

## Computer Graphics 2016: Teaching computer graphics by application- Carol Luckhardt Redfield- St Mary's University

**Carol Luckhardt Redfield**

*St Mary's University, USA*

The computer graphics class at St. Mary's University focuses on the appliance of special effects while learning graphics terms, some theory of how graphics tools work, and customary graphics creation tools almost like Microsoft Paint, Adobe Photoshop, Adobe Flash, and Adobe Dreamweaver. Students are required to create a brand for themselves, a group, a company or an organization that they select. Inside of that brand, students create logos, a brochure, a card, business stationary, an animation file, and an internet site. The website incorporates all the work that did during the rest of the class. Students learn the idea behind the graphics tools and find out how to use various tools to make the visual images to speak a brand that they're curious about. This presentation will cover how the course is taught in a hybrid format utilizing the Blackboard learning management system. Sample projects that students created will be shown as well.

Another application of special effects in education is because the motivation for Mathematics subject that require students to use tons of thinking process. Computer Graphics are often a tool for increasing the notice within the sciences subjects like Mathematics among students. Because of the appliance of the important time, interactive, and visual feedback, students can easily observe the consequences of the utilization of Mathematics in produce an honest design. Nowadays, the utilization of computers in some school has increase thanks to the increases within the use of technologies. This is due to the decreases in the percentage of the sciences subject such as Mathematics and Science. After introduce the computers to all or any school this problem has been solving through time. Through this solution, it shows that the utilization of computers affects the scholars

in their learning process. In this case, special effects has been went to illustrate how problem solving give advantages from applications of Mathematics thinking to graphics problems. Graphics tools because the representative has been used because the teaching aids for the teachers to show their students in school. The area of special effects is widely utilized in many of applications for specific purpose.

There are many samples of the successful of the pc Graphics technology in commercial application. Some of the examples are the virtual stimulators for training in driving vehicles, entertainments, visualisations, 3D representations of future buildings or houses, computer and console games, film scenes and the characters that produced using Computer Graphics. One successful example of special effects technology in commercial application is Virtual Supermarket. Technique that use in this application is three-dimensional (3D) graphic. This application consists of 3D supermarket where it's a spread of products and goods, different visual employees and different functionalities available. The basic task in this case is only to do the shopping. Tools that need in this application are only a computer with the screen, keyboard, mouse, and joystick. Firstly, the user has to move inside the supermarket and then searching for the things that list in the spread-out shopping list. User need to pick a something or product and put into the virtual trolley.

There are four modes that being use during this case that associated with the appliance within the Virtual School which is are going to be use for learning difficulties in class. First is functional of use and play. This mode can be used to teach the important concepts of our daily life environment and it is shown using pre-recorded videos integrated in the

virtual world. Second is imagery play, where this functionality mode is possible to teach the student that has special needs about imagery play of the objects. Through this mode the teacher can attempt to teach an equivalent imagery play to their students without using the pc but between the teachers and therefore the students itself. The third technique is imagery transformations of objects. There are two types of transformations that commonly used which is 2D and 3D transformations. As the technology has improved, the 3D transformation graphics became more common instead of 2D transformation, but 2D transformation graphics are still widely used. This technique is more to abstract concept to point out information that difficult to elucidate and see within the world. Therefore, using this transformations technique the teachers are able and more easily to elucidate to their students about what he or she teaching about in school. In this case the transformation is using the 3D graphic animation transformations into the virtual scene. The last mode is imagery use which is that the three-dimensional viewing. This Virtual Supermarket are often viewed through 3D viewing where the objects seen seem to be real. The user can also hear what the avatar within the videos saying or talking and may see their expressions. The idea behind and relationship this application to the education are it's not only an academic game but also a tools for teaching. The attraction of individuals with learning difficulties towards computers shows the increases within the possibilities that these tools have in their educational and learning process. They find that it is easy to use the graphical interface in their learning process. This help increasing their interest in educational contents.

Computer graphics classes in the past revolved around the mathematics and programming for making tools that can be used to produce graphics and even had students write parts or components of software tools that make graphics. Today, the need has shifted to be good producers of the graphics content rather than the tools. Many graphics tools either require a sense of computer

programming (Adobe Flash, for example), or scripts and small programs can be combined with graphics to create interactions in movies and games. In this article, what is currently included in computer graphics classes is reviewed and a specific computer graphics class is described with example assignments from over the last 6 years in the current format, about every year and a half from Computer Science Department.

The St. Mary's class is for undergraduate and graduate students (graduate students do an additional research paper and presentation on a graphics-related topic) in the computer science degrees. The University offers undergraduate and graduate degrees in computer science and in computer information systems (CIS).

#### Biography

Carol Luckhardt Redfield, PhD is Graduate Program Director for Computer Science and Computer Information Systems and a Professor of Computer Science at St. Mary's University. She started at St. Mary's in 1998 after being in the computer industry for over 15 years. She specializes in computer gaming, computer-based training systems, and expert systems. She has a PhD from the University of Michigan in Computer Science and Engineering. Her thesis work was in multiplayer gaming and artificial intelligence. She has a Master's degree in Mathematics and another in Control Engineering. Her Bachelor's degree is in Education with double majors in Mathematics and Psychology. She has worked for Bell Labs, IBM, LLNL, Southwest Research Institute, UTSA, and Mei Technology. She has done consulting work for WebStudy and Landmark Education. She has published 4 books and well over 50 reviewed and invited papers. She has been an invited speaker for Star Trek conventions, chaired conferences, founded a charter school, led seminars for Landmark Education, and was inducted into the San Antonio Women's Hall of Fame. She serves on committees for the National Space Society, San Antonio Space Society, John Jay Science and Engineering

Academy, and Friends Meeting of San Antonio  
(Quakers).

Email : [caraiza1@stmarytx.edu](mailto:caraiza1@stmarytx.edu)