BUILDING MOTION TRACKING IN 3D SOFTWARE

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Abstract: This paper gives idea about how build in live tracking animation is helpful to increase working efficiency of user in 3D animation sector. When working with 3D software it is hard to give motion to character. It takes a lot time to animate character. To overcomethis problem our concept is about developing live tracing motion using web cam in 3D software so itwill help animators to work systematically and efficiently.

Index Terms **- 3D software, Maya, Live tracking animation, Motion capture.**

[I] INTRODUCTION

Motion tracking is the process of recording the movement of object or people. In filming and video game development it refers to recording action of human actors and later used to animate digital character model in 2d and 3d computeranimation.

3D Maya is an application used to generate 3D assets for use in film, television, game development and architecture. Autodesk's Maya isone of the most highly used overall 3D creationpackages.   It's   used   heavilyin   media andentertainment, with applications in many otherareas. Modeling (the creation of 3D characters, props, and environments) is one of the keycomponents of a 3D pipeline. But there are no any live motion tracking tool or setting as like inAdobe Animate. Using web cam we can directlycapture motion and

can be apply to character. This setting will makeour animation easy.

Motion capture of computer character animationinvolves the mapping of human motion onto the

motion of computer character. In 3d software like Maya if there are inbuild motion capture effect then we can make our project in less time. This setting will help to animate character easily.

Mapping can be direct such as human arm motion or indirect such as human hand and figure pattern controlling characters skin color or emotional state. After rigging the web cam will capture and track the live motion of person and apply automatically to the character.

In this research we study on 'if we include live motion tracking using web cam in 3D softwarelike Maya which makes easy to us for animate character. If we successfully implement this feature in 3D software it will provide easy way to work with Maya or any 3D software.

OBJECTIVES

1. How rigging is done without live motiontracking in Maya
2. How live motion tracking will be work inMaya
3. Advantages and Disadvantages of livemotion tracking
4. Survey on 'is live motion tracking is reallyhelpful in maya'

[II] RIGGING AND ANIMATION IN MAY

Rigging is the process of creating internal digital skeleton and creating a basic relation between the mesh and bone skeleton. Animators have to add some controllers or the set of controls that can be pushed or pulled during creating animation. There are some settings or the tools or options to make linkage between skeleton and mesh such asparenting and hierarchies, which are used to createparent-child relation in mesh and skeleton.

Constraints which are used to build relation without changing hierarchical structure of object and constraints allows you to break relation down into smaller chunks. Joints are the transform modethey can be translated, rotated and scaled. rotation order and gimble lock are rotation order refers to order of the operation in which the orientation of the selected objects. Animation controls allows you to bring every option together or everything together such as parenting, constraints, cleanplacement, rotation order etc. basically it is very difficult process for beginners and so muchlengthy and time consuming also.

Beginners' cerates lots of mistakes while doing rigging and faulty riggings brings problems in animation which cannot handled easily. Talking about experienced persons, rigging needs so much efforts.

[III] WORKING OF LIVE MOTIONTRACKING FEATURE

Motion tracking or live tracking is the process of recording the movement of object or people. Motion tracking will be different tab or panel along with rigging options and properties. Riggingwill much easier to perform. There will be a chart having all body parts and bone joints of humans and animals. When we create new 3D model in Maya then we just need to select the particular parts and select the same part in default rig chartin Maya. It will create joints or bone structures automatically.

When rigging is done by this process new tab will open which is of web camera and microphone setting option. By doing such settings provided by Maya web camera will starting to capture movements by putting artificial nodes all over display of live motion. If we want to animate a model with side view same process will be followed by maya, but changing in rig chart. Itwill provide rig chart of side viewed character.Also, the same process of creating animation of animal and bird body.
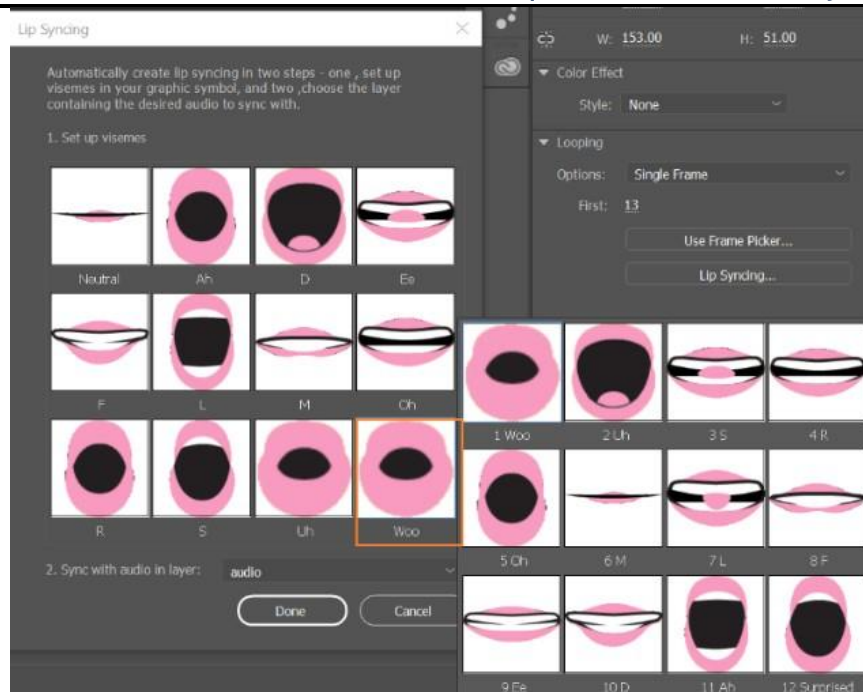
Similarly, if animator wants to animate creature having mixture of human and animal body then maya will allow you to create the merged rig chart of human and animal body. Also, for the lip syncs there will be specific charts having standard mouthshapes. There will be manual mode for creating rigcharts so animator can customize as per need.

Lastly motion tracking and rigging will easier asbe compared to classical way of rigging and animation.

[IV]ADVANTAGES AND DISADVANTAGES

ADVANTAGES:

- Implementation of live motion tracking will be easy for user for animation in Maya
- Require less time
- User can get more interest towardanimating 3D character with webcam
- It will be more demanding
- It will be easier and convenience techniquecompared to animating 3D character using constraints, hierarchies, Animation controls etc.

DISADVANATGE:

- Without live motion tracking you have to go through lots of technique to make linkage with skeleton and mesh.
- It is time consuming.
- For beginners, it is hard to rog character and animate it in 3D software.
- Beginners may lose interest in animating 3D character with these hard and lengthy techniques.
- It is hard technique compared to live motion tracking.

[V] SURVEY ON BUILDING LIVE MOTIONTRACKING FEATURE IN 3D MAYA

Survey Administration

The survey was conducted online in october 2020. Responses were requested from industryprofessional and students. Initations toparticipatewere send by email .

Results

Chracteristics of survey Respondents

More respondents were beginner (42%) and 38 % were comfortable with using maya. Althought major of our respondents currently use maya at student level (58%) .
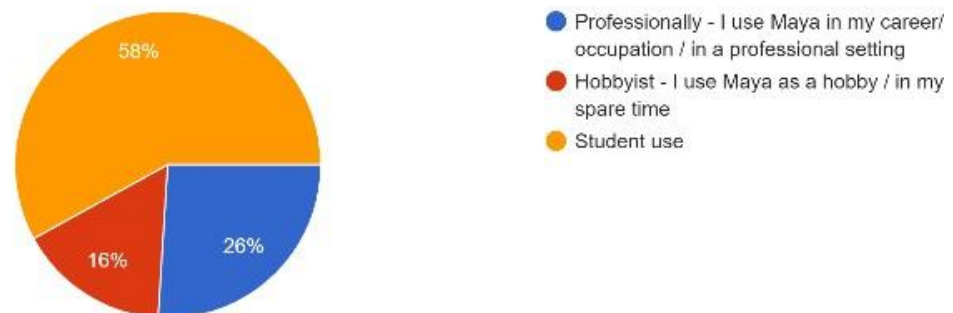
What level of knowledge do you have in the program Maya?
50 responses

- None - I have never used the program before
- Beginner - I can complete basic tasks in Maya
- Intermediate - I am comfortable with using Maya
- Advanced - I know the program inside and out, and can complete my tasks with ease.

38% 14% 6% 42%

In which setting do primarily you use Maya?
50 responses

- Professionally - I use Maya in my career/ occupation / in a professional setting
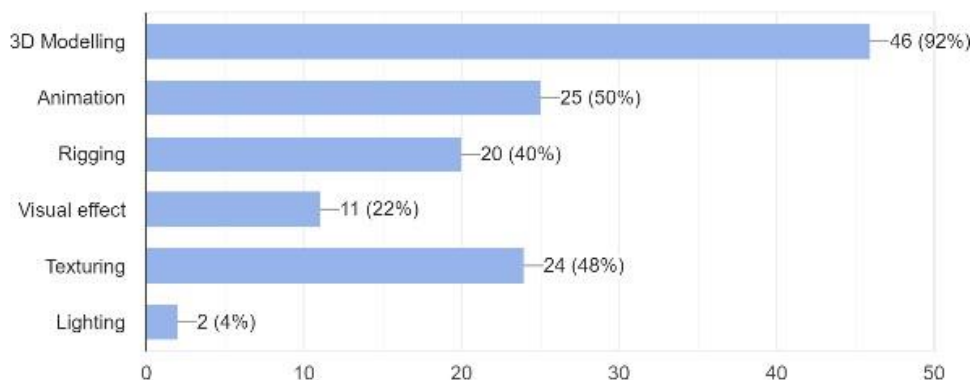- Hobbyist - I use Maya as a hobby / in my spare time
- Student use

58% 16% 26%

Respondents demonstrated for what they are usingmaya. More respondents were using maya for modelling (92%), visual effects (22%), Texturing (48 %) . Within survey the major thing noticed even who are advanced using maya are not very comfortable with Animation and Rigging of character. The vast majority of respondents were comfortable for only modelling character.

What do you utilize Maya for? Check all that apply
50 responses

Category	Value
3D Modelling	46 (92%)
Animation	25 (50%)
Rigging	20 (40%)
Visual effect	11 (22%)
Texturing	24 (48%)
Lighting	2 (4%)

Although most of our respondents are student who are not very comfortable while using maya for Animation or Rigging. Even who are advanced in maya are not comfortable with animation. The main survey question asked about the hardest part while work with maya. Answer were provided with four categories "modelling", "texturing", "rigging" and "animation". The vast majority of respondents about hard part in maya were Rigging and Animation.

what is something you still struggle / fing challenging within Maya animation
50 responses
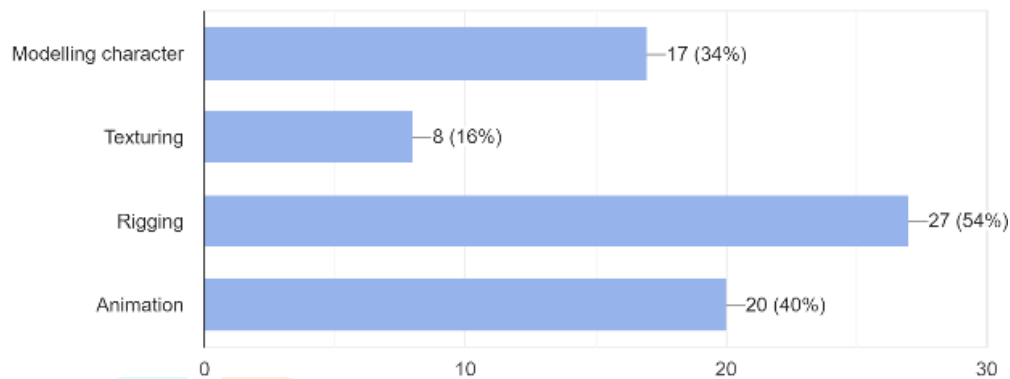
To overcome this problem we suggested one solution for easy animation and rigging with maya. With new feature "Live motion tracking" animation will be easy compered to other techques. Nearly equal proportions of respodents were satisfied or wanted building live motion tracking. The vast majority of respondents answer is "Yes" (56%) and 40% of respondents answer is "maybe" and only few of the respondents answered "No" which means building of new feature will be really helpful.

Is it useful if live motion tracking is enable in Maya (it will capture live emotion of person through webcam and apply to character)
50 responses
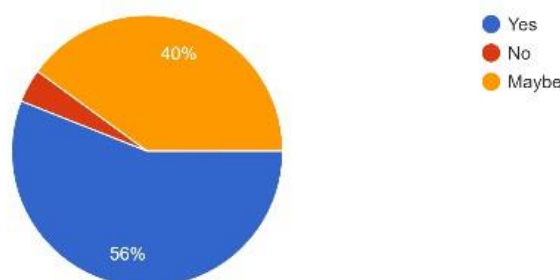
METHODOLOGY -

To develop new feature of live motion tracking in 3D Maya.

1. Collect the information about live motiontracking.
2. To study about rigging and capturing livemotion through webcam.
3. Collect data from survey usingquestionnaire.
4. Searching applications of motion tracking.
5. Study on process of motion tracking on 3Dmodel.
6. Study on frame by frame animation of 3Dmodel.

MATERIAL -

The material requires to create an emergencyapplication is,

1. Brief study about Autodesk Maya.
2. Knowledge of implementing new feature.
3. Drawbacks without implementation of newfeature in Maya.

RESULT AND DISCCISION -

This feature will help us to animating rigged character in easy method. The Feature provides a webcam for capturing real emotions for character which is really a time consuming and effectivemethod for any animator. With this feature youcan instantly animate your character with live motion tracking.

CONCLUSION –

Perhaps the most notable finding of this survey is strong and beginner or professionals needed oneasy animation techniques such as our newfeature. Given that the survey focused on those who routinely use 3D Maya. It is not thatrespondents wanted less formation of thistechnique but rather that there was even stronger and more consistent support for building live motion tracking feature.

One interpretation of the result on building live motion tracking feature is that current program do an adequate job at teaching more easy concepts towards animating 3D character.

In general, respondents aggerated on the topic of "building live motion tracking" feature in 3D maya.

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