3D FACE MODELING AND ANIMATION

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**INTRODUCTION:**

3D human face modeling has been a persistent challenge in both computer vision and computer graphics. Face modeling refers to modeling the 3D geometry of static or non-static human faces which lays the foundation for model based face analysis and facial animations. In this paper we have surveyed the various methods available for generating 3D human face models. Currently, the 3D face models can be captured using the active range scanners like laser or structured light; or reconstructed from the 2D images acquired by the passive techniques. Shape from X and Model based reconstruction techniques are the most commonly used methods for reconstructing the 3D face model based on these 2D image(s). However, the choice of the appropriate 3D reconstruction algorithm relies greatly on the available resources as well as the intended application.

Animation are being applied to these human faces to show realistic behaviour of the model. These are used mostly in game charecters, 3D Imaging, Ads development, in movies and many others. We are using Blender as a software to create a 3D face behaviour of a human beings

**STEPS TO CREATE:**

1. Create a new project in blender
2. Install addons like facebuilder and rigify
3. Collect more than 6 angular photo of human being and map ther image perfectly in the 3d head in order to create a perfect 3d head model
4. Click Shift A and select armature and select Human Meta Rig model. Remove the remaining body parts and keep only the head.
5. Resize and Map the bone part crctly to the 3D human face
6. Add Shape Key and provide animation movement for each body parts
7. Add these shape key toward the playback box and map it crctly in order for the animation to work. The relative value of the Shape Key must be set crctly in order for the animation to work
8. Play the animation and check for any errors
9. Export in the form of glb or fbx

**REFERRENCES:**

[**https://ieeexplore.ieee.org/document/5739301**](https://ieeexplore.ieee.org/document/5739301)

[**https://ieeexplore.ieee.org/document/5279762**](https://ieeexplore.ieee.org/document/5279762)

[**https://ieeexplore.ieee.org/document/1217899**](https://ieeexplore.ieee.org/document/1217899)