

Graphics Pixel History

Final Frame Buffer

R: 0.678431392  Render Alpha  
G: 0.847058833  
B: 0.901960790 Frame: 5166  
A: 1.000000000 Pixel: 46, 23

35: Initial  
35: ID3D11DeviceContext::ClearRenderTargetView  
35: Final

Graphics Event List

Search

- 23: ID3D11DeviceContext::HSSetShader(NULL)
- 24: ID3D11DeviceContext::DSSetShader(NULL)
- 25: ID3D11DeviceContext::CSSetShader(NULL)
- 26: ID3D11DeviceContext::IASetIndexBuffer(N
- 27: ID3D11DeviceContext::IASetInputLayout(I
- 28: ID3D11DeviceContext::OMSetDepthStenc
- 29: ID3D11DeviceContext::OMSetBlendState(
- 30: ID3D11DeviceContext::RSSetViewports(0,
- 31: ID3D11DeviceContext::RSSetScissorRects(
- 32: ID3D11DeviceContext::RSSetState(NULL)
- 33: ID3D11DeviceContext::SOSetTargets(0,{},
- 34: ID3D11DeviceContext::SetPredication(NU
- 35: ID3D11DeviceContext::ClearRenderTarget
- 36: IDXGISwapChain::Present(0,0)

Graphics Experiment.vsglog\*

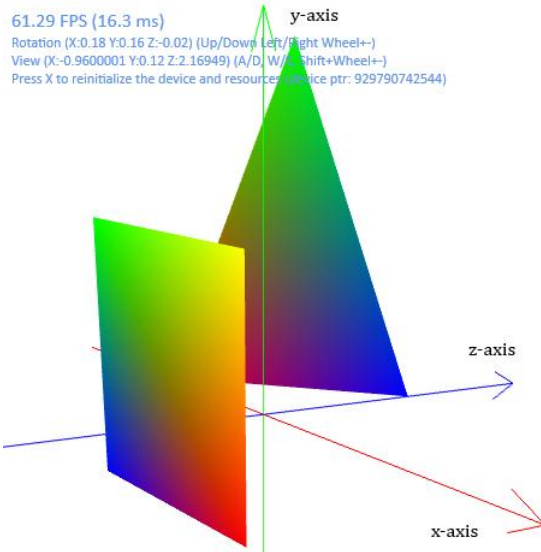
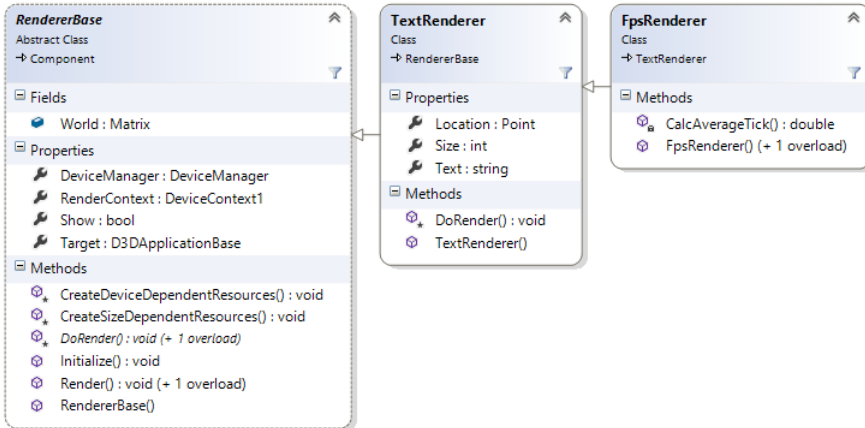
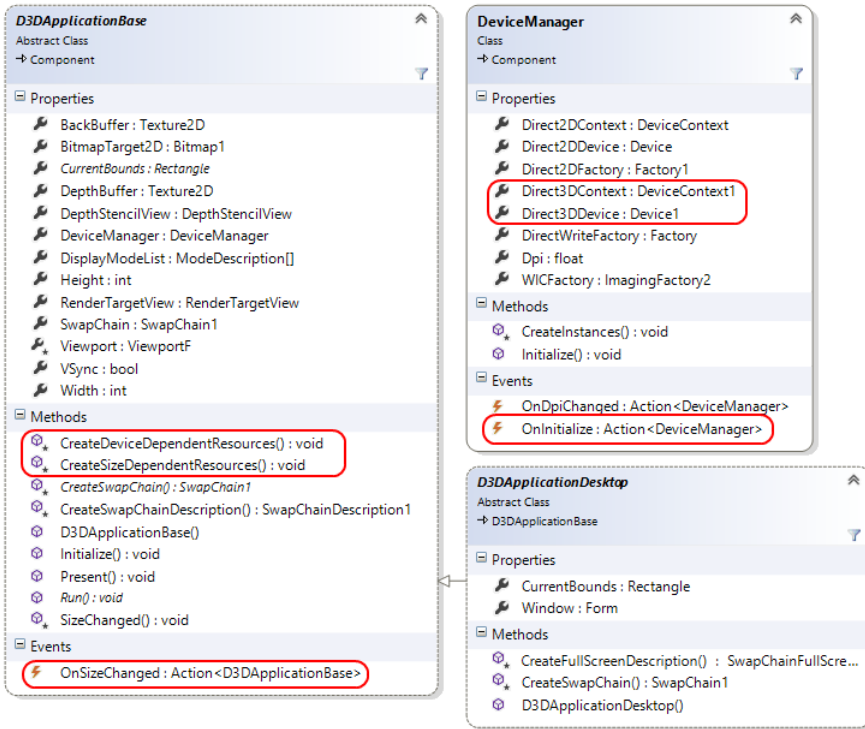
Zoom: 100% Selected pixel X: 46 (0.074) Y: 23 (0.

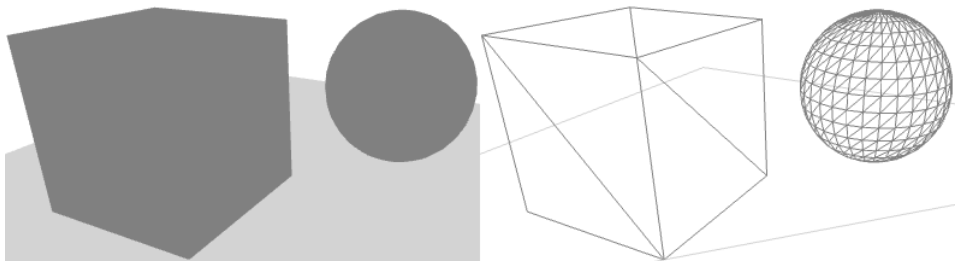
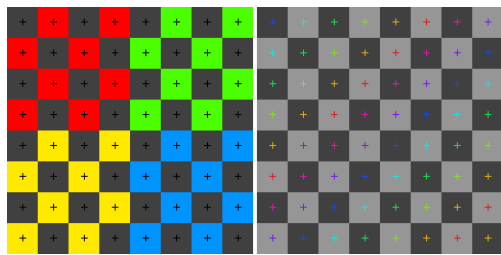
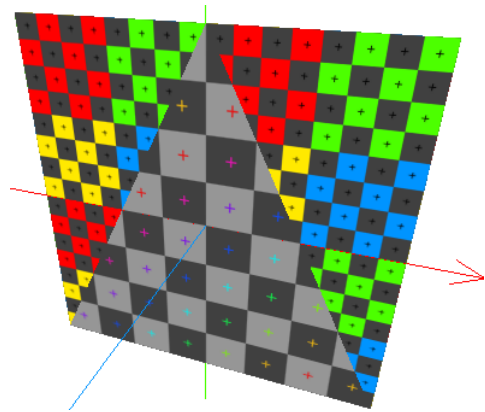
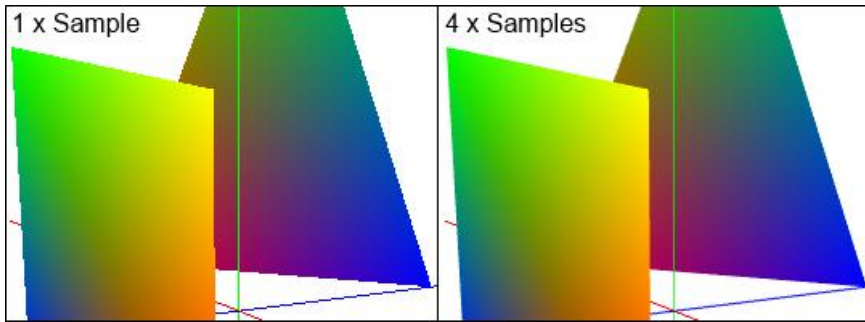
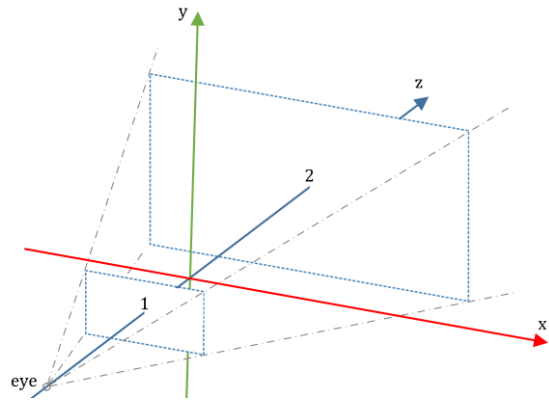
Graphics Object Table

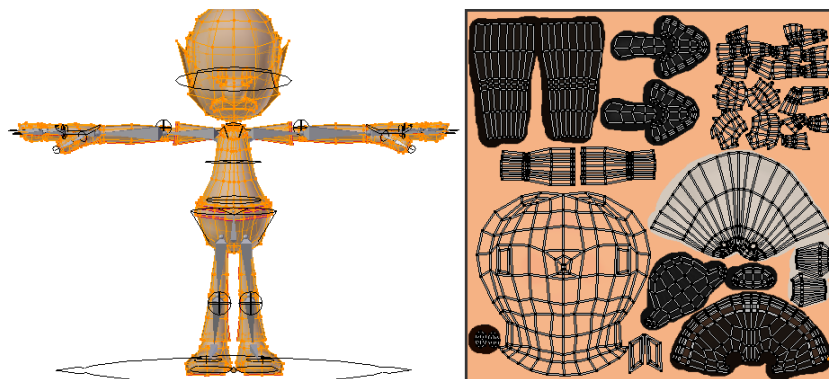
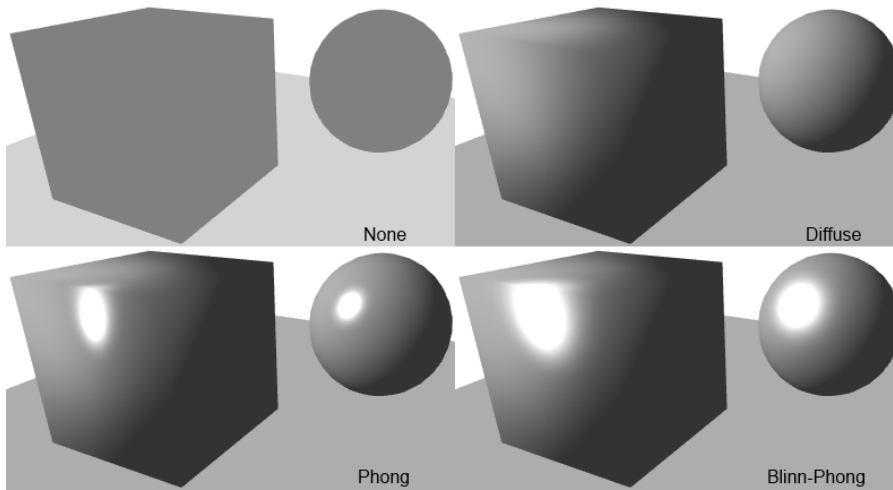
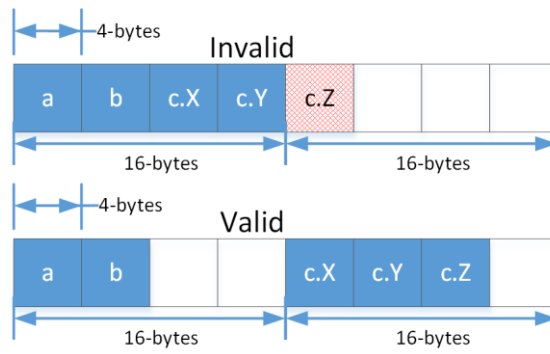
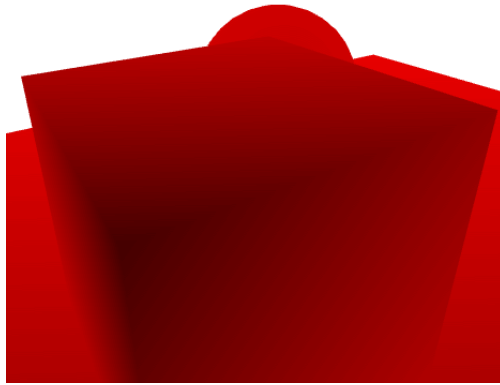
36: IDXGISwapChain::Present(0,0)

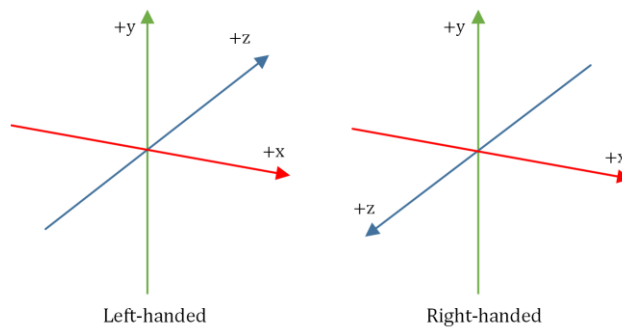
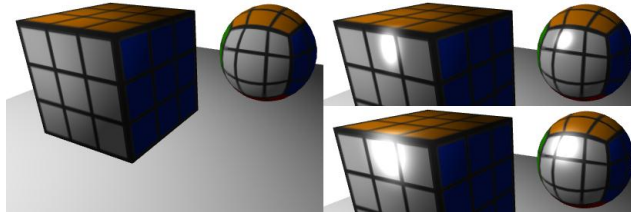
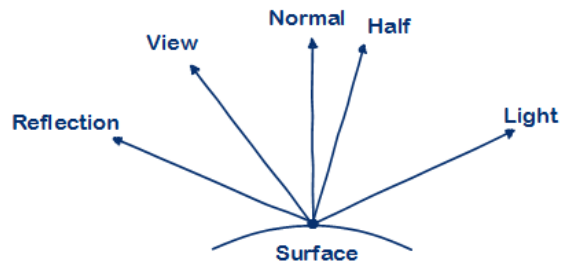
Buffer format: float

Identifier	Name	Type
obj:2	The Device	D3D11 Dev
obj:3	The Device	D3D11 Dev
obj:7	The RenderTargetView	D3D11 Ren
obj:6	The Backbuffer	D3D11 Text
obj:4		DXGI Devic
obj:5		DXGI Surfa
obj:1	The SwapChain	DXGI Swap



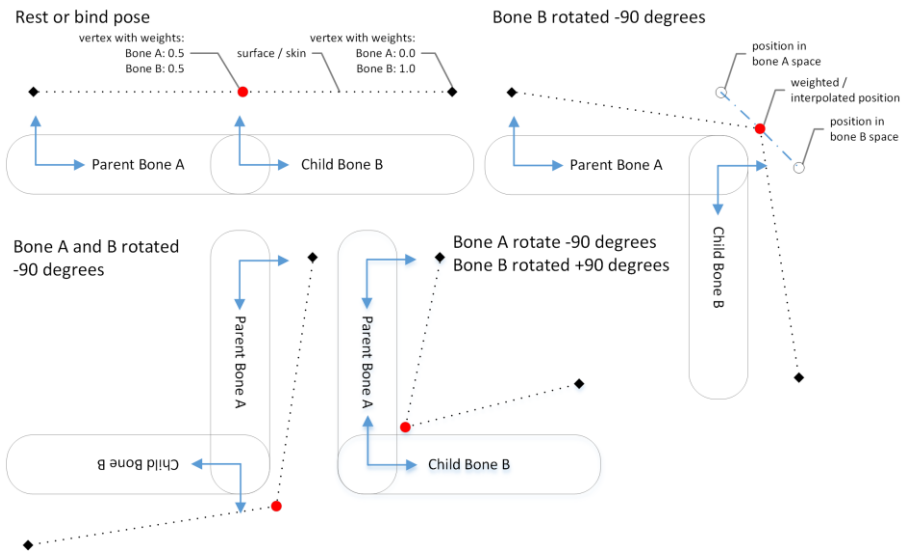
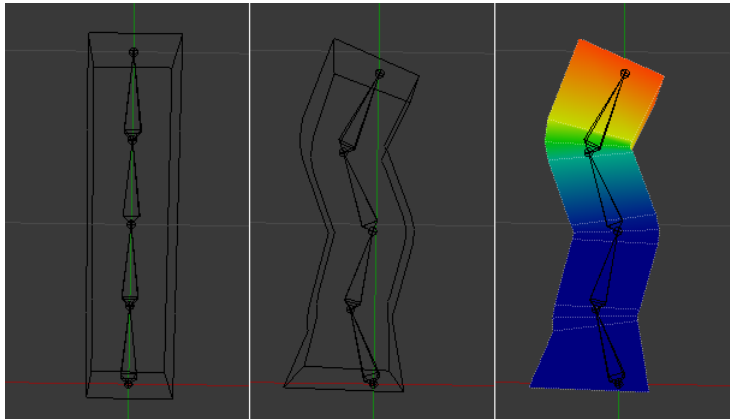
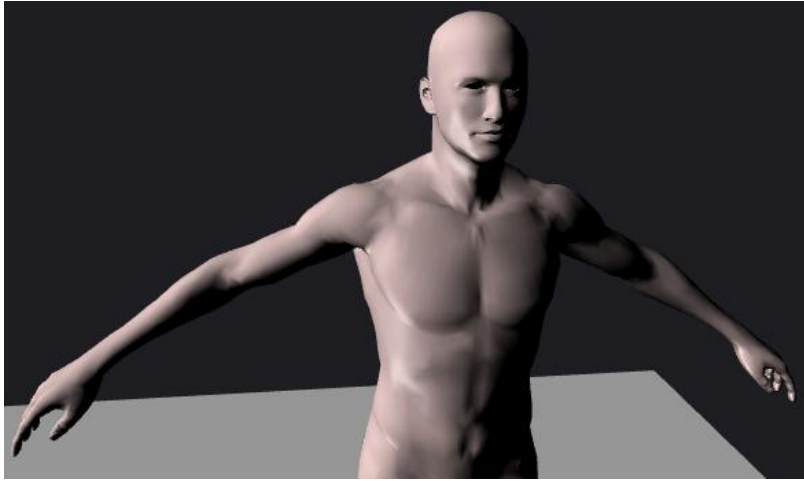




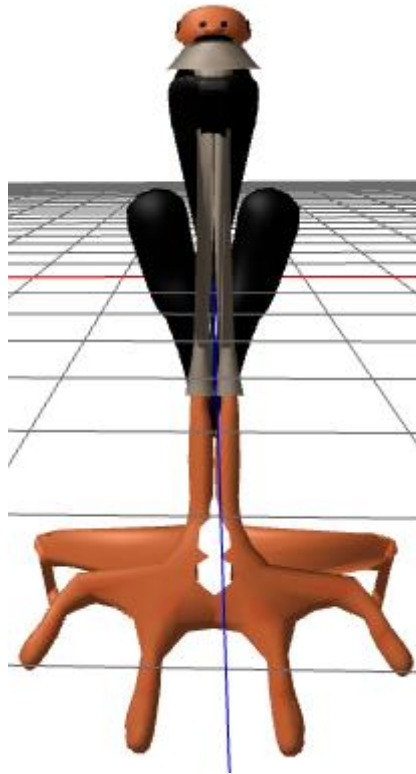
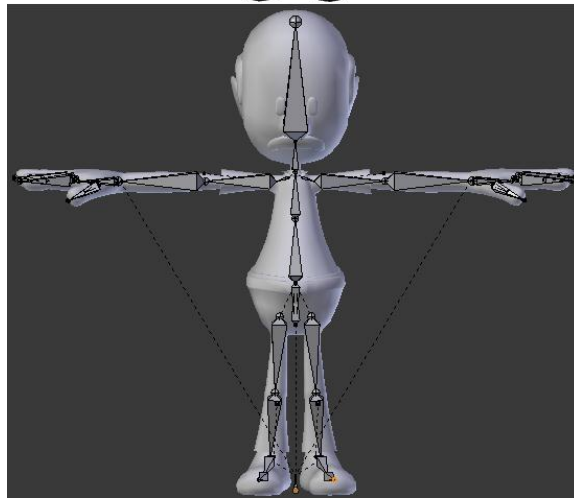
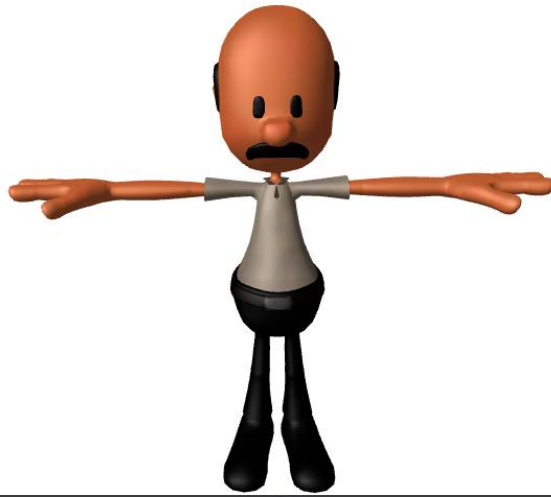


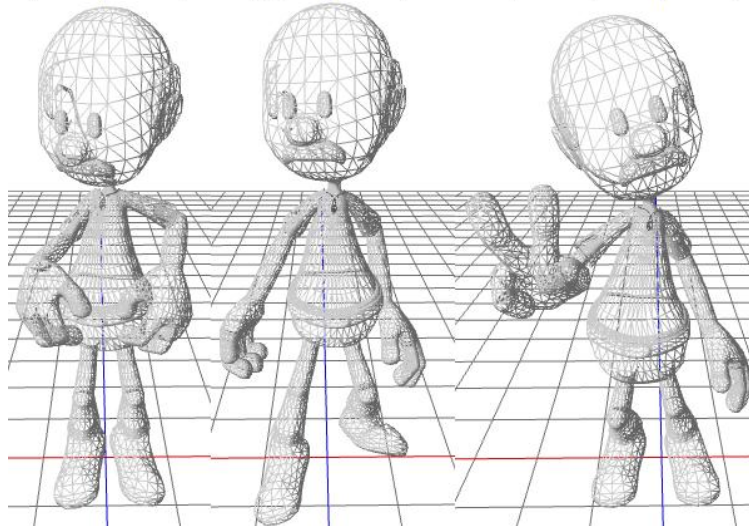
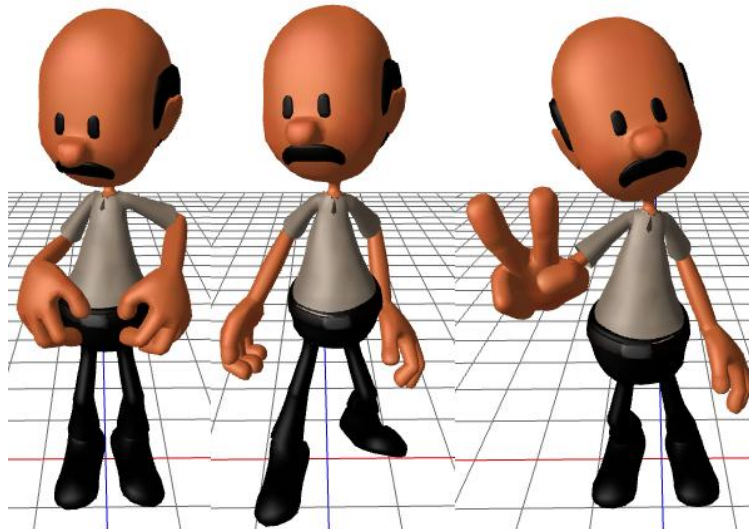
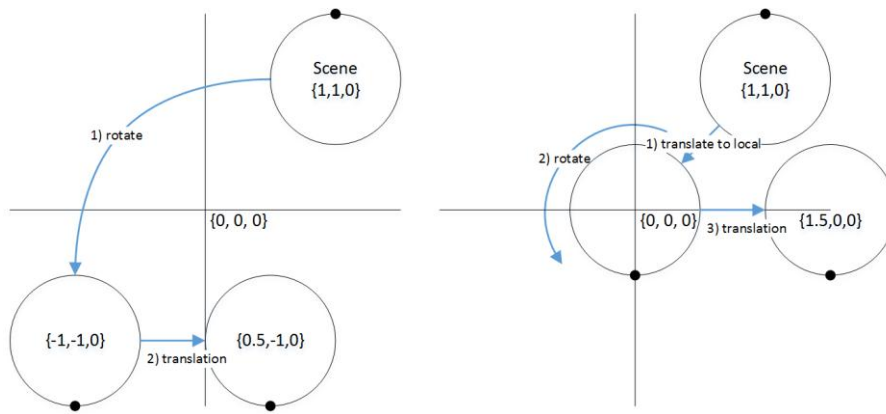
**Export FBX**

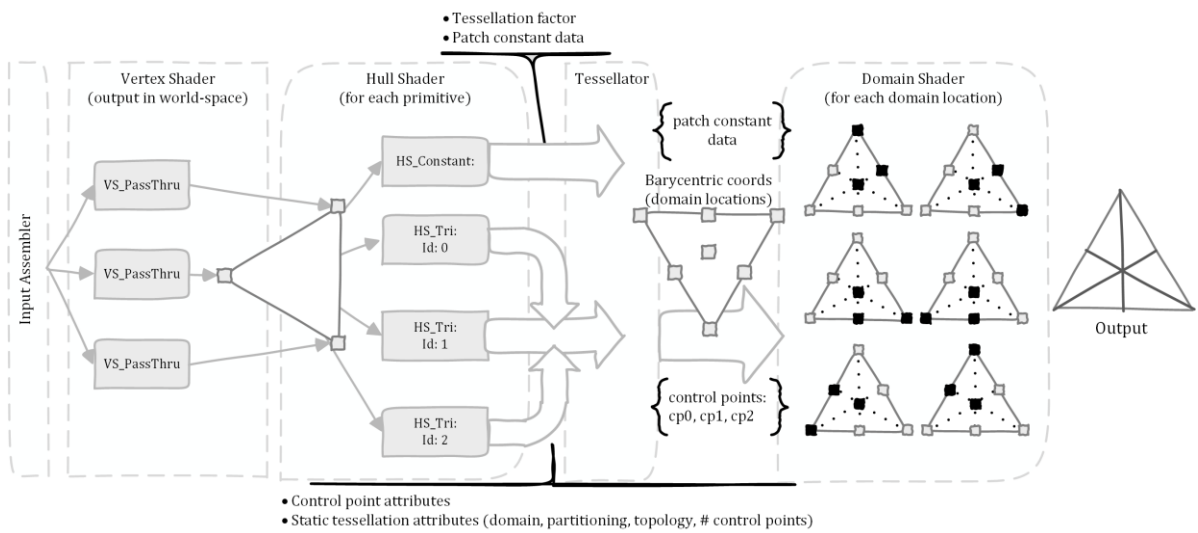
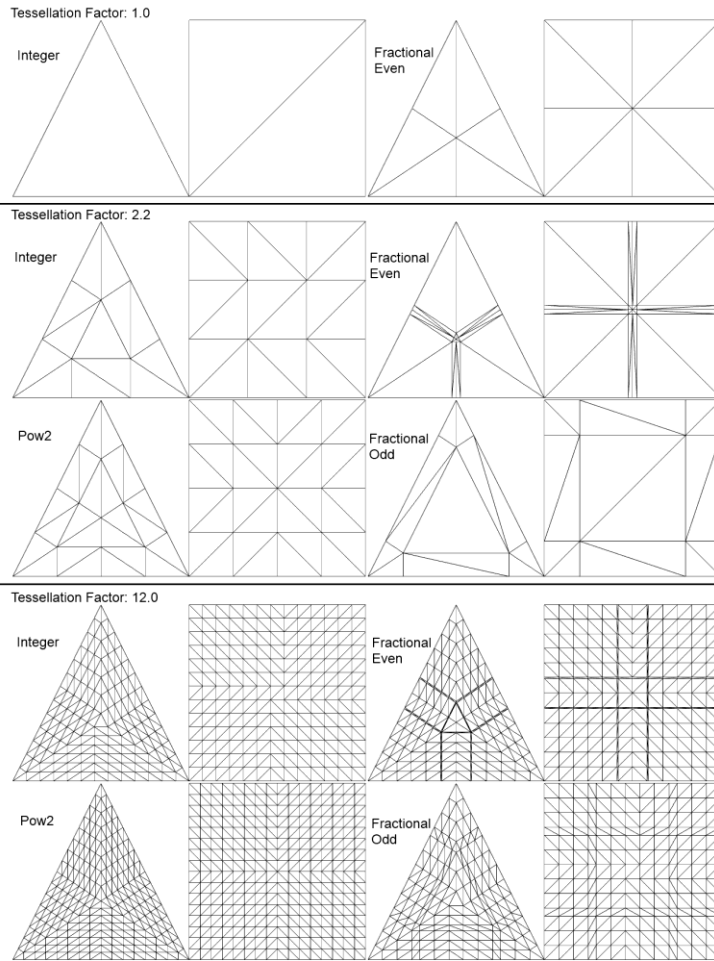
- Operator Presets: [ + ] [ - ]
- Selected Objects
- Scale: 1.00
- Forward: **-Z Forward**
- Up: Y Up
- Empty | Camera | Lamp | Armatu | Mesh
- Apply Modifiers
- Smoothing: Face
- Include Edges
- Only Deform Bones
- Include Animation
- All Actions
- Include Default Take
- Optimize Keyframes
- Precision: 6.00
- Path Mode: Auto
- Batch Mod: Off
- Batch Own Dir

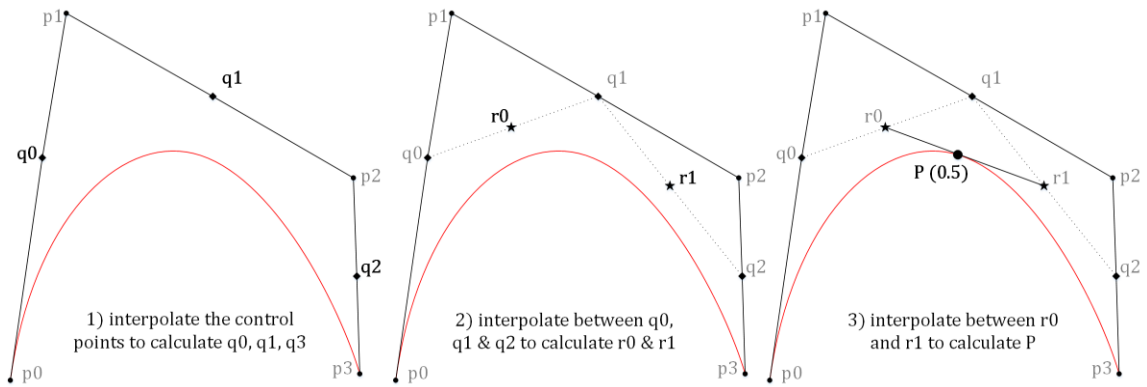
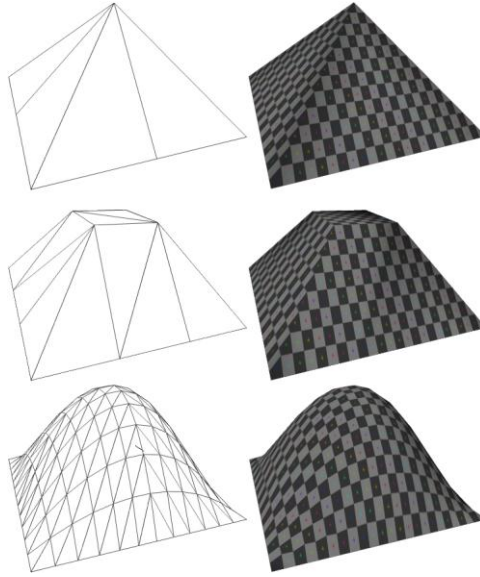
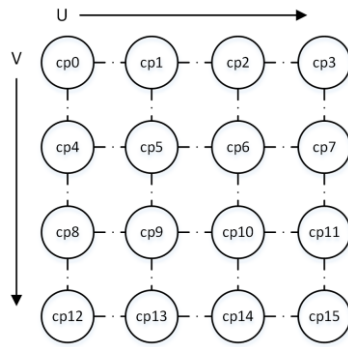


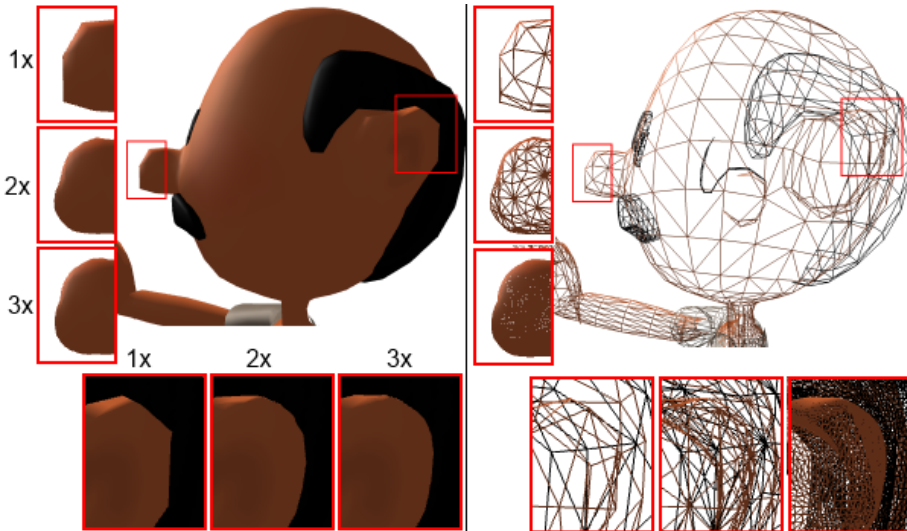
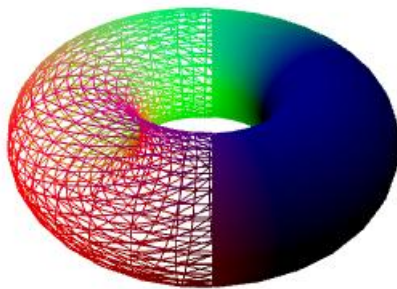
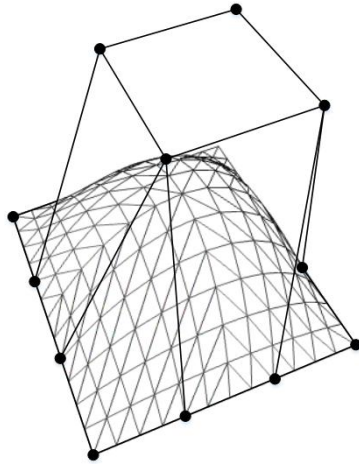


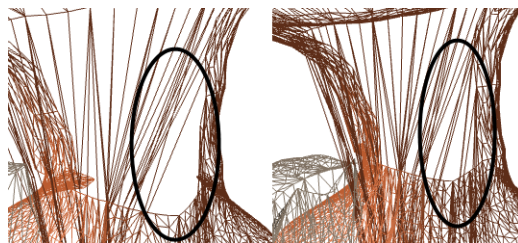
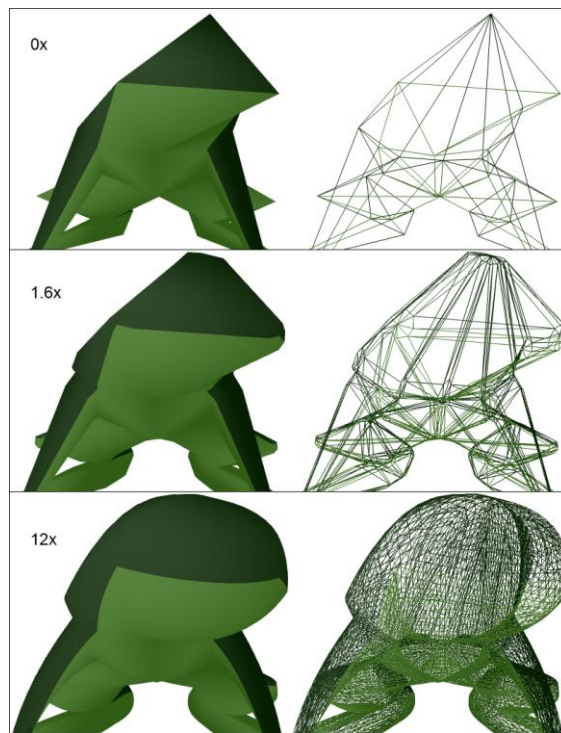
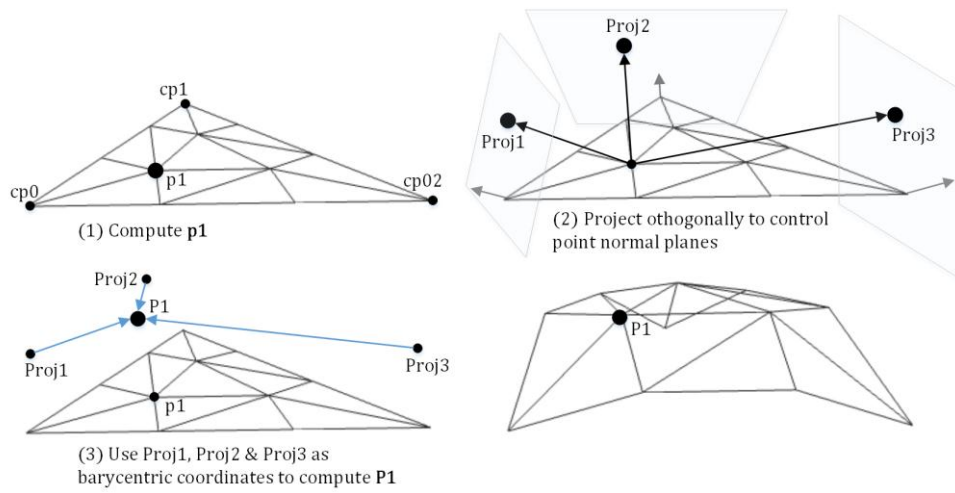




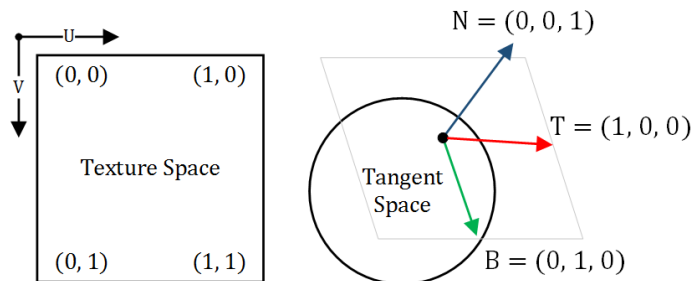
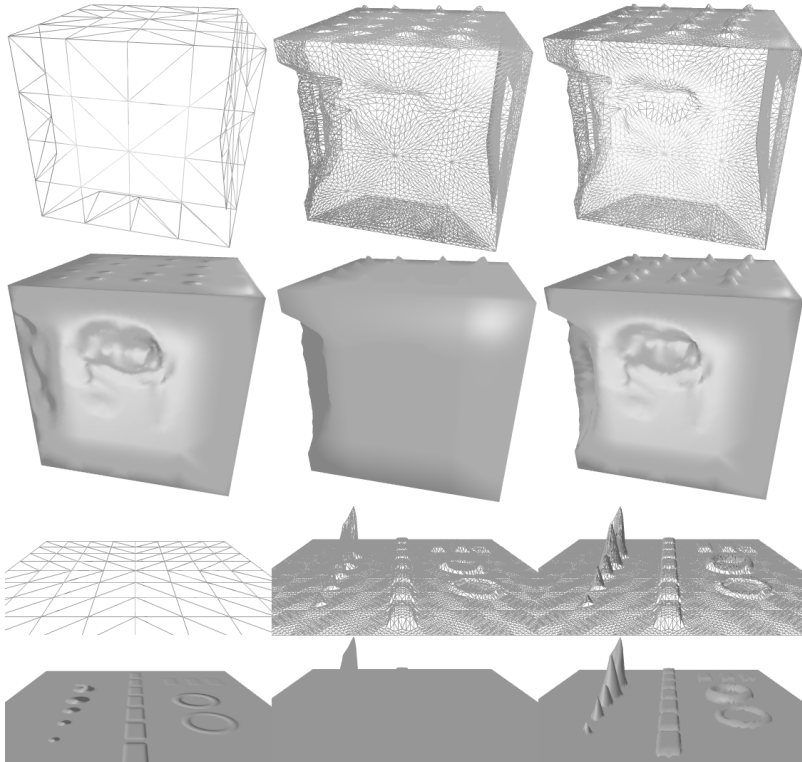
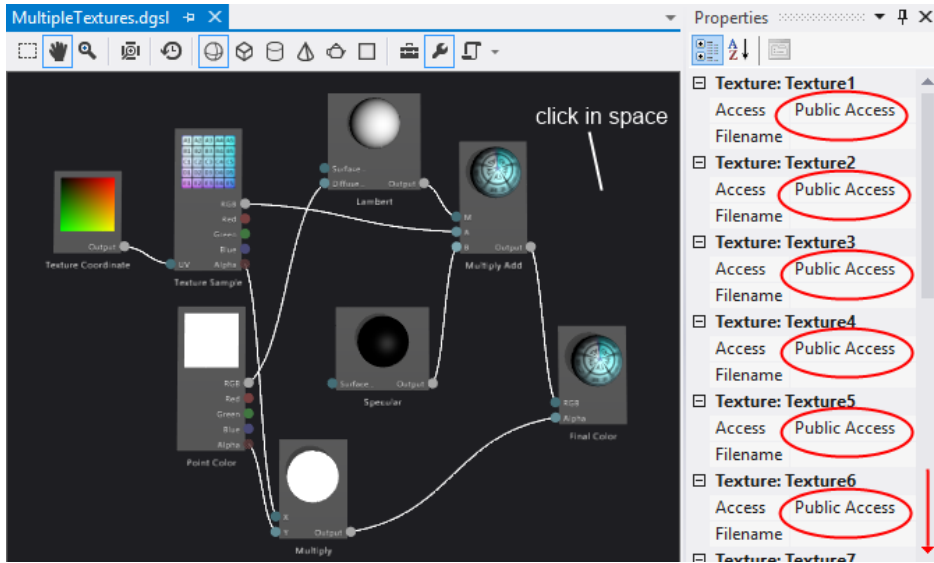








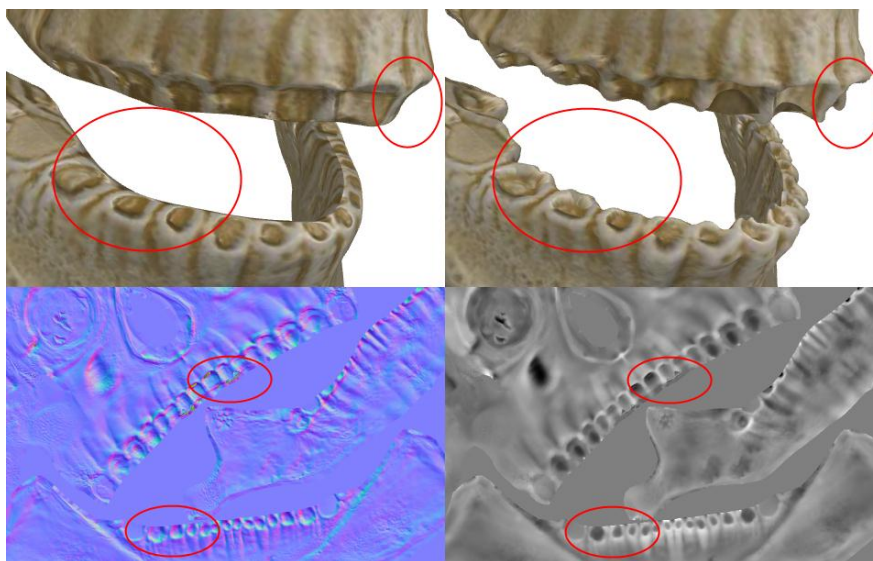
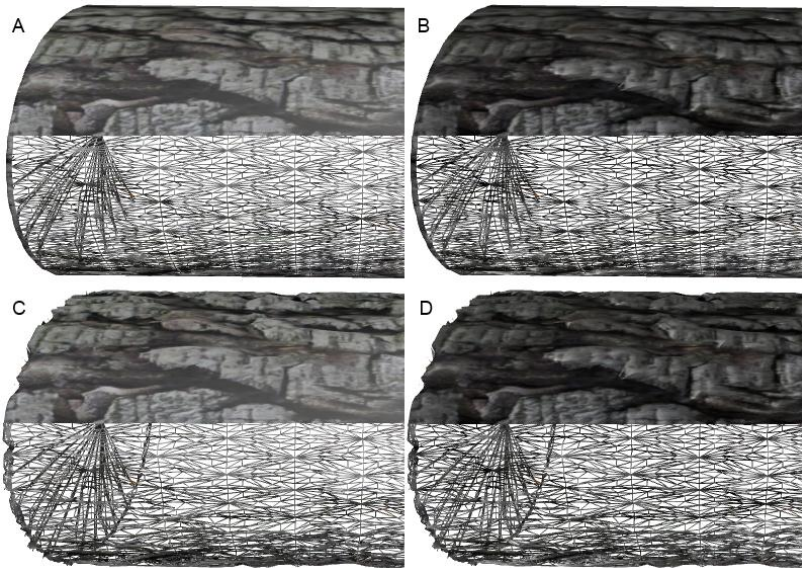
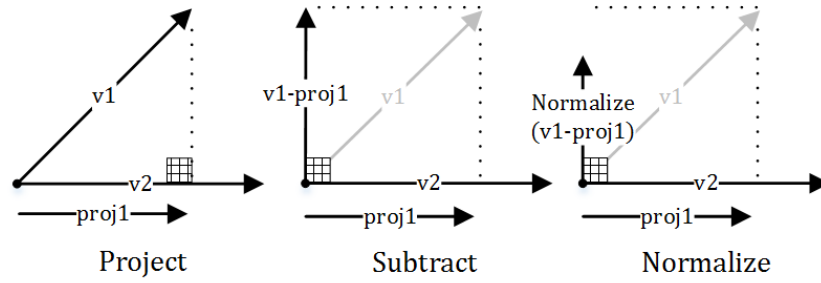




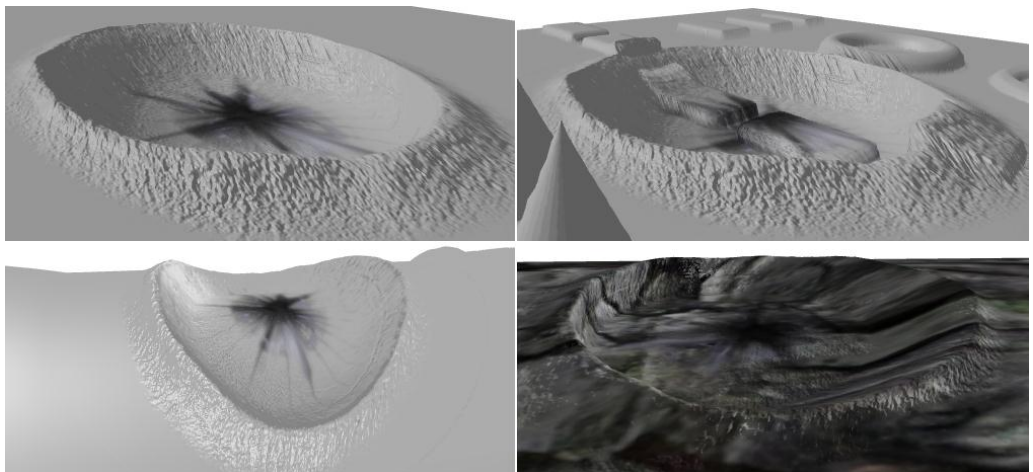
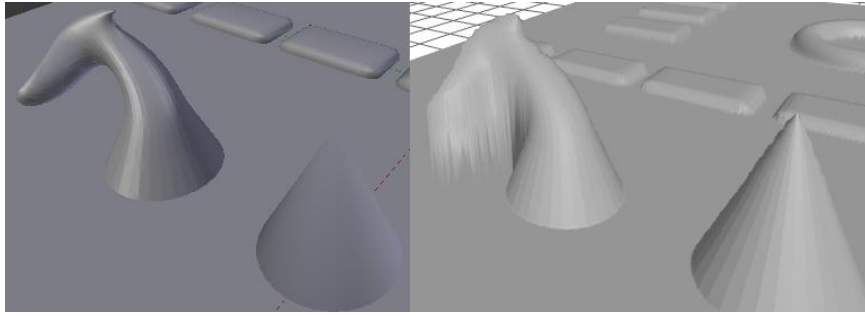
$$A) T' = T_{xyz} - N'(N' \cdot T_{xyz})$$

$$B) B' = (N' \times T')T_w$$

$$C) \begin{bmatrix} T'_x & T'_y & T'_z \\ B'_x & B'_y & B'_z \\ N'_x & N'_y & N'_z \end{bmatrix}$$

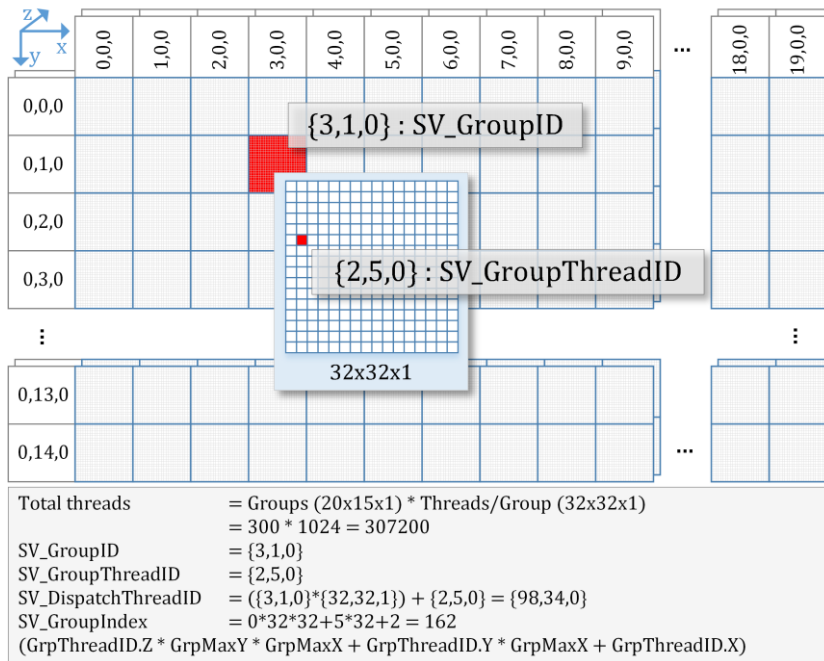


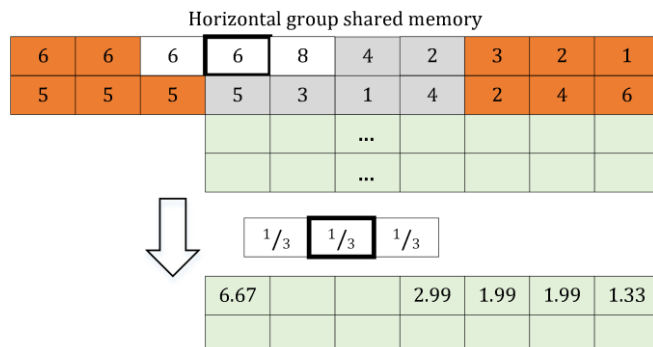
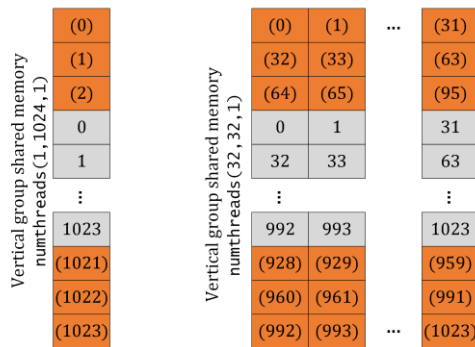
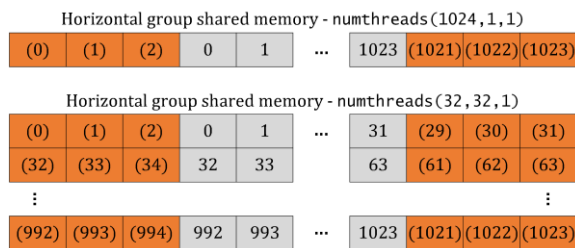
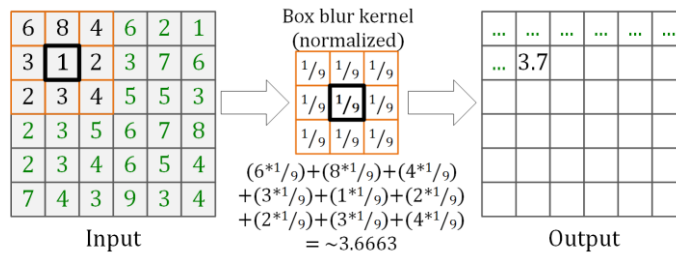


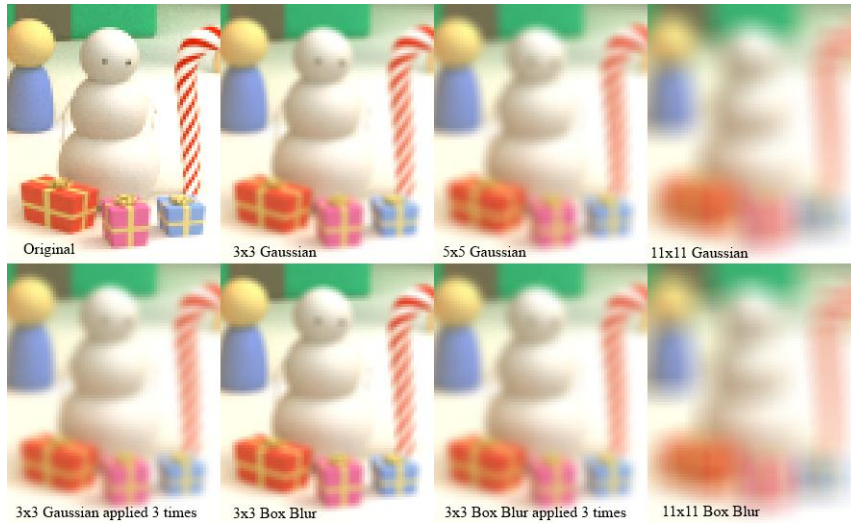


Graphics Object Table  
 DXGI SwapChain1: Present1(0,0,addr:249)  
 format: uint

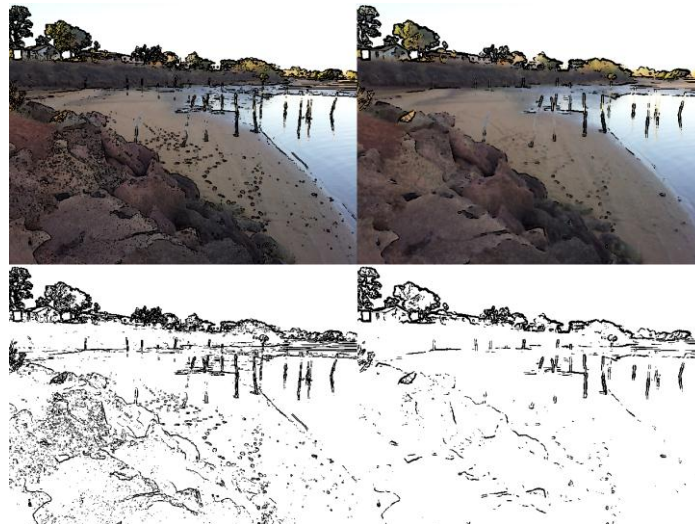
Identifier	Name	Type	Active	Size	Format	Mips	Width	Height
1		D3D11 Texture2D		5,592,404	B8G8R8A8_UNORM_SRGB	11	1024	1024
4		D3D11 Texture2D		1,638,348	R8G8B8A8_UNORM	10	640	480
5	CSTarget	D3D11 Texture2D		1,638,348	R8G8B8A8_UNORM	10	640	480







$$G(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{x^2}{2\sigma^2}}$$

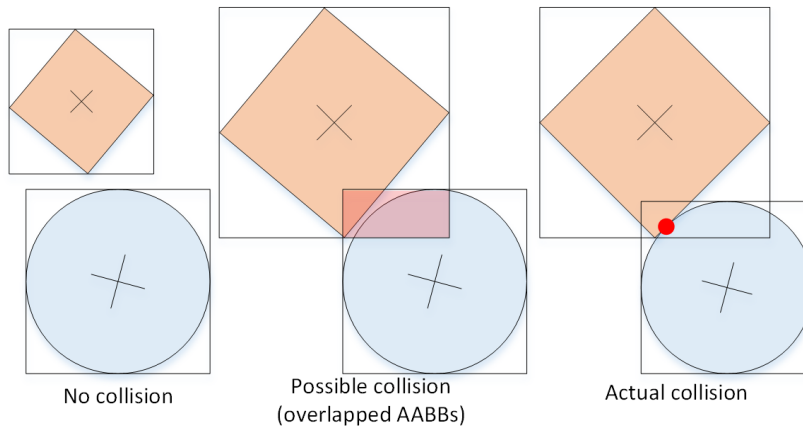
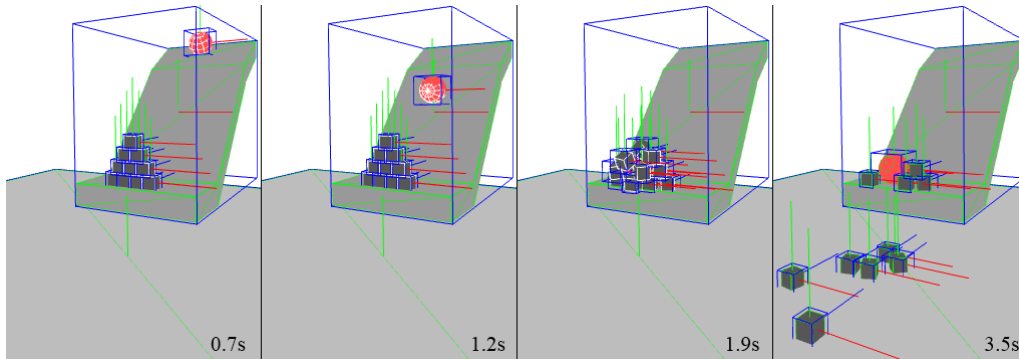
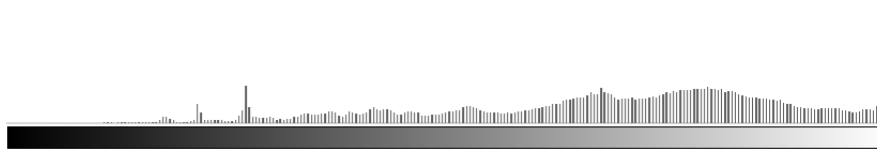


$$\begin{bmatrix} P_1 & P_2 & P_3 \\ P_4 & P_5 & P_6 \\ P_7 & P_8 & P_9 \end{bmatrix} \begin{array}{l} \text{Convolution kernel (Pn = loaded texels)} \\ P_5 \text{ is origin (current) texel} \end{array}$$

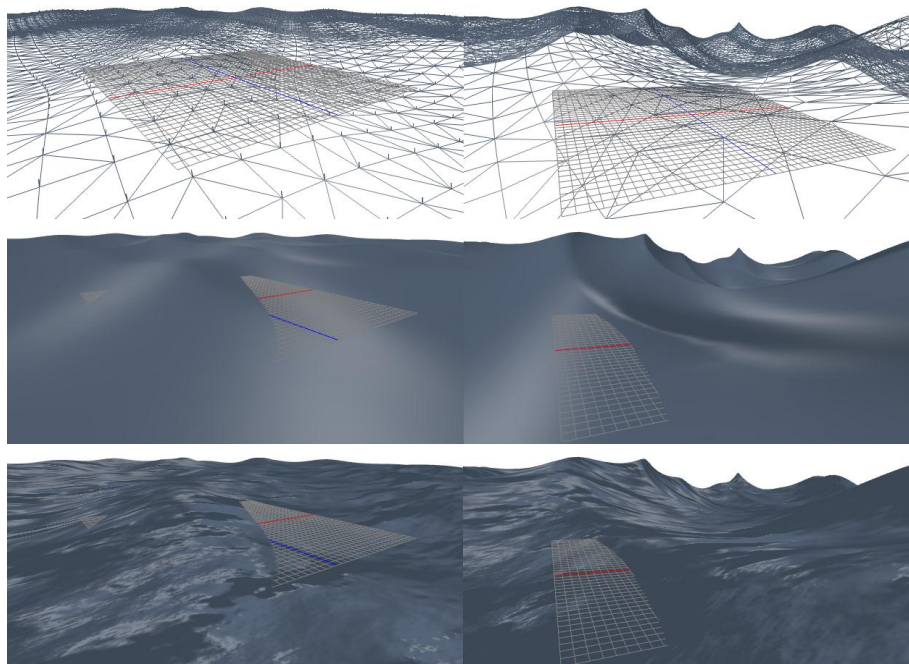
$$|G| = |Gx| + |Gy| = Gx \times Gx + Gy \times Gy$$

$$|G| = |(P_1 + 2 \times P_2 + P_3) - (P_7 + 2 \times P_8 + P_9)| + |(P_3 + 2 \times P_6 + P_9) - (P_1 + 2 \times P_4 + P_7)|$$





$$timeStep < maxSubSteps * fixedTimeStep$$



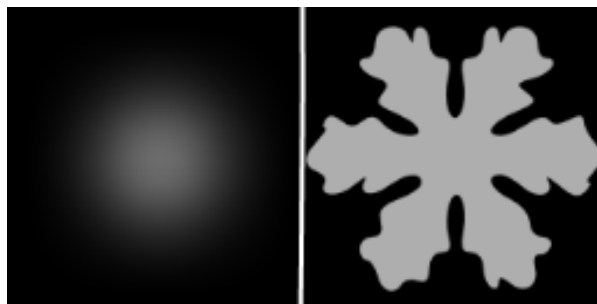
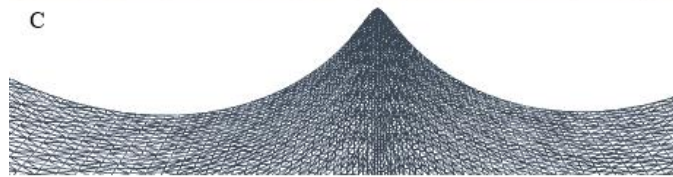
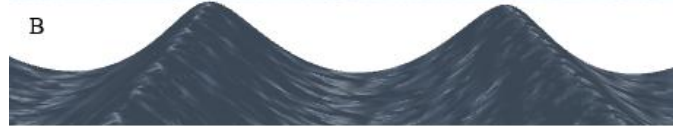
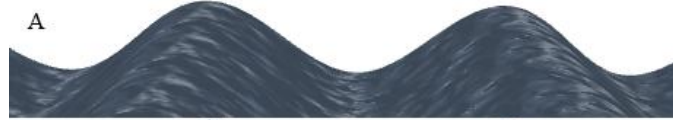
$$k = 2\pi/\lambda$$

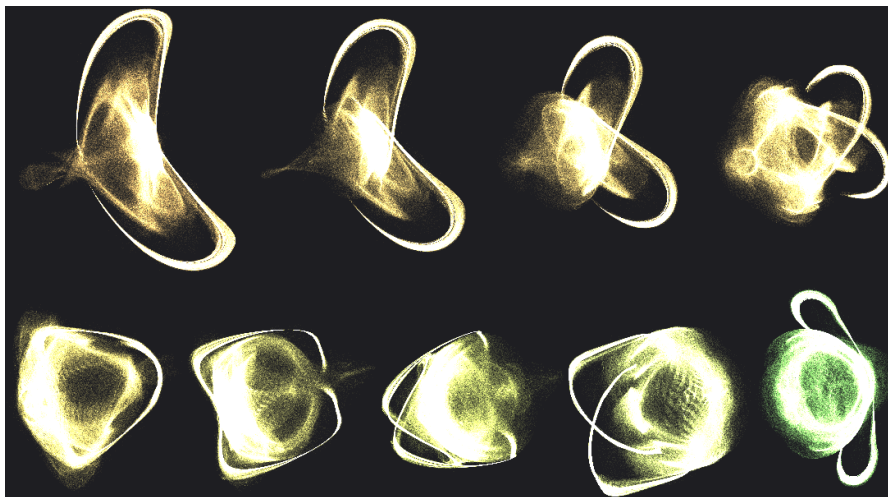
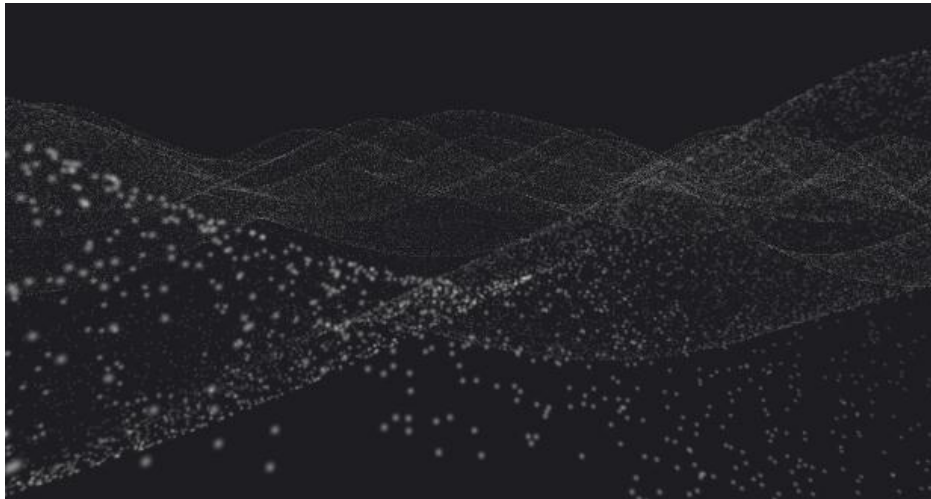
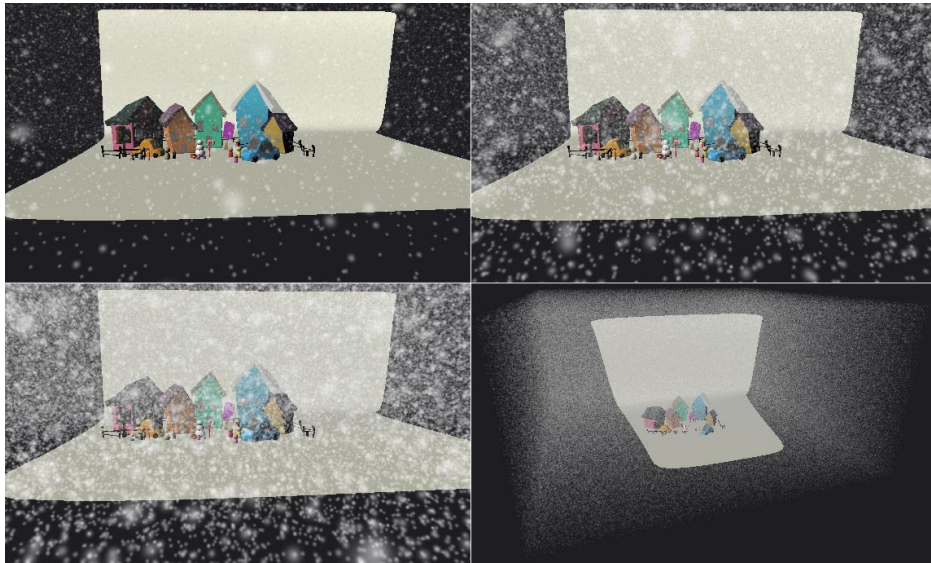
$$K = \hat{D} \times k$$

$$xz = xz_0 - \left(\frac{K}{k}\right) QA \sin(K \cdot xz_0 - \omega t)$$

$$y = A \cos(K \cdot xz_0 - \omega t)$$

Where  $xz_0$  is the current vertex XY position,  $D$  is the direction vector (normalized as  $\hat{D}$ ),  $\lambda$  is the wavelength,  $Q$  is the steepness of the crest,  $A$  is the wave amplitude,  $\omega$  is the frequency and finally  $t$  is time.  $xz$  holds the new horizontal displacement, and  $y$  the vertical.



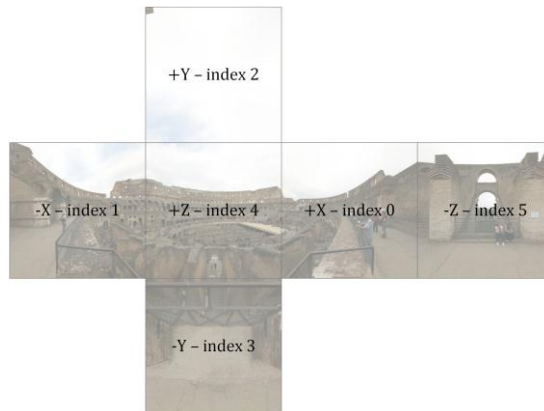
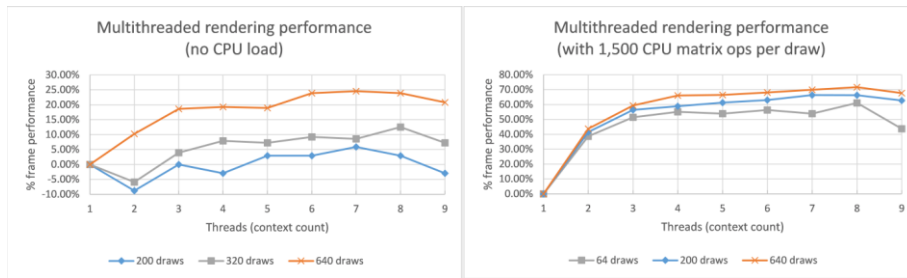
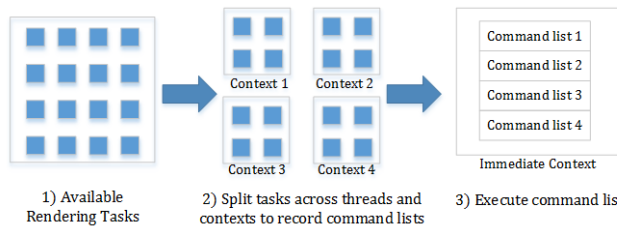
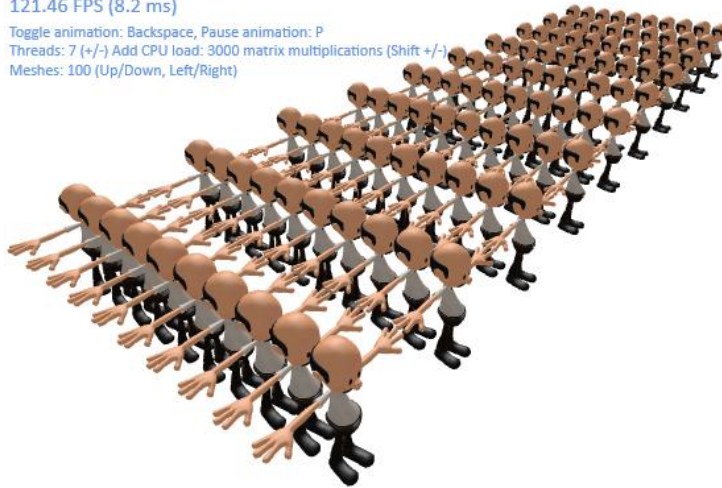


121.46 FPS (8.2 ms)

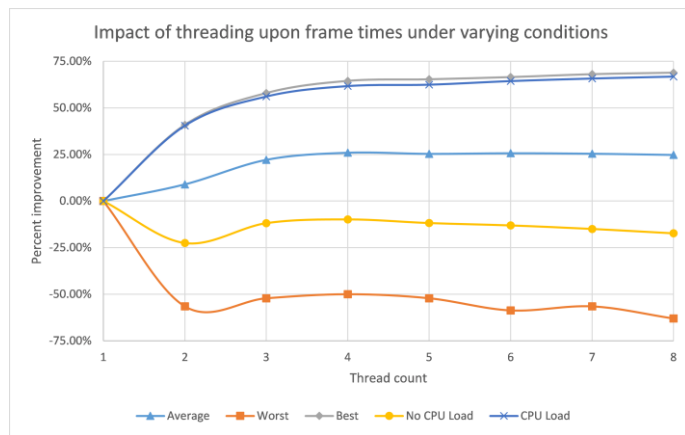
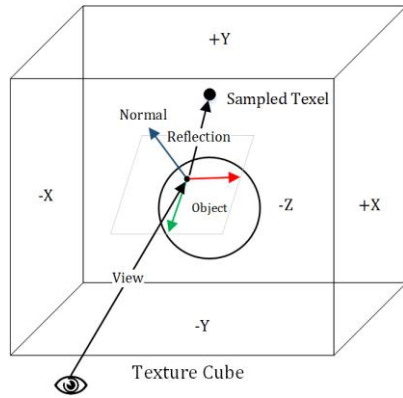
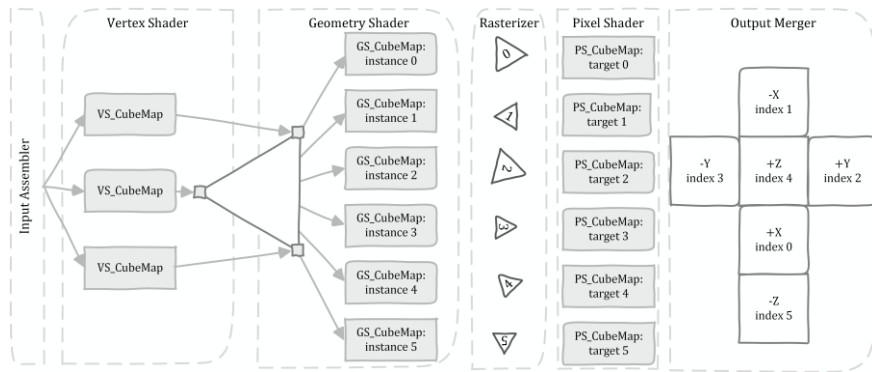
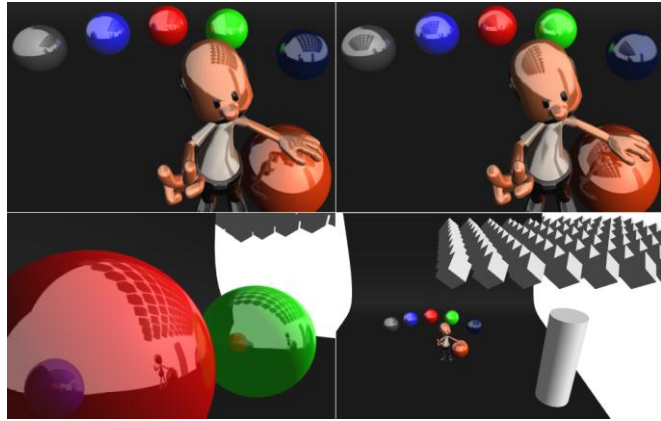
Toggle animation: Backspace, Pause animation: P

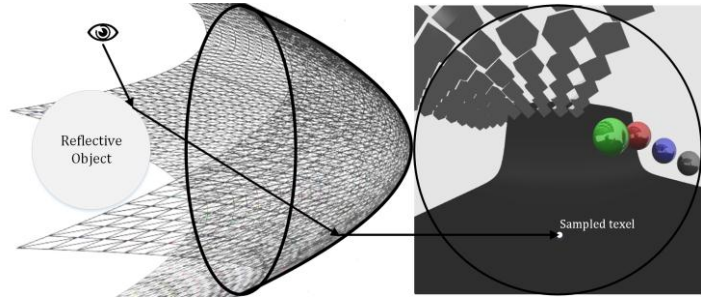
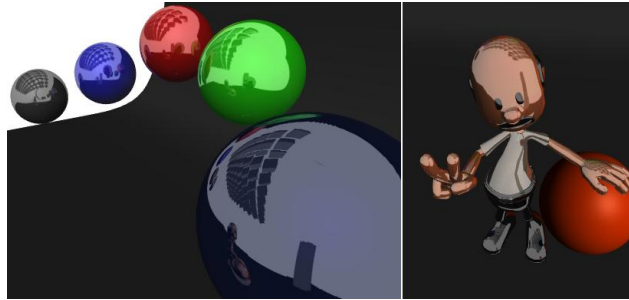
Threads: 7 (+/-) Add CPU load: 3000 matrix multiplications (Shift +/-)

Meshes: 100 (Up/Down, Left/Right)

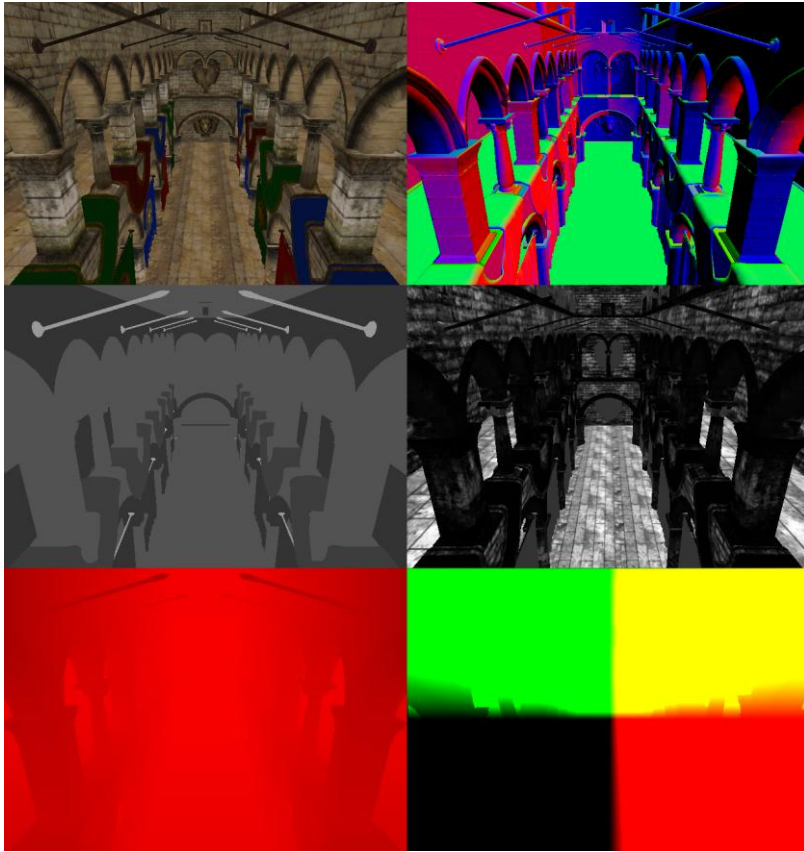




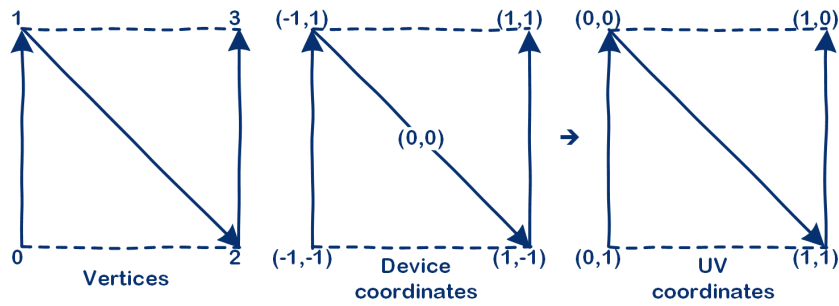


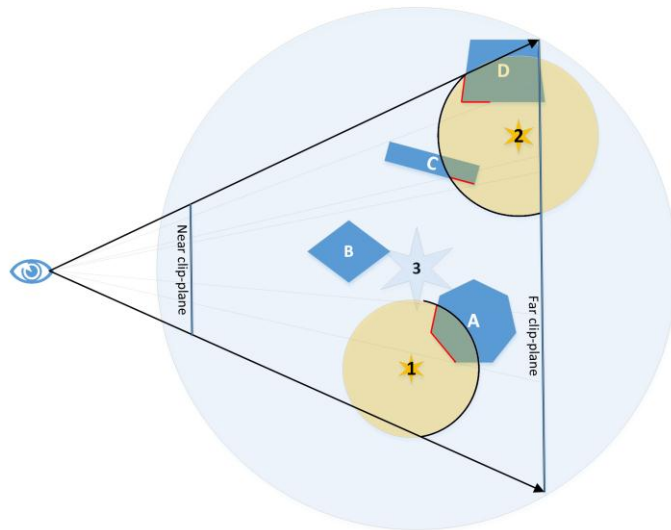
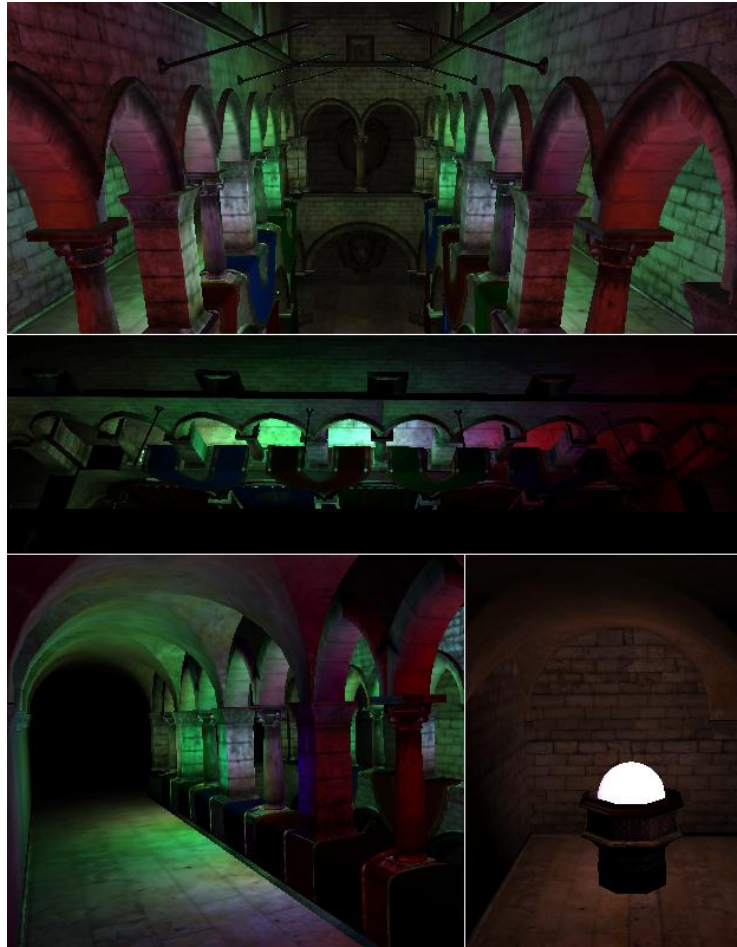


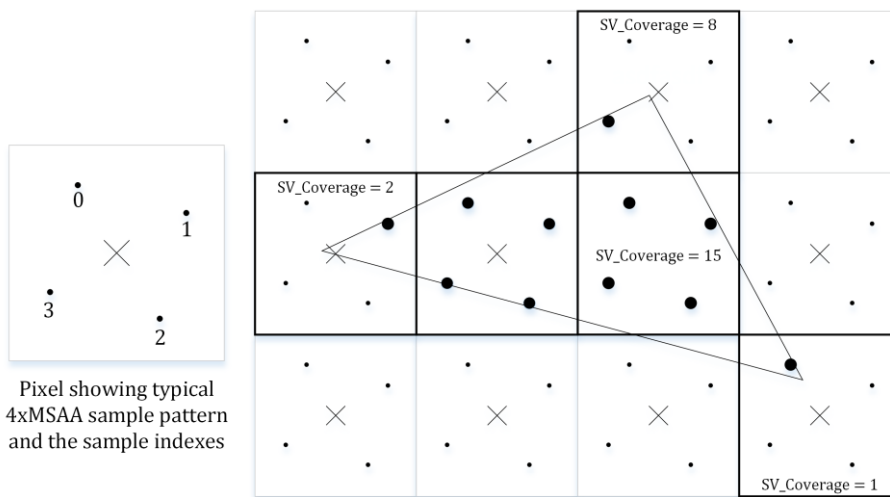
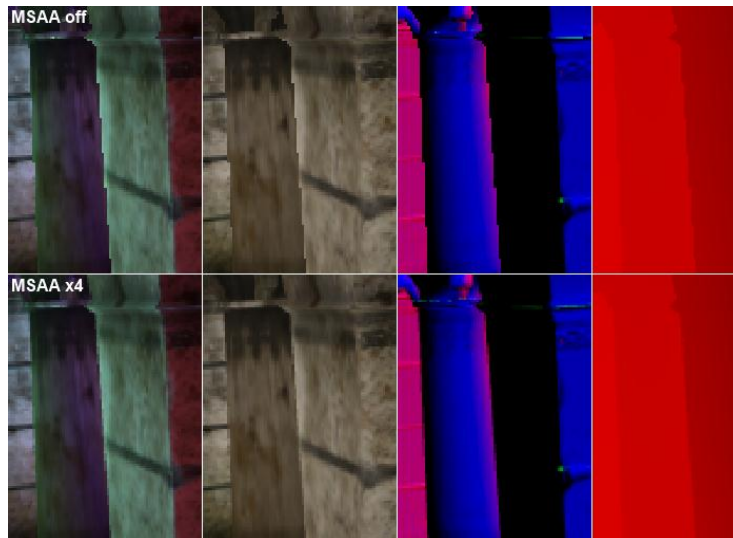
32-bit Render Target				
Render Target 0 <b>R8G8B8A8_UNorm</b>	Diffuse R	Diffuse G	Diffuse B	Specular Intensity
Render Target 1 <b>R32_UInt</b>	Normal X		Normal Y	
Render Target 2 <b>R8G8B8A8_UNorm</b>	Emissive R	Emissive G	Emissive B	Specular Power
Depth/Stencil <b>R32G8X24_Typeless</b>	Depth			



$$(X, Y) = \left( \sqrt{\frac{2}{1-z}} x, \sqrt{\frac{2}{1-z}} y \right) \quad (x, y, z) = \left( \sqrt{1 - \frac{X^2 + Y^2}{4}} X, \sqrt{1 - \frac{X^2 + Y^2}{4}} Y, -1 + \frac{X^2 + Y^2}{2} \right)$$

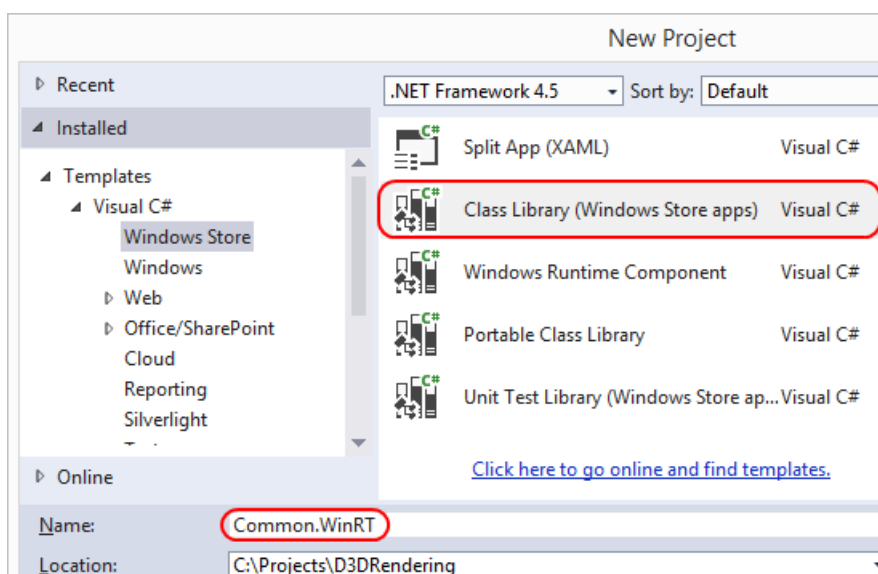


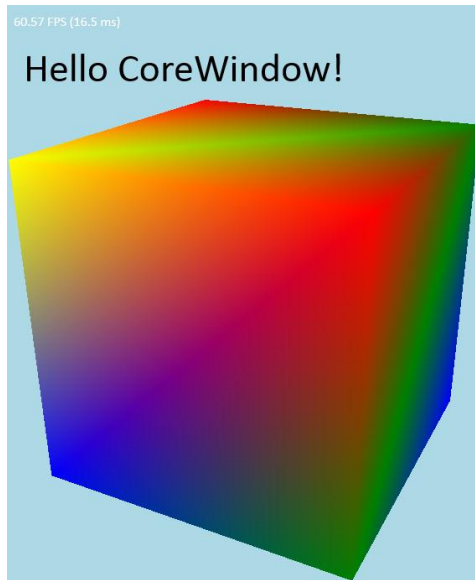
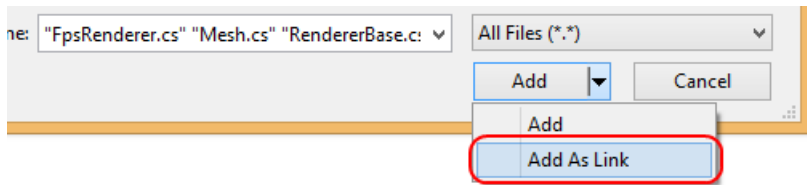




Pixel showing typical 4xMSAA sample pattern and the sample indexes

Each outlined pixel represents 4 pixel shader invocations with SV\_SampleIndex 0-3. Each large dot represents a covered sample.





```
<Page
  xmlns="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:local="using:Ch11_02HelloSwapChainPanel"
  xmlns:d="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
  mc:Ignorable="d">
  <Grid Background="{ThemeResource ApplicationBackground}">
  </Grid>
</Page>
```

```
<SwapChainPanel
  xmlns="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:local="using:Ch11_02HelloSwapChainPanel"
  xmlns:d="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
  mc:Ignorable="d">
  <Grid Background="{ThemeResource ApplicationBackground}">
  </Grid>
</SwapChainPanel>
```

