

Project Assignments

DDDD 207, "Lighting, Materials & Rendering" (Halbstein)

Project 1, Automotive Render (Physically Correct Surfacing)

Using a model either created by you or obtained elsewhere (with usage rights), create multi-layered shaders for the paint, chrome, plastic, glass and other exterior surfaces of the vehicle. One render will be executed using the mental ray architectural (mia) material; a second will be executed using multiple render passes and legacy materials.

Emphasis will be placed on energy-conserving materials, balancing transparency, diffuse, and reflection. Reflections and transparencies are to be angle-dependent (Fresnel); using either the BRDF Curve functionality of the mia material, or a Sampler Info shading network; reflection and transparency should be balanced against each other with the remainder of the light-return to be made up via the diffuse attribute.

One of the above renders will be composited into a photographic scene, with a spherical map providing environmental reflections. This render will also require mental ray Production Shaders (camera map, matte shadow, rayswitch_environment, environment_ball) for contact shadows and reflections into the environment.

The other render will be created using an environment of your own design; an interior automotive showroom using raytrace and environmental reflections.

Both renders should make use of linear workflow, with gamma correction (or de-gamma) taking place on each node as necessary using one of the methods discussed in class.

Final renders should be 4 x 32 bit (float), OpenEXR format images; final gamma and color correction to take place in post.

Multiple renders are acceptable and encouraged, 360° looping turntable animation required.

Still image 1920 x 1080 JPG; video 1280 x 720 Quicktime H264

Project 2, "Interior Space"

Students are to create a simple model of an interior space. Emphasis is on realistic lighting using a combination of direct illumination, mental ray indirect illumination, final gather, physical sun & sky with portal lights. Students are to consider the aesthetic implications of the limitations of photography versus the higher dynamic range of human vision, and to exploit those limitations within the acceptable "language" of photorealism (i.e., overexposure, variations in color temperature with combined interior/exterior light sources, etc). Render optimization is considered as part of the grading rubric.

Renders should make use of linear workflow, with gamma correction (or de-gamma) taking place on each node as necessary using one of the methods discussed in class.

Final renders should be 4 x 32 bit (float), OpenEXR format images; final gamma and color correction to take place in post.

Multiple renders are acceptable and encouraged, camera animation acceptable and encouraged.

Still image 1920 x 1080 JPG; video 1280 x 720 Quicktime H264

DDDD 102, "Intro to Visual Design" (Halbstein)

Project 1, Hallway

Students are to create a hallway in 3D (Maya). Emphasis on shaders, textures and lighting. Hallway is to contain an exit sign, a vending machine, a water fountain and at least one poster or notice on a wall or bulletin board. Maya file is to contain at least one procedural shader, one file texture, one layered shader node, and use raytrace and environmental textures. The specific hallway represented is the students' choice; it can be in a school, a house, a hospital, a basement or anywhere else. Reference imagery is required prior to execution; design of the hallway is to consider color palette, lighting design and point of view to create a mood (e.g., happy/sad/ominous)and/or narrative for the final image.

Multiple renders are acceptable and encouraged. Simple camera animation is acceptable and encouraged.

Still image 1920 x 1080 JPG; video 1280 x 720 Quicktime H264

Project 2, "Fire, Earth, Air, Water"

The final project for this class. Students are to draw on the technical lessons learned in this class as they pertain to lighting, shading networks, procedural and file textures and rendering; and the aesthetic lessons as they pertain to the elements of design, composition, color, texture, and narrative. Image is intended to push the imagination and stimulate "out of the box" abstract thought.

Students are to visualize one or more of the four elements of alchemy (Fire, Earth, Air, Water) in an abstract or representational image. The image should "speak" these elements without being overly representational (i.e., a plate of hot chicken wings on a picnic table in the hot sun is a better representation of "fire" than a fireplace with particle fire simulation).

Grading will consider application of the essential elements of design as discussed in class, approach and process, multiple sketches and ideation as well as technical execution.

Multiple renders are acceptable and encouraged. Simple camera animation is acceptable and encouraged.

Still image 1920 x 1080 JPG; video 1280 x 720 Quicktime H264

PHAP.306.01/01S & DDDD.517.01/01S & VCDE.617.01, "The Collaborative Composite Image" (Halbstein/Lakin)

Project 1, "First Collaboration"

One 3D student to collaborate with one photo student to conceive of a blended image; one that makes use of elements of visual realism (photorealism) to create a conceptually unreal narrative. Students are to work with each other from beginning to end; to ideate, sketch, critique and execute all elements together, with each taking the lead in their own discipline. Attention is to be paid to light direction and quality, shadow quality, indirect illumination and visual believability.

CG student is required to attend the shoot with the photo student, help set up lights and camera, and to develop an understanding of the concerns of that discipline. Photo student is required to attend lab sessions with the CG student, with similar goals. The teams are required to contribute equally to the creative process, but to set the goals of the project above individual egos or concerns. A major focus of this project is to learn to work together for the sake of meeting a deadline with a quality image.

Final image elements are to use AdobeRGB color space (CG Students to use Linear Workflow, output to 4x32-bit float framebuffer and OpenEXR or HDR format) and be composited and gamma/color corrected in Photoshop.

Final image to be printed at least 14" on the long side; aspect ratio to be determined by aesthetic requirements of the piece.