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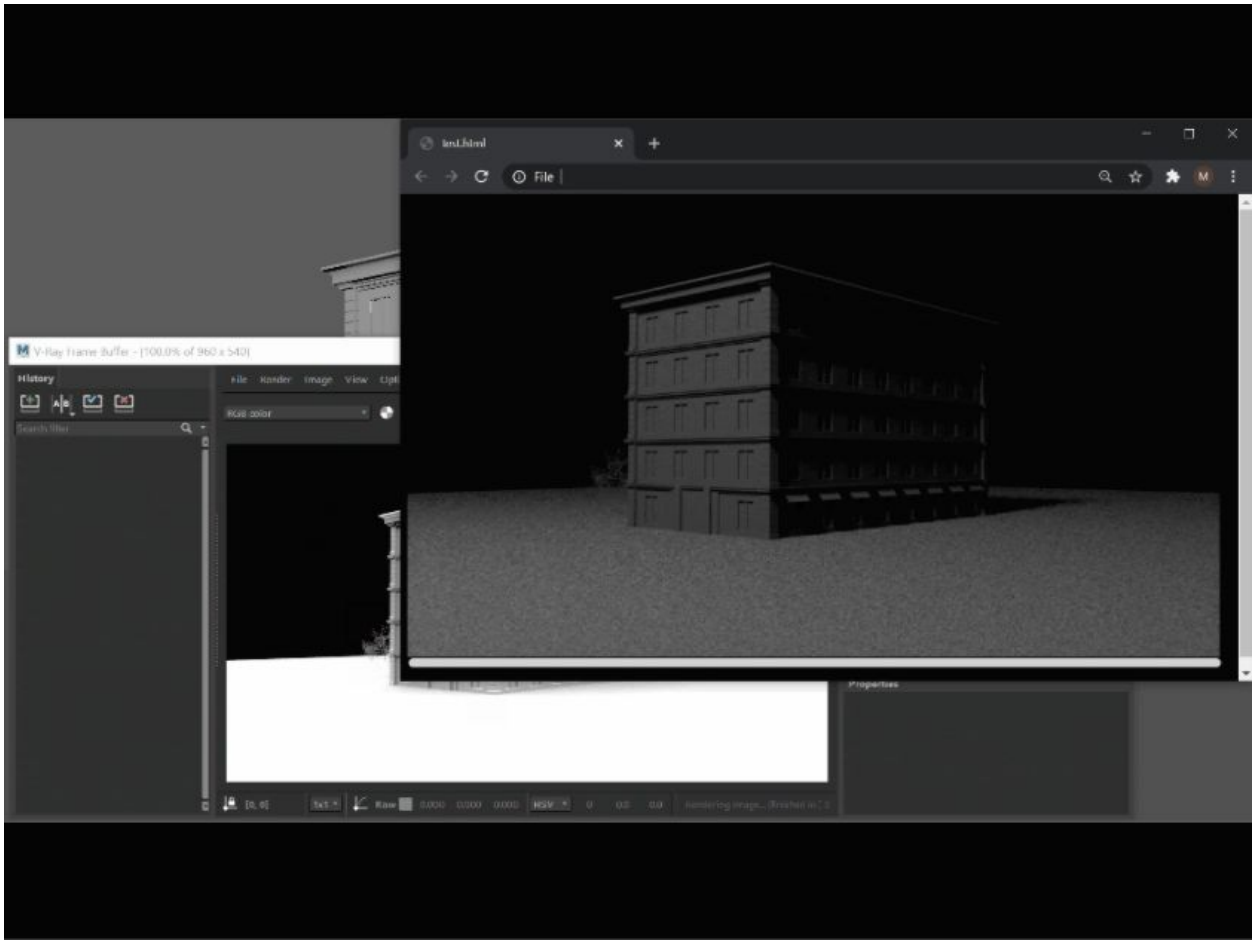
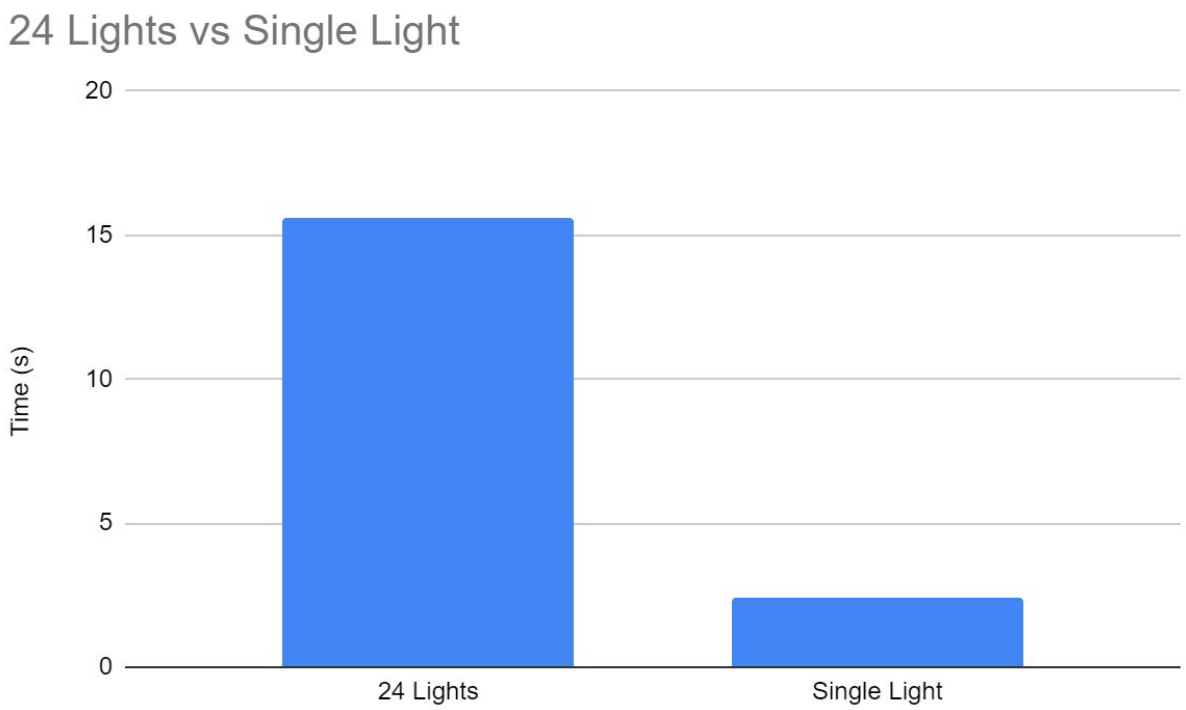
[CGI-001] Turntable From Single Image 2019

Overview

Automated process using light selects to derive a 360 degree light spin from a single frame render in one click. The main purpose would be for light exploration in a simple and reviewable form, this could help establish light direction and solid starting point in less time.

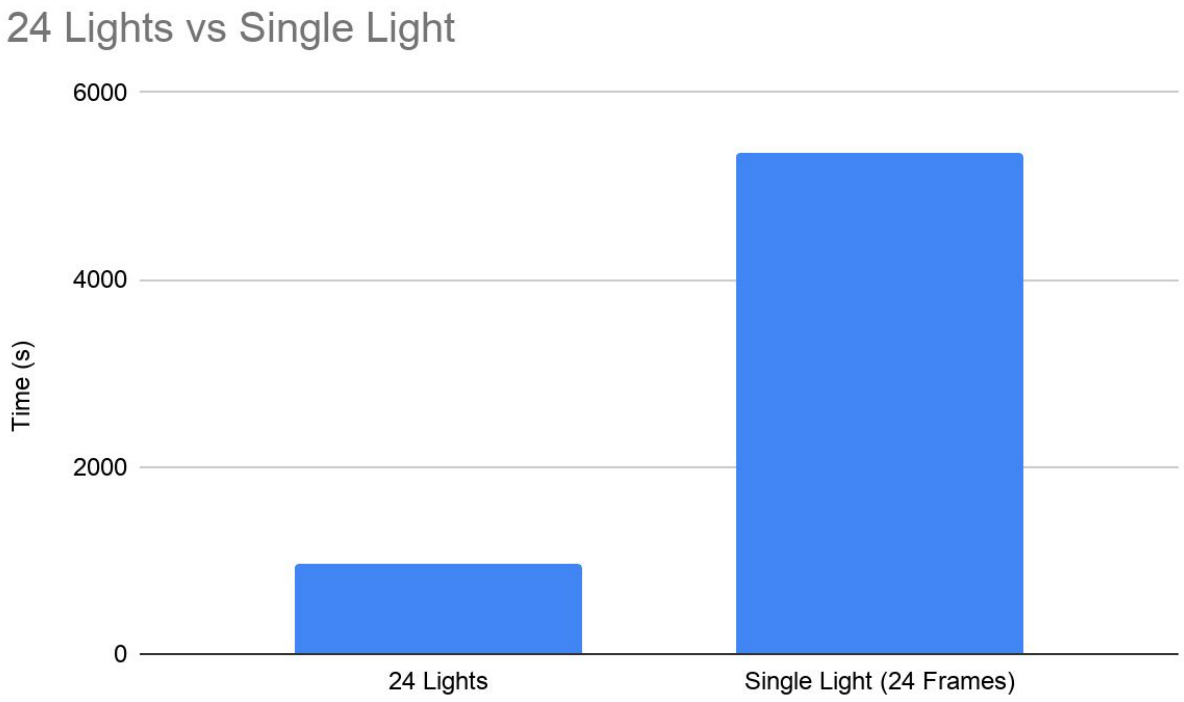


As light count increases drastically so does render time. Assuming a 24 Frame light spin (15 degree increments) performance sinks to a fraction of a render with only a single light.



Key performance optimizations for Multi Light renders for this use include lowering the exposure/intensity of the lights by a number of stops to prevent overexposed images that will yield in longer render times. The exposure of the image after rendering can then be increased to produce the desired result. This has shown to potentially reduce render times anywhere from 10-15% in most cases.

Taking into consideration the possibility of doing a quick noisy grey shaded turntable with a single multi-light render. Then the potential benefits become more apparent for figuring out shadow direction, especially on heavier scenes. The multi light render often taking much less time than rendering individual frames.



In a heavy scene with dense geometry a 5x performance gain over rendering the frames individually, the process is fully automated and interactive.

Process Breakdown

Lights are fetched from either a predetermined and aligned to a locator or a selected mesh. Light select render layers are created for each light, a simple loop can handle this.

```
for light in lightSel:
    mel.eval("vrayAddRenderElement LightSelectElement;")
    ...
```

Renderer is set to vray, and render global/settings are defined.

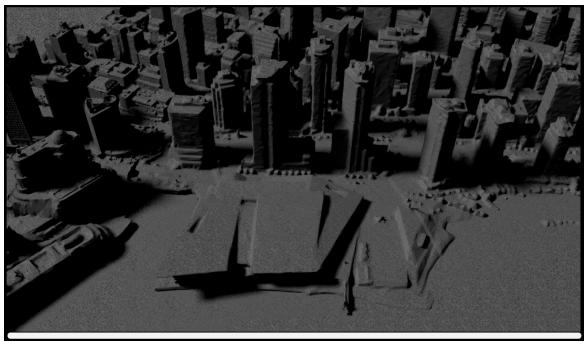
```
cmds.setAttr("vraySettings.imageFormatStr", 'jpg', type='string')
cmds.setAttr("vraySettings.fileNamePrefix", 'frame', type='string')
cmds.setAttr("vraySettings.animType", 0)
cmds.setAttr("defaultRenderGlobals.startFrame", 1)
cmds.setAttr("defaultRenderGlobals.endFrame", 24)
```

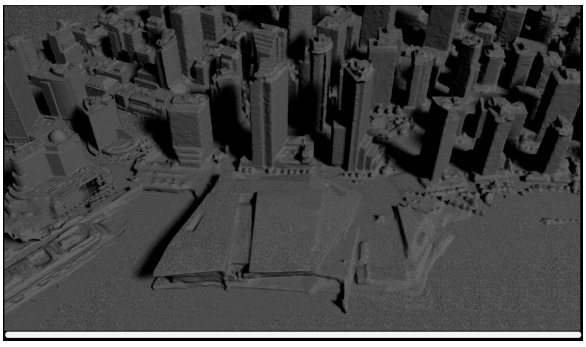
Light selects are written out individually (not multichannel exr), upon render completion a HTML page is then launched,

```
webbrowser.get("C:/Program Files/Google/Chrome/Application/chrome.exe
%s").open(webTarget)
```

Light selects are written out individually (not multichannel exr), upon render completion a HTML page is then launched and the frames are picked up by javascript that allow the user to change the frame displayed by sliding a timebar.

```
function updateImage(frame){
          document.getElementById("imgDisplay").src = "./images/f."+(frame)+".jpg";
        }
```





Additional Resource

Simplified Maya Source Code
https://github.com/novakcg/mayaSnippets/blob/main/singleImageTT.py