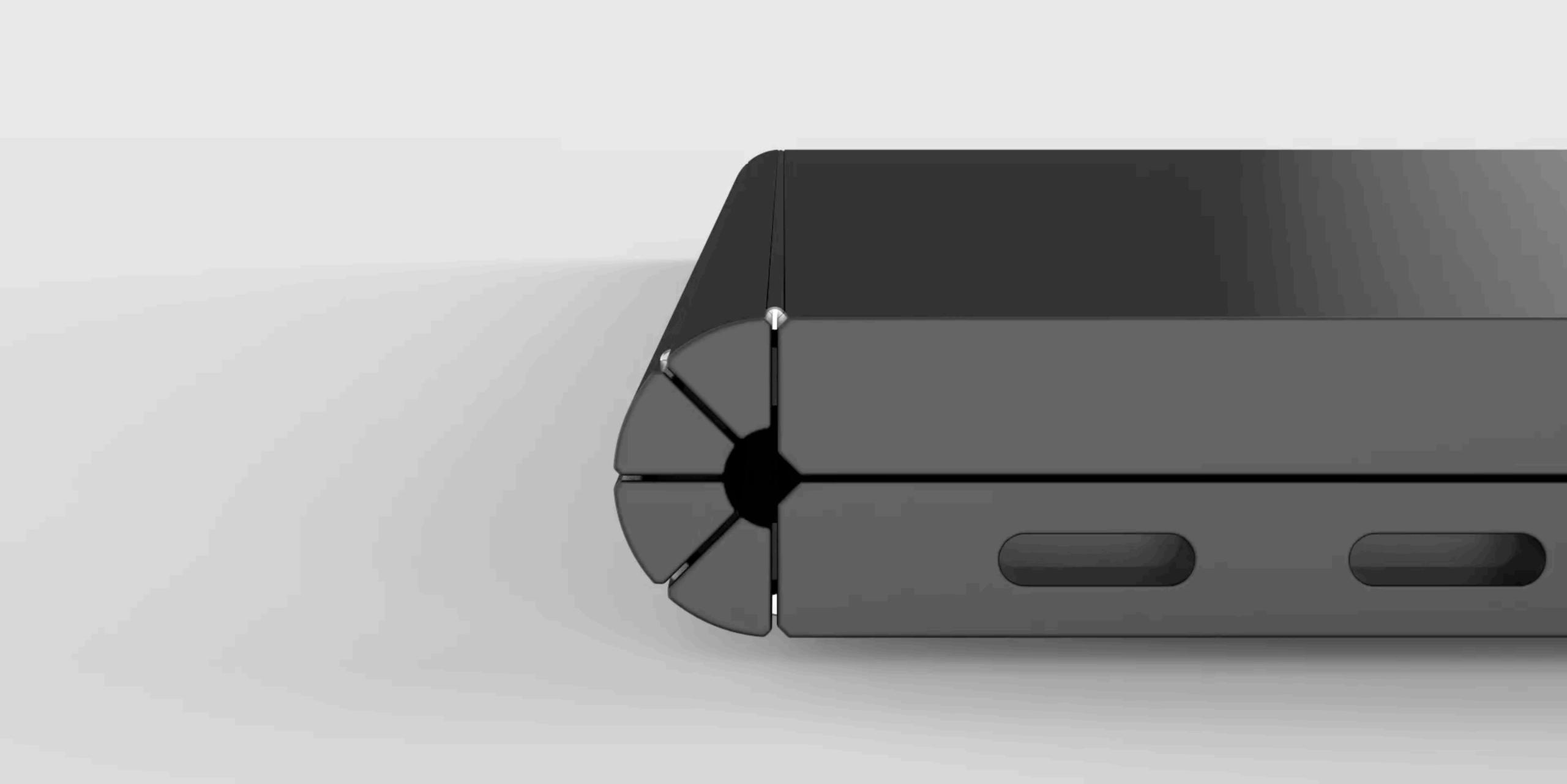


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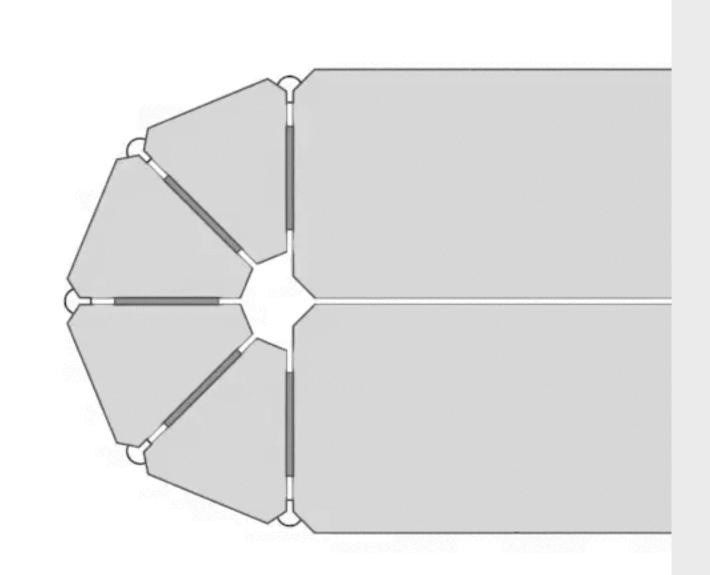


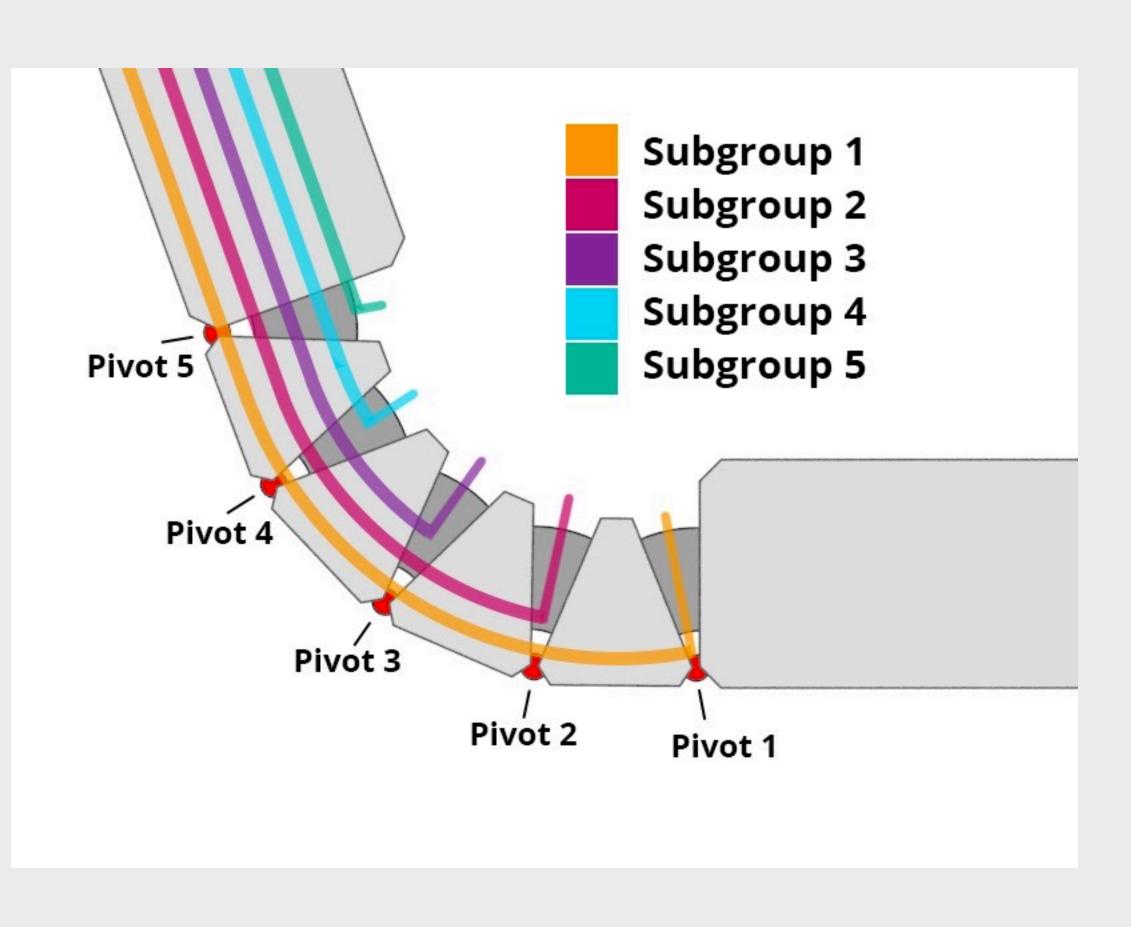
## **How to Structure Advanced Animations**





### **Structuring Advanced Animations**



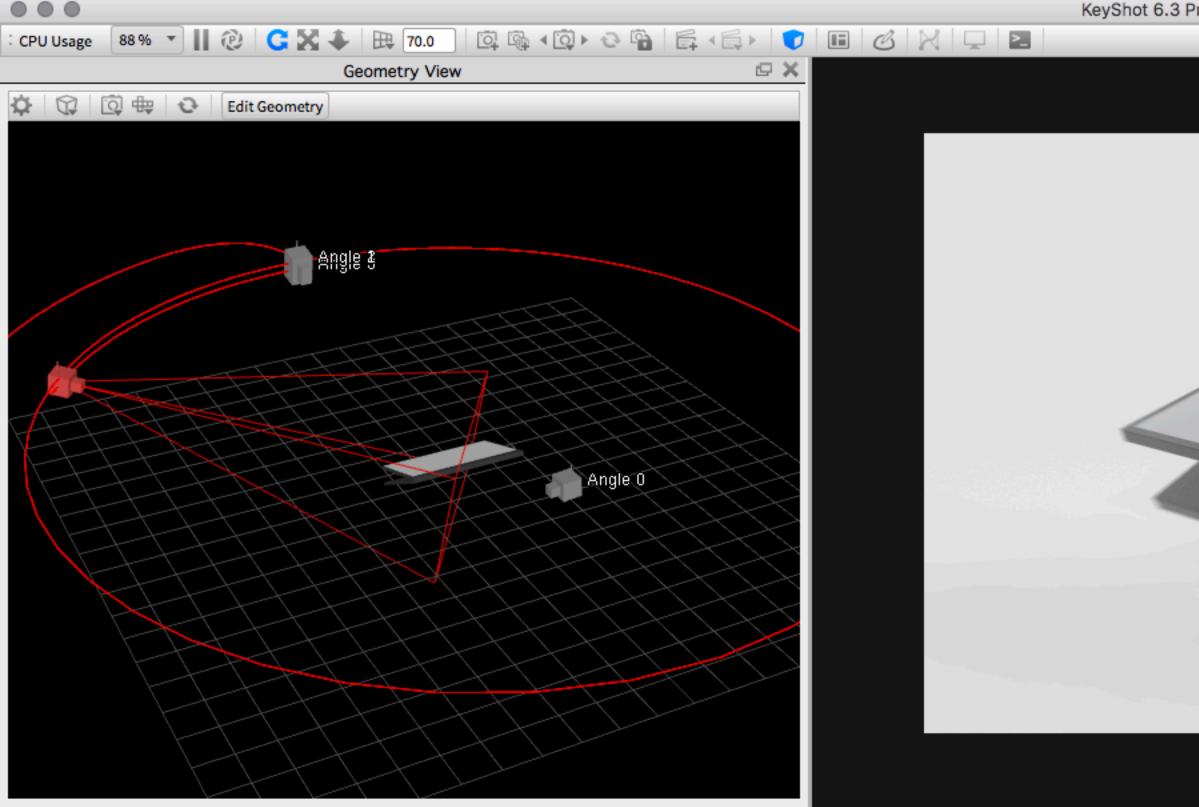


### **Structuring Advanced Animations**

- **Scene Hierarchy is key** -
- Nested geometry yields nested animations -
- **Rotation Animations can use any pivot point** -
- Assembly structures are preferred due to -**Global vs Assembly vs Part axis**

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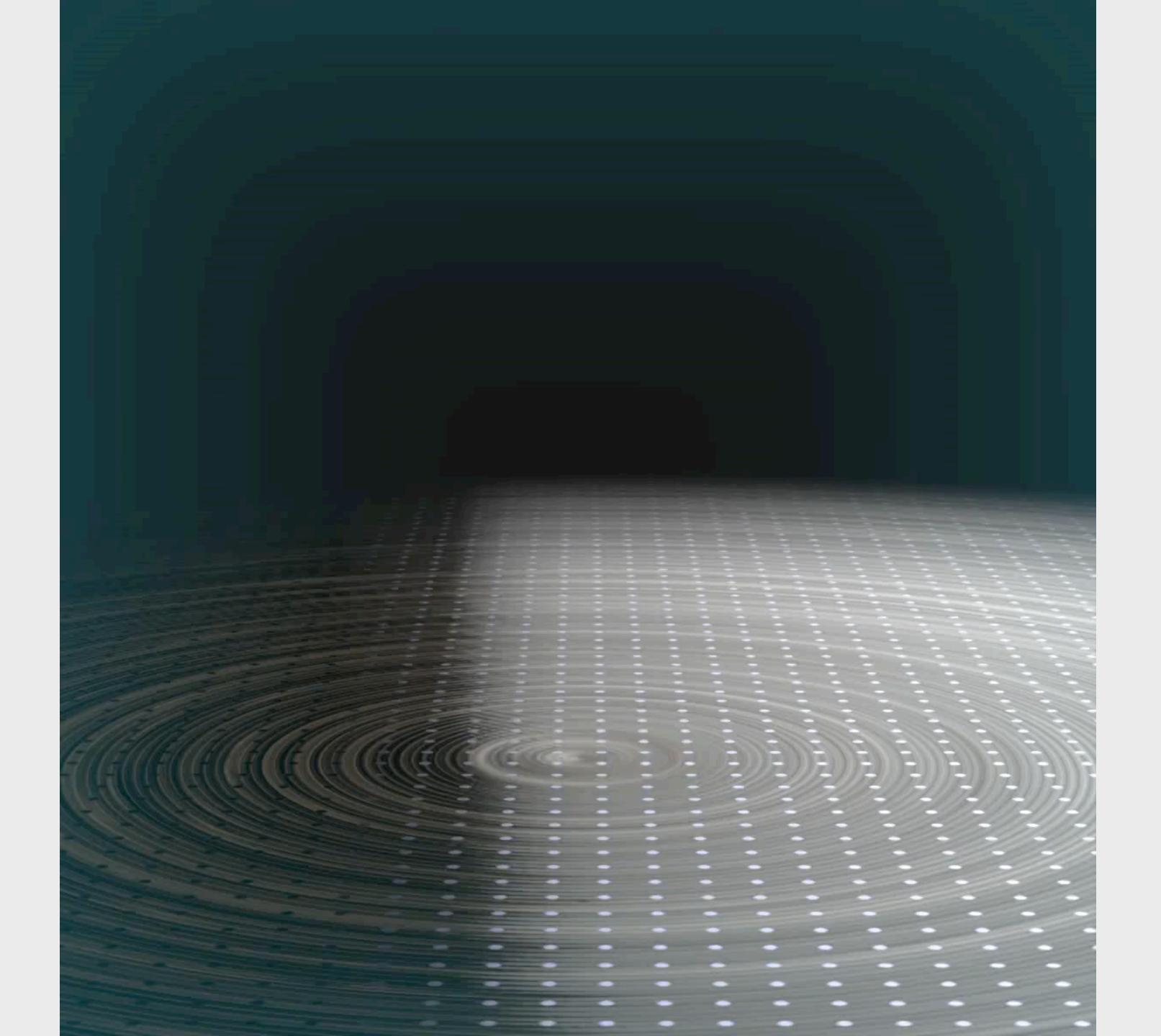




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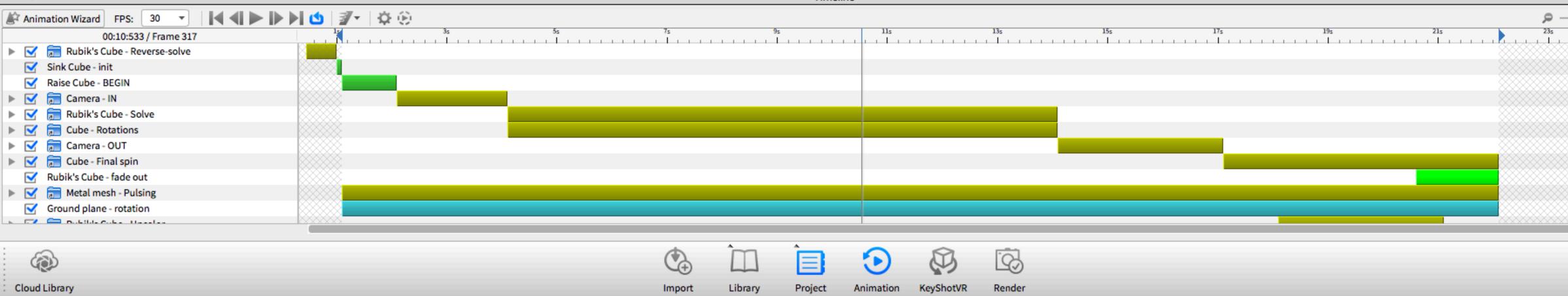
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Animation







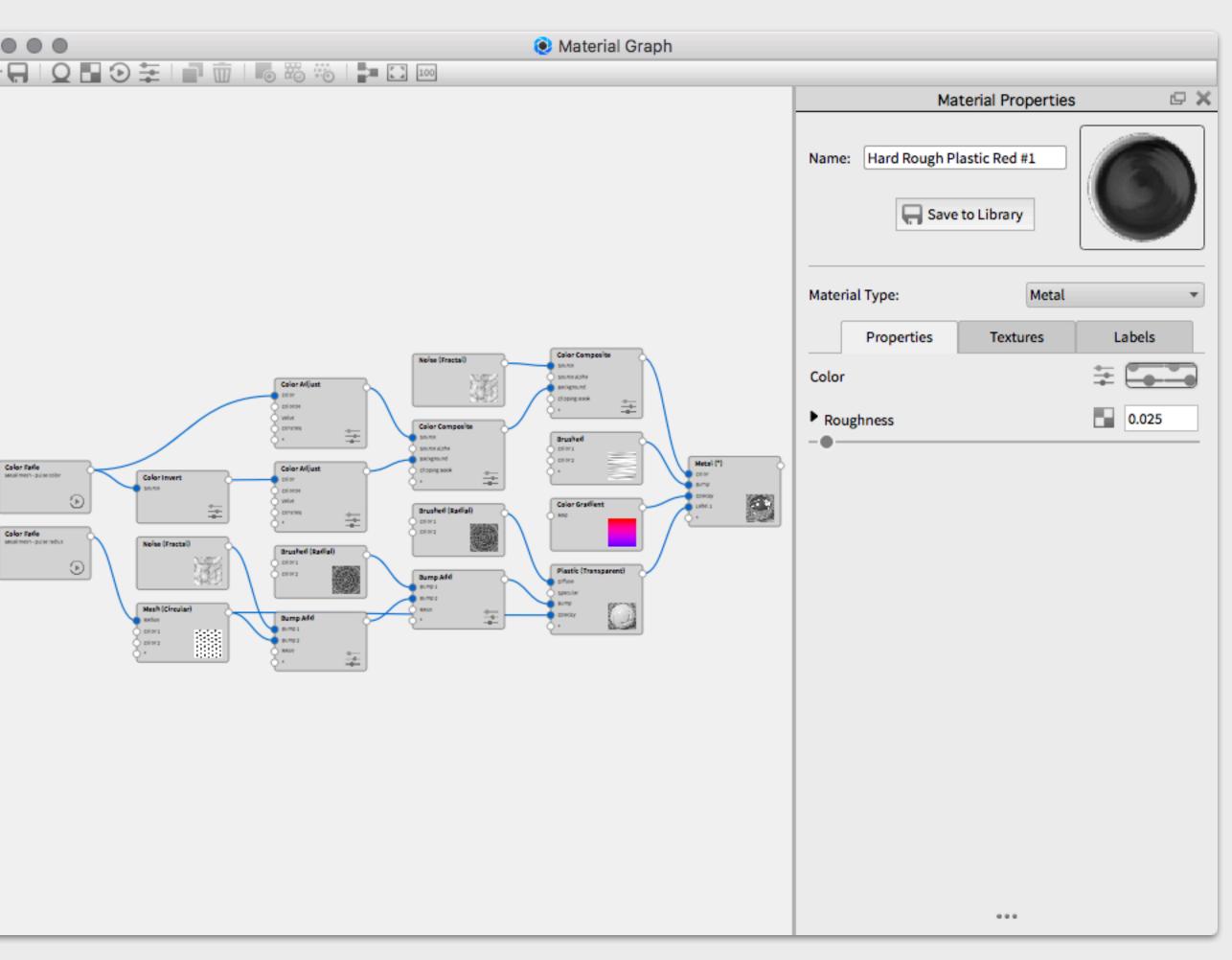
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### **Advanced Animation Example**

- In KeyShot 6 Resources Folder -
  - Great example of part, camera, and material animations
  - Scenes > advanced\_animation.bip

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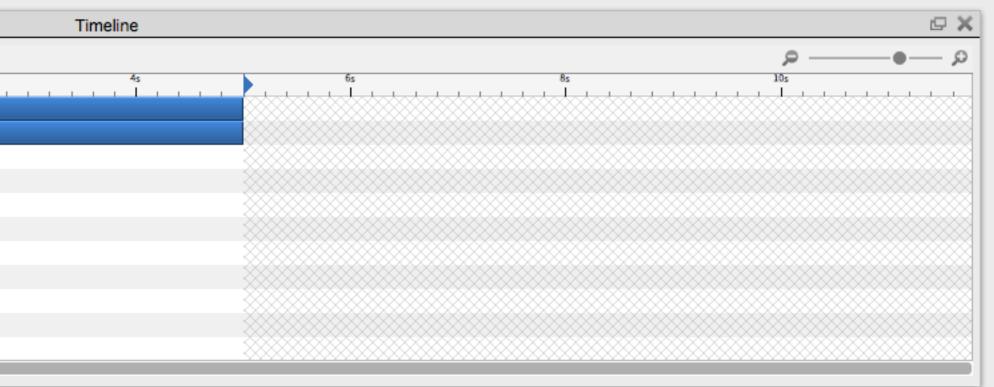


# **Rendering Full Animations**

#### **Best Practices**

- Use Geometry Editor to see faster part/model animations -
- **Render preview animations to verify settings** -
- Find the bare minimum quality settings to render a single frame, then use those settings for full animation
- Max Time is great for quick animations -

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### **Best Practices**

- Uncompressed Video is best and can always be downsampled
  - Quicktime & AVI (uncompressed) are higher quality options
  - Always save out frames (just in case)
  - Helpful for re-compiling in any video format
  - Backup in case animation is lost
- Frames > Video

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- Quicktime Pro (\$30) Mac/Win
- ImageJ (free) Mac/Win
- Adobe Premiere Pro

Quicktime (MPEG4) Quicktime AVI (MPEG4) AVI (uncompressed) Flash Video

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### **Quality Settings - Max Samples/Time**

- Max Samples and Max Time are equivalent to realtime view
  - Max samples: use realtime Heads-Up Display to estimate number of frame samples needed
  - Max Time: specify time for frames or complete animation.
- Easy to Use

-

- Supports Interior Mode, Motion Blur, Caustics
- Can be slower than Advanced Control
- Max Time cannot be used with Network Rendering

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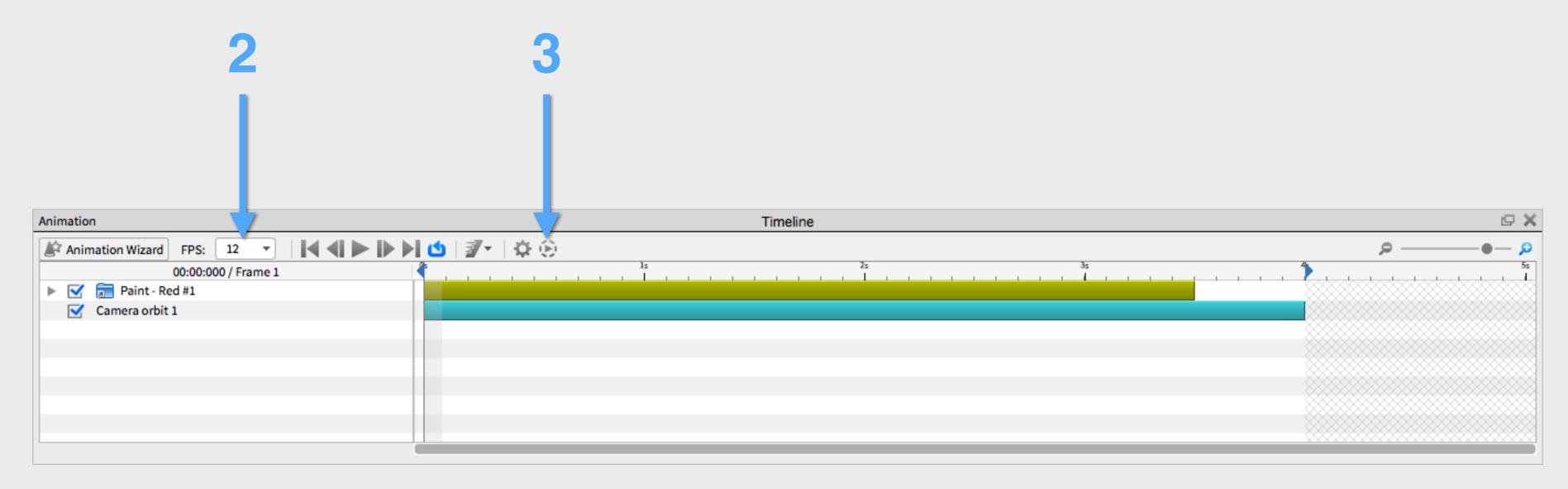
### **Quality Settings - Advanced Control**

- Different algorithm than realtime view
  - Consistent, fast results for simple scenes
  - Can be fine tuned
  - Harder to use
  - Settings can easily be excessive:
    - Samples is \*per pixel\*, multiplied by material samples
  - Incompatible with Interior Mode & Motion Blur

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		Sharper Texture Filterin	ng		
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### In a Hurry?

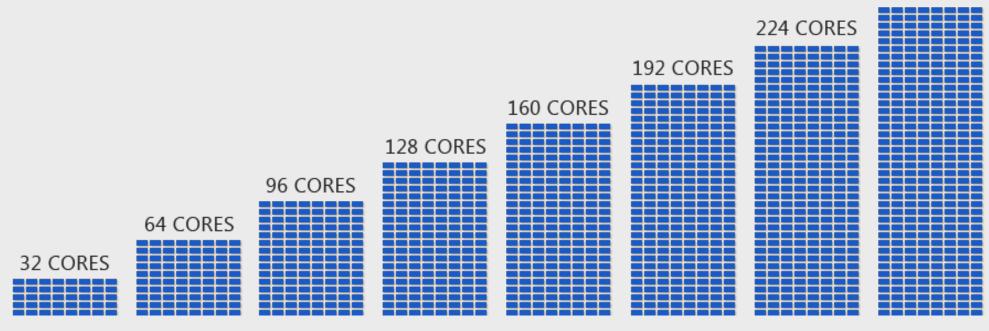
- 1. Shorten animation lengths to reduce number of frames
- 2. Reduce Frames per Second (FPS)
  - **1.** 10 seconds @ 30 FPS = 300 frames
  - 2. 10 seconds @ 24 FPS = 240 frames (20% faster)
- 3. Avoid unnecessary effects like Depth of Field, physical lights, caustics, motion blur, etc to reduce render time
- 4. Use Preview animation

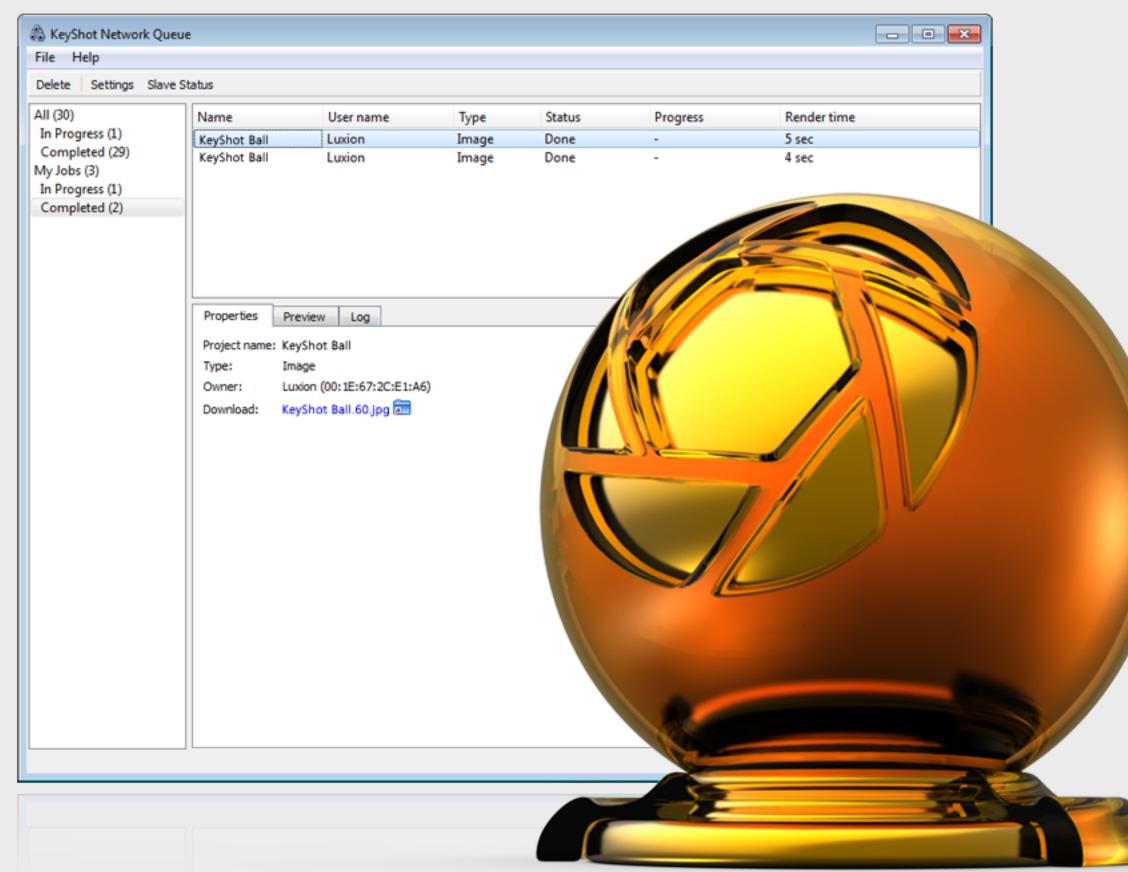


### **Network Rendering**

- Tie multiple machines together to create, local render farm
- Separate license sold in 32 core increments -
  - \$480/year for 32 cores
  - \$960/year for 62 cores
  - \$1920/year for 128 cores
- Uses your hardware, not cloud based -
- For more info:
  - http://www.keyshot.com/features/ <u>network-rendering/</u>

#### 256 CORES

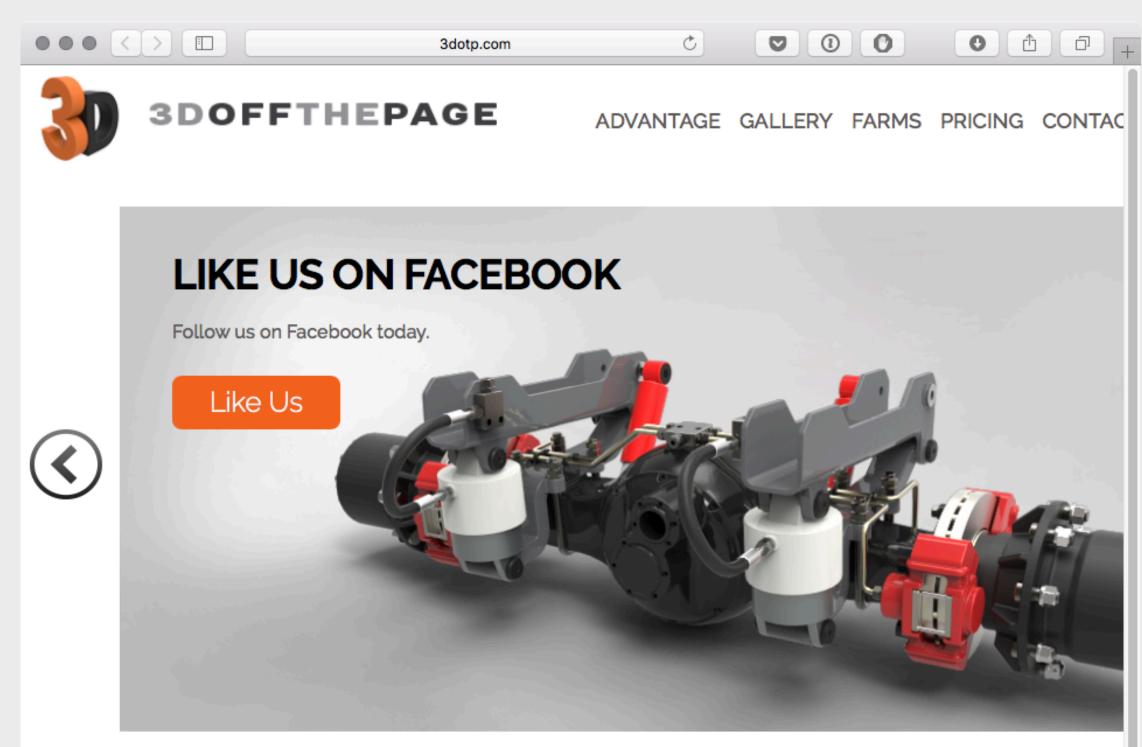






### **Certified KeyShot Rendering Services**

#### www.3dotp.com



#### **POWERFUL 3D RENDER FARM**

3D Off the Page offers powerful render farm capabilities to KeyShot users. The 360 core render farms are built exclusively for rendering KeyShot files.

And unlike other rendering services, each project gets full control of the render of farm. By running only one project at a time, your KeyShot renderings finish much faster than your hardware can and allows you to keep working on other of projects.

Time on a 3D Off the Page render farm is reserved on a first come, first served, basis, so contact us now.

#### SIMPLE PROCESS

- Create Dropbox Folder
- Customer Uploads Files
  - Render & Confirm
  - Upload Rendered Files

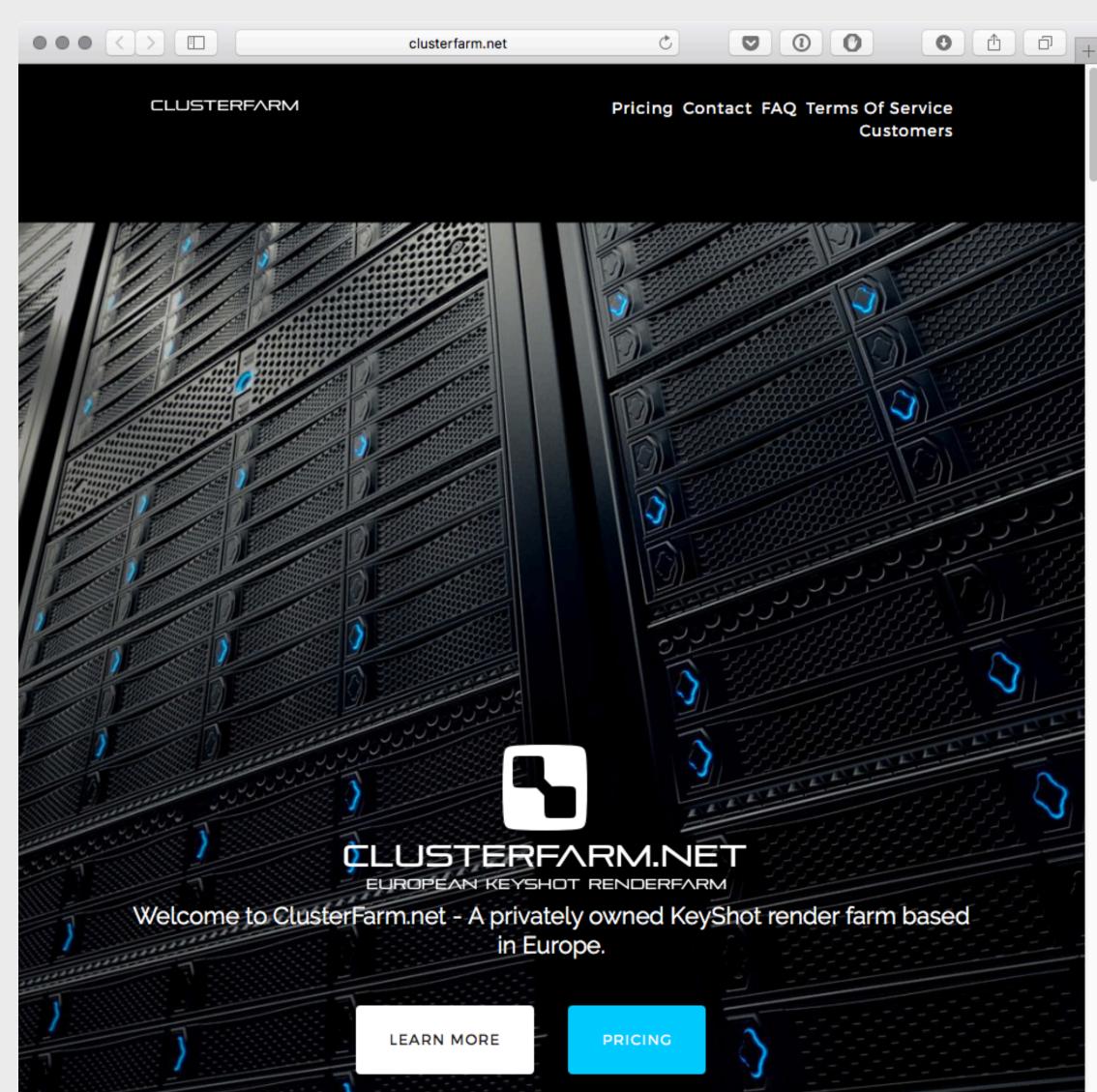
#### View our process



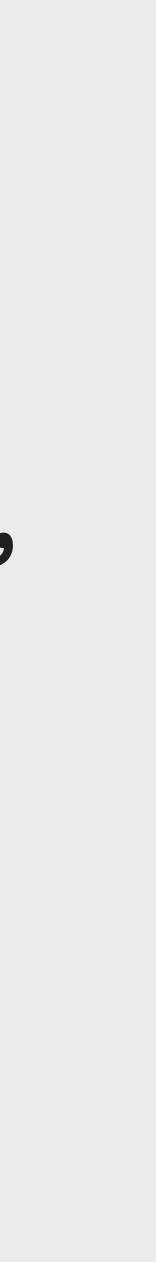




#### <u>www.clusterfarm.net</u>



# What about deformations, particles, rigged animations, liquids, etc?

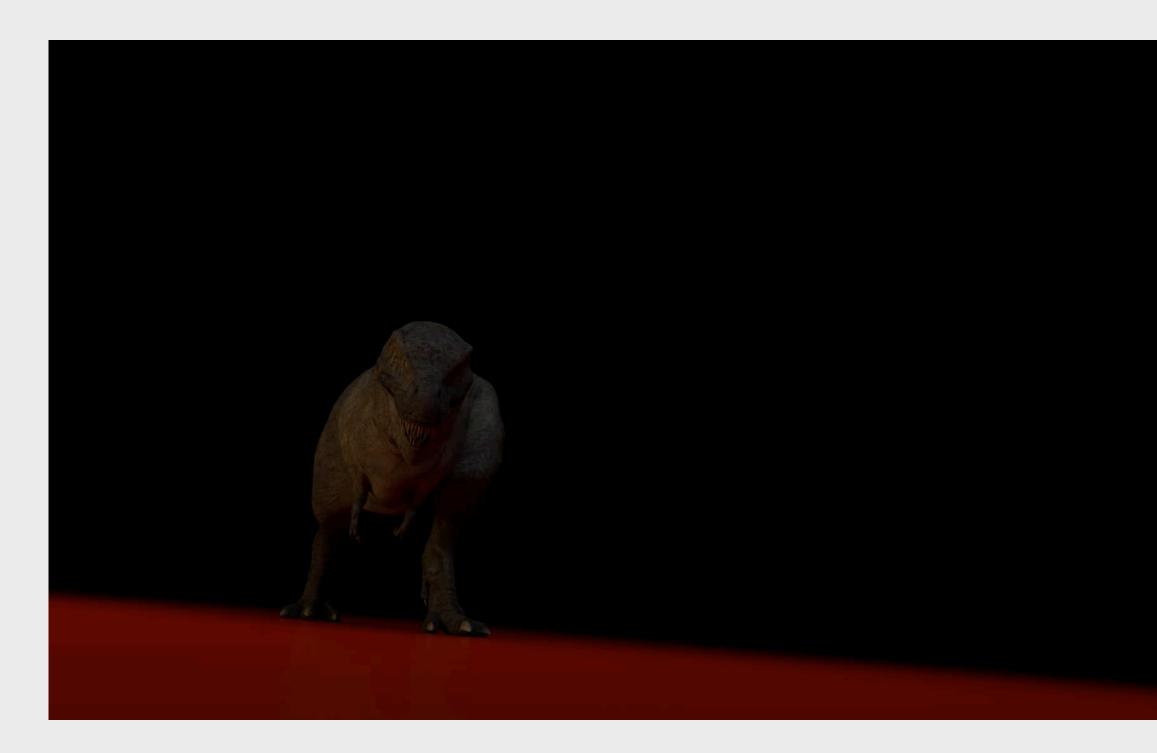


Animation by LM6



### **Complex Animations Supported**

- Animations are also supported with free plugins for:
  - 3ds Max (part and camera animations; rigged and deformable)
  - Cinema 4D (part and camera animations)
  - Maya
  - Solid Edge (part and camera animations)
  - Creo (mechanisms)
- FBX/.abc animations supported via scripting in KeyShot 6
- FBX and Alembic playback will be native in KeyShot 7





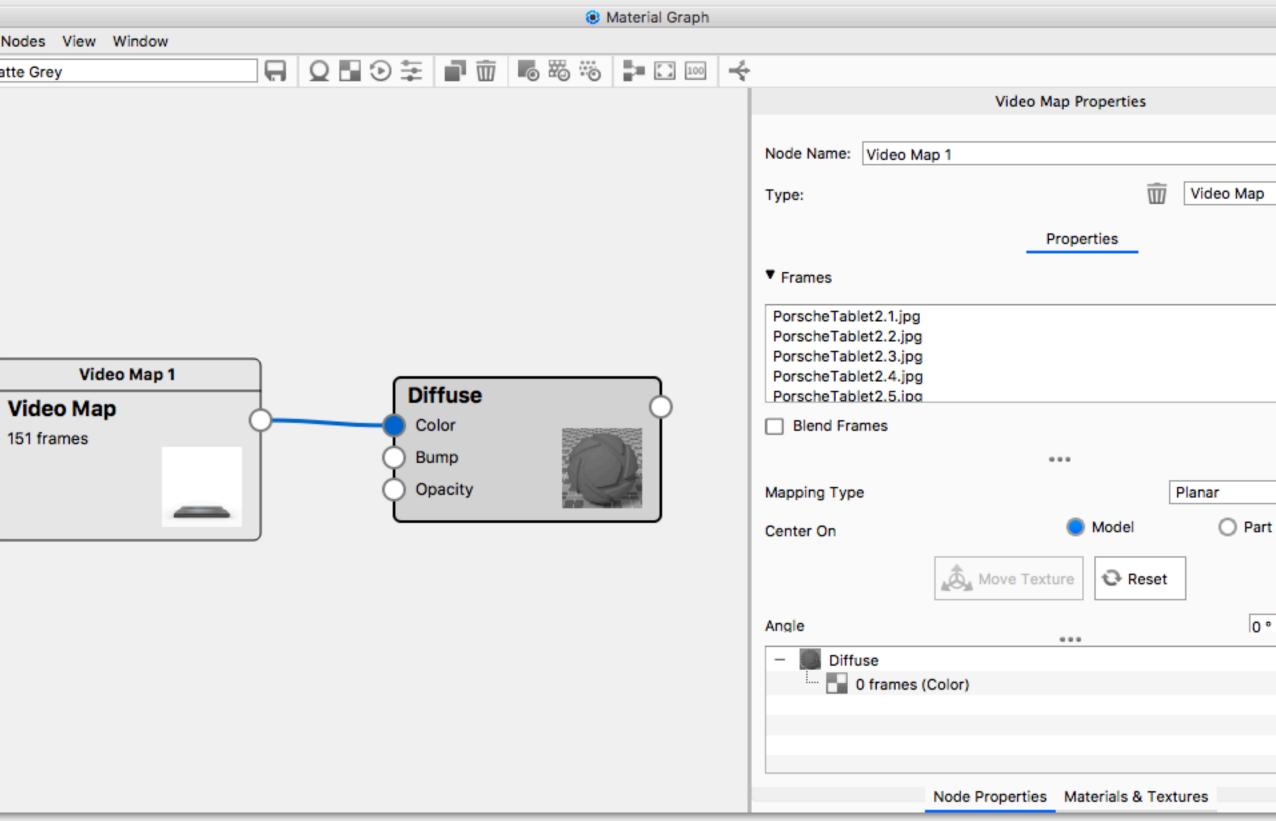
# KeyShot 7 Animations



### Video Maps

- Image sequences or video files as textures
- Supported formats: avi, mp4, mpeg, flv, webm, dv, f4v, mov, mlv, m4v, hevc, ogg, and ogv

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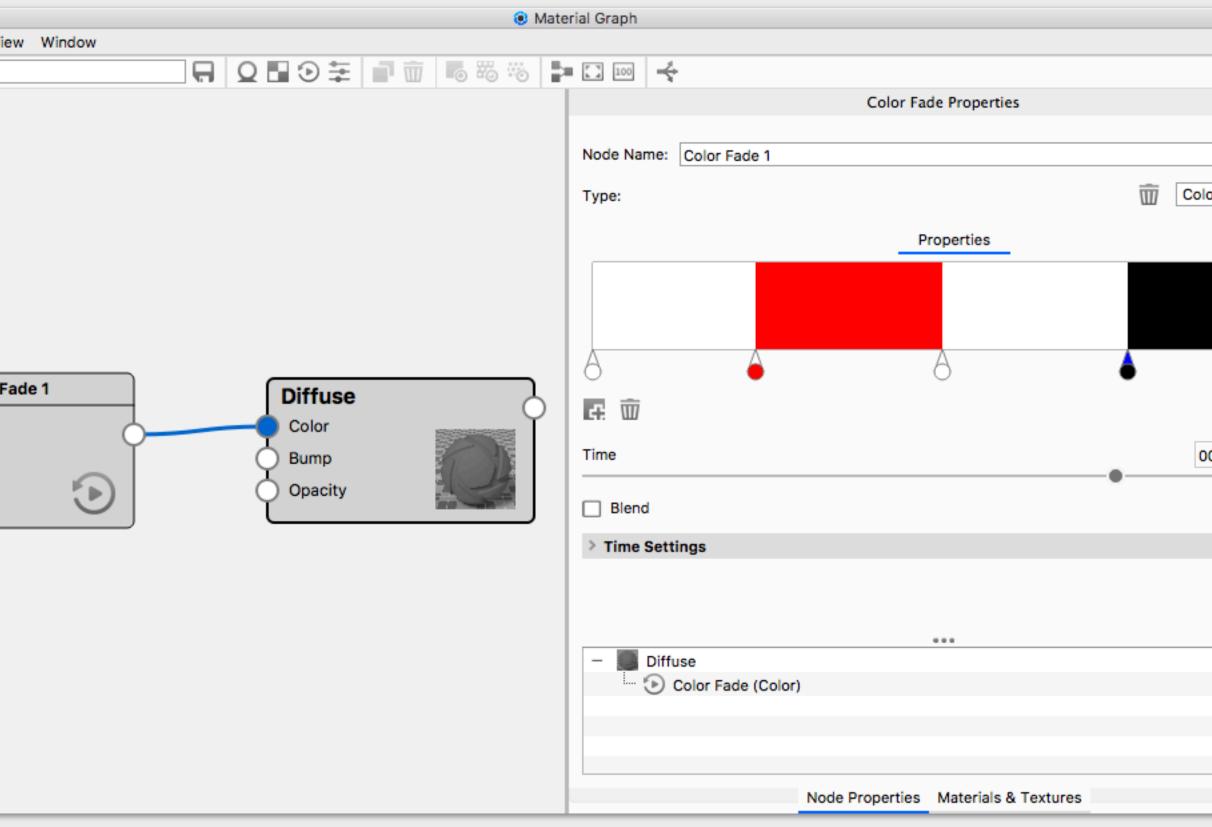


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### Color Fade

- Disable blending
- Good for flashing colors or values

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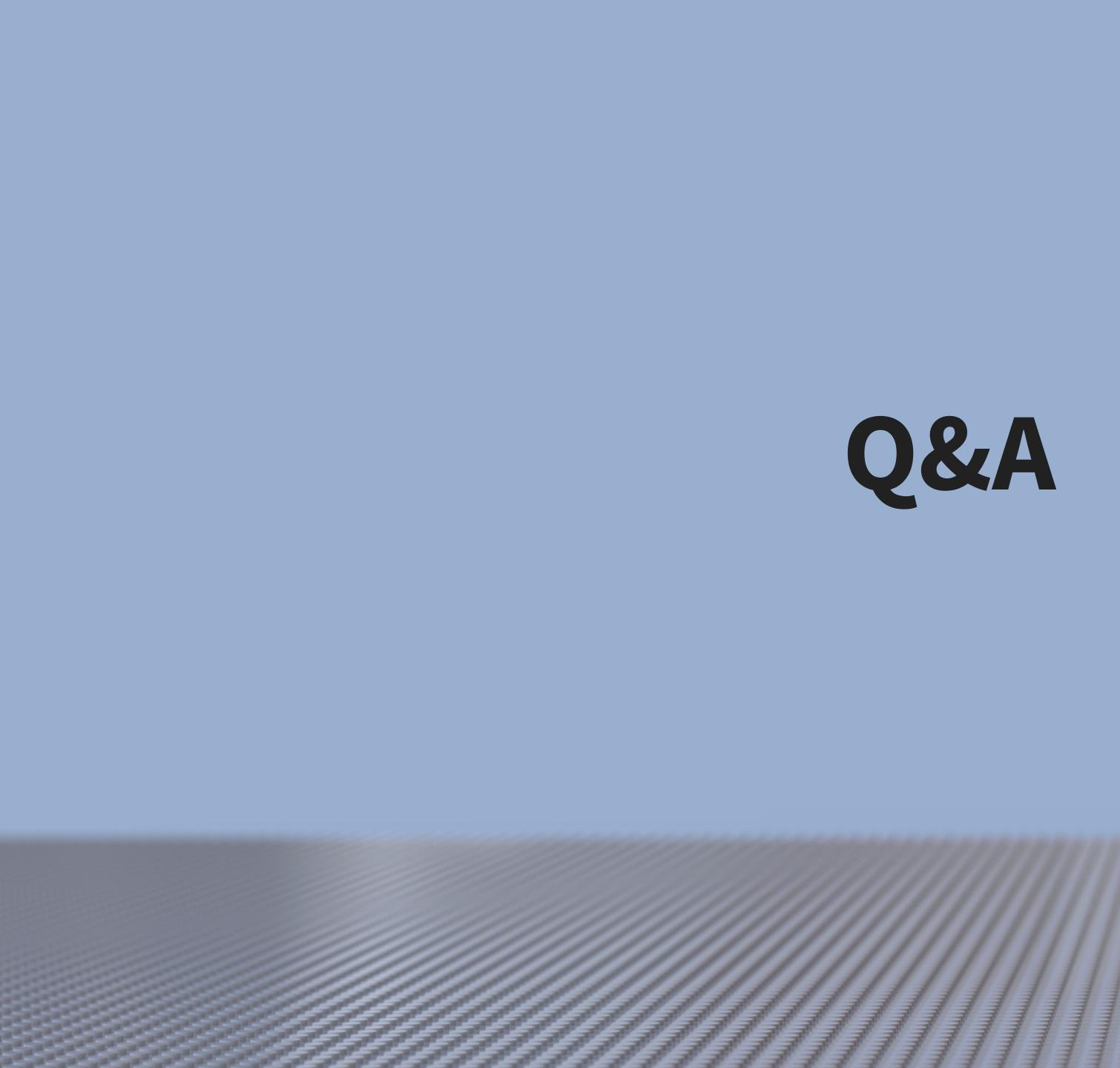
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