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BANGLADESH UNIVERSITY OF BUSINESS AND TECHNOLOGY

Theory Assignment

Course Code: CSE 341

Course Title: Computer Graphics

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Program: B.Sc. in CSE

Semester: Spring 2021

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Reviewed the given research paper by identifying the followings:

1. Research contribution:

This is a survey paper of recent research on how computer vision techniques benefit computer graphics techniques and vice versa, and cover research on analysis, manipulation, synthesis, and interaction. This paper also discussed about the existing problems and suggested possible further research directions. The authors of this paper reviewed a variety of recent studies in which computer graphics and computer vision techniques benefit each other. In this paper, graphics techniques have also been explored for the synthesis of big visual data for pose recognition, object detection, object recognition, etc.

2. Lacking's:

In this paper we found that 3D graphics can be created when graphics meets the vision. Without a huge database of synthetic can't train and test. For pose reorganization training data without selecting parameters, such as height, weight, and camera noise graphics method can't use. To predict the 3D positions of body joints from a single depth image two efficient approaches, body part classification (BPC) and offset joint regression (OJR) can't be used at the same time because of their characteristics.

3. Further advancement:

    i.   Content understanding for smart manipulation and synthesis.
    ii.   Advanced visualization.
    iii.   Object manipulation.
    iv.   Working without parameters.

4. Impact on society:

i. Today billions of Internet images, videos and 3D models have been created and are shared on the Internet every day. Such big visual data have hastened a variety of image/video/geometry analysis and manipulation applications, by providing ever existing vast amount of resources which enable novel applications that are otherwise impossible by traditional methods.

ii. Computer graphics techniques use to help to solve vision problems.

iii. Employing saliency to predict human perception.

iv. Prevents systematic study and boosting of performance.

v. Create compelling results with minimal user interaction.

5. Impact on tech world:

i. Computer graphics is enabling tools to intelligently create compelling results with minimal user interaction requires computer vision techniques to extract semantic components and knowledge from the huge volume of available data.

ii. Computer graphics techniques can be developed to automatically help learning algorithms to collect training examples.

iii. The bond between computer graphics and computer vision has been further blurred by the emergence of RGBD image capturing devices, such as Microsoft Kinect, Intel RealSense, Apple PrimSense, and so on. The RGBD images directly associate image and geometry processing algorithms, making the productive collaboration between computer graphics and computer vision much easier.