

AS126028

Photoreal Rendering for Designers

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Description:

This class will focus on achieving photorealism in day to day architectural design visualization in 3ds Max using Chaos Group's physically-based V-Ray rendering software. This class is built from Corey's experience working with clients and customers on their journeys toward photorealism within architectural visualization. With tight deadlines and designs evolving up to the last minute, achieving photorealism requires a unique skill set and advanced digital-content creation software like 3ds Max.

Speaker Bio:

Over the past 20 years, Corey Rubadue has refined his knowledge of visual development and software engineering. First-hand knowledge of the challenges faced in architecture lead to the founding of ASGVIS in 2005, which pioneered the integration of the V-Ray renderer into SketchUp and Rhino.

Thanks to its success, ASGVIS was acquired by Chaos Group in 2011. Corey and his team continued to refine the development of the software, and V-Ray has become an industry standard in both AEC and design. In late 2016, Corey oversaw the launch of V-Ray for Revit, which gave architects and designers unprecedented ease of use coupled with Chaos Group's Academy Award- winning V-Ray renderer.

Customer success has always been at the forefront of Coreys' vision for V-Ray in the AEC and Design industries. With this in mind he founded Oonix Solutions in September 2017.

Section one: The importance of environment, natural and artificial lighting

1. GI FOR EXTERIOR SCENES

- We will review a few real life images of how light fills hard to reach areas, color bleed and caustic effects
- GI tries to calculate and simulate real world light behavior
- What's important to know about GI in general:
 - Indirect Lighting– direct light does not
 - Primary vs Secondary Bounces
 - Different GI Engines

- Brute Force
 - Irradiance Map
 - Light Cache
- There are some points specific to remember with GI in an exterior scenario:
 - Usually light doesn't bounce too many times because of the open space
 - The environment (VRaySky or other HDRi texture) has a great contribution to the overall illumination in the scene
 - Using Quick Settings allows you to affect the final quality of the renderer without having to manually adjust too many options
 - Different combinations of Primary + Secondary bounce engines can be employed in different cases

2. GI FOR INTERIOR SCENES

- What is important to know about GI in an interior scenario
 - Having enough secondary bounces is important to get an accurate result
 - When the light is coming through the windows, from the environment it is very difficult to get a good result.

3. V-RAY DOME LIGHT

- What is Image Based Lighting and when and why it is used?
- What are High dynamic range images (HDRI) and how they are created?
- Review the most common issues that arise when trying to illuminate a scene using a HDRI
- Learn how the V-Ray Dome Light fixes the common issues

4. V-RAY IES LIGHT

- What are the qualities that real-world lights possess
 - Decay (a.k.a. falloff)
 - Color and temperature
 - Larger light sources versus smaller lights with the same intensity
- IES lights are about simulating real architectural light profiles
- There are a few V-Ray IES Light settings
 - The color mode allows us to have flexibility when setting up the light color.
 - The softness of shadows also depends on the IES profile but can be overridden
 - The IES file holds information about the intensity of the actual light source but that can be overridden
 - The V-Ray IES Light has controls over which parts of the image to affect.

5. VOLUMETRICS

- Examine real world cases of exterior scenes with fog or smoke
- Introduction to V-Ray Environment Fog
 - Physically accurate
 - Can be used to create effects like fog, smoke or clouds
 - Can be used along with 3d textures to create complex effects
 - A self-illumination component allows us to fake GI to reduce render times
- Introduction to V-Ray Aerial Perspective
 - Not entirely physically accurate but fast
 - Good for simulating thin mist
 - Volumetric shadows are not calculated
- V-Ray Aerial Perspective and V-Ray Environment Fog can be used together

Section two: Create realistic materials

1. V-RAY MATERIAL

- Overview of real world materials to better explain the concepts of
 - Fresnel reflections and Index of Refraction
 - Self-illumination
 - Translucency
- The main components of the V-Ray Material
 - Main layers – Diffuse, Reflections, Refractions
 - Secondary layers
 - Self-illumination
 - Translucency – builds on top of the Refractive layer
- Texture to control certain parameters and the importance of proper UV maps
- Bump and Normal mapping are also shading

2. V-RAY 2-SIDED MATERIAL

- Real world cases of thin translucent materials
- The V-Ray 2-Sided Material allows you to create thin translucent materials in a much more efficient way
- In order to get the proper effect the geometry needs to be “one-sided” i.e. not a box or a shell.
- Translucency – a gray scale value that controls how much of the back material is visible.

Section three: Build character with supporting content

1. V-RAY PROXY

- What is the concept of Dynamic Geometry?
 - Only in RAM when it is being rendered.
 - Bucket Image sampler only loads the parts of the geometry currently being rendered
 - V-Ray Proxy allows us to store a piece of heavy geometry on the hard drive and only load it into the memory bucket by bucket
- Review images that show examples of possible usages of V-Ray proxies
- Basic workflow and the important settings

Section four: Design and visualize more efficiently using interactive rendering

- What's the main idea of V-Ray RT
 - it's a progressive rendering engine that can be used in ActiveShade mode
 - V-Ray RT can render directly in the viewport as an Extended Viewport
- Top benefits of using V-Ray RT
 - Speeds up the shading and lighting process
 - Makes it easier to work with clients or colleagues
- Some important options that should be discussed include:
 - Trace depth and GI depth
 - Override mtl
- V-Ray RT can be used as a production renderer