Extended Abstract

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Computer Graphics 2017: Production planning workshop for 3D animation – Matthew Tovar - USA

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The 3D Animation and Game Design program at the University of the Incarnate Word requires students to supply complete 3D narrative animations or video games. Although students know this is often coming, the specifics of the way to plan the assembly, and make the precise design and story decisions that provide a successful piece seems to return as a surprise when students are literally within the class. We, therefore, implemented a 1 credit planning course: Senior Thesis Workshop during which students produce no digital assets, but propose multiple projects with various teams and work them up to a pitch state. Then, still within this course, the scholars do initial concept design and planning to add the preparation of the upcoming production cycle. During this presentation, we'll show the course structure of the workshop, and therefore the results created there. We'll share lessons learned within the process and the way it's strengthened the output of the assembly courses. Modeling is the process of taking a shape and molding it into a completed 3D mesh. The foremost typical means of making a 3D model is to require an easy object, called a primitive, and extend or "grow" it into a shape that will be refined and detailed. Primitives are often anything from one point (called a vertex), a two-dimensional line (an edge), a curve (a spline), to three-dimensional objects (faces or polygons). Using the precise features of your chosen 3D software, all of those primitives are often manipulated to supply an object. Once you create a model in 3D, you'll usually learn one method to make your model, and return thereto time and again once you got to create new models. There are three basic methods you'll use to make a 3D model, and 3D artists should understand the way to create a model using each technique. When a 3D model is made, 2D images are often overlaid thereon to feature colors, designs, and textures. This is often called mapping, and sometimes everything of a model's color comes from this. These maps are often created in programs like Photoshop, and therefore the illusions of textures are often brushed onto the models as easily as if you painted them yourself; some animators even use real photographs of the textures they're trying to make, simply captured then altered to form seamless repeatable patterns. This is often what percentage illusions of hair are created; instead of model individual strands, rather than grouped locks of hair are modeled, before a texture is overlaid with individual strands and details painted on.

Animation is the process of taking a 3D object and getting it to maneuver. Animation comes during a few different flavors. There's key frame animation, where the animator manipulates the objects on a frame-by-frame basis, almost like old hand-drawn cartoons. Other methods of animation include placing objects on splines and setting them to follow the trail of the curve, or importing motion capture data and applying it to a personality rig. Yet one more thanks to animate is to use your 3D application's built-in physics engines, like when your scene requires that objects fall. Lighting, (in combination with textures, point of view, etc.) is where a scene has the potential to return alive. Used improperly, light can wash out a scene, make objects appear hard or flat, and destroy all the diligence. But skillfully applied, lighting can make a scene convincing, or if realism is that the aim, create (in combination with materials and geometry), a scene that's virtually indistinguishable from the real world. In 3D, lights don't actually exist as they are doing within the world. Lights in 3D are objects that are designed to simulate how lighting works in the real world, but so as to get the results you're after, you've got to use a variety of settings, not only to the lights, but to the materials. Rendering a picture is usually the last step within the 3D production pipeline (but not the last step within the overall production pipeline), and is probably the foremost important part. It's a step often overlooked or glossed over by beginners, who are more focused on creating models and animating them. There are many aspects to making an honest final render of a scene, including attention to camera placement, lighting choices which can affect mood and shadows, reflections and transparency, and therefore the handling of computer graphics, like fluids or gasses. Compositing includes everything from what you almost certainly normally consider as computer graphics, where things explode, evaporate, morph, etc. It also includes stage extensions (making the scene stage larger digitally in post-production), to environment creation (anything from buildings to finish worlds), to blue/green screen replacement (shooting in-front of a blue or green screen then replacing the background with digitally created footage or footage shot elsewhere). Basically, the art of taking live footage and blending it with computer-generated footage would be considered compositing.

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