Computer Graphics Parth Poudyal

Question no 1:

Differentiate between computer graphics and Image processing. How can you find applications of computer graphics in the field of science and engineering? Explain.

Computer graphics and Image processing are quite related topics yet are quite different from one another. Some of the core differences between Computer Graphics and Image Processing are presented below:

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| Computer Graphics | Image Processing |
| Computer graphics involves of formation of digital graphics using multiple instructions given by the users using various input devices | Image processing is the process of enhancing the existing images by manipulating on various parameters of the concurrent image or by adding additional parameters on to the image. |
| The goal is to create a new visual content using various algorithms. | The goal is to modify or extract information from already existing set of digital images, using various algorithm |
| Computer graphics is typically used to generate new motion graphics or still images for movies, cartoons or any form of digital content | Image processing is generally used in mapping, imaging, and recognition for better imaging. |
| Computer graphics consist of algorithms providing the geometric descriptions of the models or the images that are made | Consists of algorithm that studies the current state of the image or objects |
| Making of new graphics | Enhancing existing graphics |

Computer graphics is widely used in the field of science and computer engineering for making models and for visualization of various kinds of algorithms in physical world scenarios. Computer graphics specially aid engineering with the availability of CAD; where engineers can make 3D replicas of various infrastructures for initial preview before build and perform various structural analysis before the actual build.

Computer graphics are nowadays used in simulating and visualizing various dynamics and interactions during experiments. With the use of computer graphics, it has been lot easier to visualize phenomena that were difficult to observe in real life. Additionally, since computer graphics are an excellent tool for learning, it is widely used for teaching scientific concepts to new scholars.

When dealing with large dataset in numerous cases during application of science and engineering, computer graphics can be used to plot and easily interpret the tendencies of data.

Therefore, computer graphics are an excellent visualization tool that helps translate abstract ideas into tangible reality in the field of science and engineering.