



ABSTRACT

3D Human Face Reconstruction or 3D Human Face Modeling is a construction of 3D geometry graphics of human face model which has been a very challenging research in both computer vision and computer graphics for over the last three decades. Researchers have proposed many methods for 3D human face reconstruction by using or not using 3D scanner. One of the affordable 3D scanner today is Microsoft Kinect which is well known as a motion sensor add-on for Xbox gaming console. By using the depth sensor of Kinect version 2, 3D human face reconstruction is possible to construct, yet the depth information from Kinect scanning alone may not produce a good quality of 3D model which could lose the details of the 3D face; therefore, the optimization and improvement are needed. This research is mainly aimed to reconstruct the 3D human face model by using a single shot of 3D depth information or point cloud from the depth sensor of Microsoft Kinect version 2, and then, reconstruct with the proposed method including Poisson Surface Reconstruction. The results come as expected by spending only about 5 seconds, and they are evaluated by comparing to the results of the zoomed of original RGB point cloud which look like a 3D model and to the results of Microsoft 3D applications which usually take more than 15 seconds to reconstruct. Since the proposed method consists of surface reconstruction and surface subdivision, the better the result will be, the more computing time it requires. The acceptable accuracy of the results may spend from about 4 seconds.

Keywords — 3D Face Reconstruction, 3D Face Modeling, Kinect, Surface Reconstruction.