Teaching Art and Science of Rendering and Shading

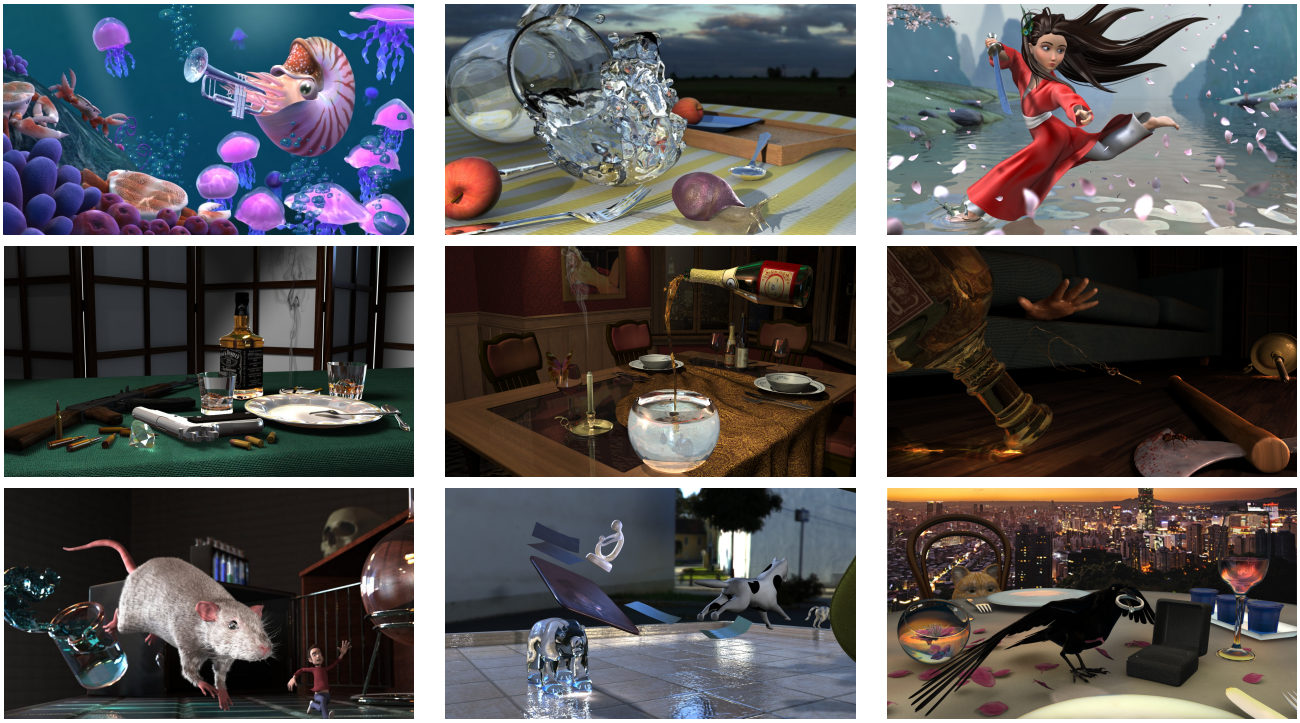

Figure 1: Some examples of student works from our Rendering & Shading course.

In our department, we have a course called Rendering & Shading. The formal description of the course is the exploration of advanced rendering and shading techniques for the attainment of a desired visual effect. Topics include shading languages, attainment of visual realism, integration of rendering and modeling tools, and non-photorealistic rendering. In practice, the course focuses on the creation of shaders using Renderman rarely focusing on global illumination.

We have redesigned the course to include global illumination [Akleman and Eisinger 2012]. Students, using their own 3D models or 3D models that are free to use, build and render a 3D scene frozen in time that tells a story.

The course consisted of seven bi-weekly projects. With every project, students improved this scene until they turned it into a 3D painting. This painting was supposed to have some objects with

subsurface scattering (such as milk, skin, marble or fruit), some objects with iridescence (such as butterfly wings, shells, fish scales, insects), transparent and translucent objects (such as water in a glass jar), reflective and glossy reflective objects and objects with an complicated BRDF such as fabric.

Once the project was completed, each student had a frozen-in-time scene that looked like an animated still-life painting in the time slice effect introduced by the movie Matrix [Wachowski and Wachowski 1999]. The objects together implicitly told a story.

References

Akleman, E., and Eisinger, S. B., 2012. Viza 616 - rendering and shading course website: http://www.viz.tamu.edu/courses/viza616/12spring/.

Wachowski, L., and Wachowski, A., 1999. Time slice effect website: http://en.wikipedia.org/wiki/bullet_time.