CINEMASUITE

USER DOCUMENTATION FOR CINEMA FACE CAP

DOC VERSION V1.1 – SEPT 2017

Contents

Introduction

Thank you for purchasing Cinema Face Cap! Our team makes software extensions for Unity that allow game developers, machinima gurus, and movie professionals to create and control content for their projects quickly, and easily. More importantly, we want our users to have fun doing it.

Being avid fans of video games and movies, our team set out on a common goal - to create a set of cinematic game and film tools, which are powerful, affordable and available to the masses.

Cinema Face Cap allows you to use your Microsoft Kinect 2 to capture facial animations, which you can then use in your Unity project. Animations created with Cinema Face Cap are based on blendshapes, and are meant to be compatible with any character with configured blendshapes.

Making great products is only possible if we have feedback from our community. Feedback is critical to our success and we welcome it in all forms, be it Facebook, Twitter, Email or our Forums. Please check out ways that you can directly communicate with us, at the end of this document.

Thank you for helping us make Cinema Face Cap great!

The Cinema Suite Team

Cinema Face Cap Overview

Key Features

- Quickly capture marker-less facial animations inside of Unity with the Microsoft Kinect 2.
- Configure your own models for use with the system.
- Save animations for use with your own models.
- Control various masking and filter options for facial capture.
- Save and review motion capture sessions.

Interface Overview

Cinema Face Cap is an editor extension for Unity. As with any Unity window, you can position the application any way you wish. We always recommend 2 monitors.
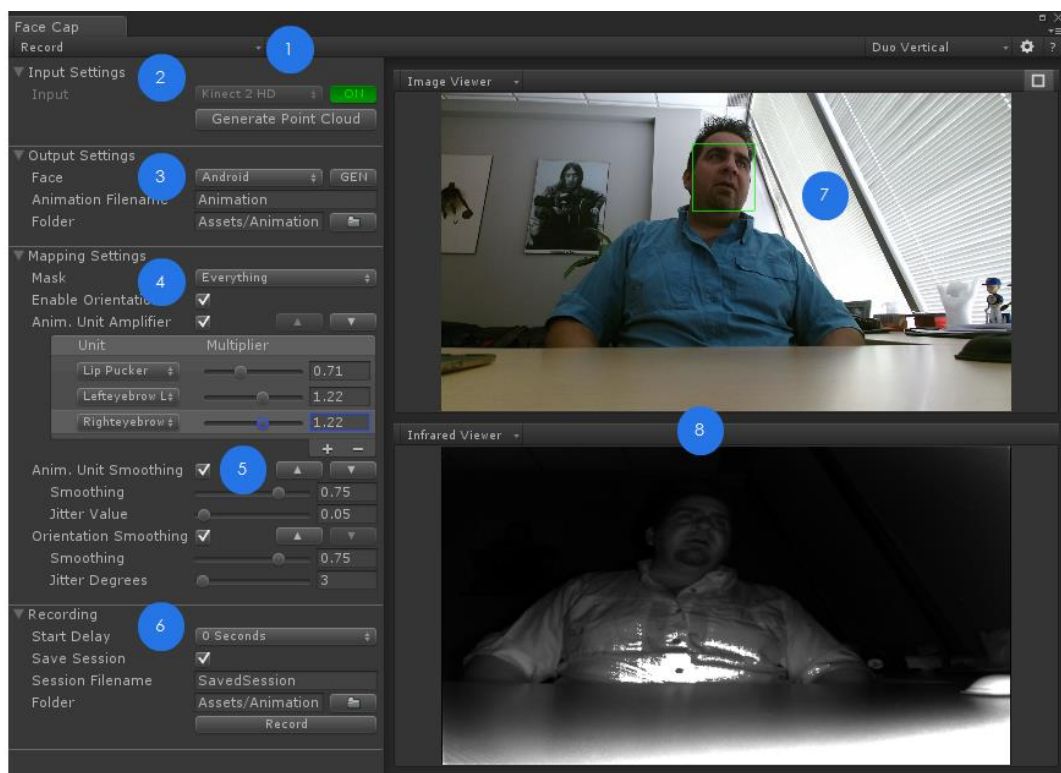
Figure 1: Cinema Face Cap Overview

We will go more in depth with functionality later in this documentation.

Installing Cinema Face Cap

Cinema Face Cap **ONLY SUPPORTS THE MICROSOFT KINECT 2** and requires the **Microsoft Kinect SDK version 2.0 or higher in order to operate properly. You can only run the Kinect version 2 hardware on a Windows 8, 8.1or Windows 10 computer with the following requirements:**

- **USB 3.0 port available on your computer.**
- **64-bit processor**
- **4 GB of memory or higher (8 GB recommended)**
- **3.1 Ghz or faster multi-core processor**
- **DX11 capable graphics adaptor**
- **Windows PC or Mac computer running Windows 8 and above on Bootcamp or Parallels®**

NOTE: Parallels performance will very from machine to machine depending on configuration. We do not recommend Parallels as a platform for running Cinema Face Cap.

NOTE: Some older USB 3.0 ports (gen 1) will NOT work with Kinect 2 due to lack of power. You may need to purchase a powered USB 3.0 hub. For more information on troubleshooting USB 3.0 see Microsoft's hardware guide here:

https://dev.windows.com/en-us/kinect/hardware-setup

Installing Microsoft Kinect SDK

The Microsoft Kinect requires drivers and associated software to be loaded, so that other applications on your computer can take advantage of the features built into the product (such as Cinema Face Cap). At this time, Microsoft requires you to download their full Microsoft Kinect SDK 2.0 or higher for this functionality. Steps for installing the SDK are as follows:

1. **Download the Microsoft Kinect SDK 2.0 at the following location:**

   http://www.microsoft.com/en-us/download/details.aspx?id=44561

2. **Make sure your Kinect is UNPLUGGED FROM YOUR COMPUTER. This is very important. If this step is not done, the Kinect drivers MAY NOT properly install.**

3. **Run the executable file downloaded in step 1 above. The SDK process is a one button install, simply accept the license terms and click the install button.**

4. **Click Close when prompted. Note: you do not need to install the Developer Toolkit. However, if you would like to test functionality in Windows, the Developer Toolkit will allow you to do this.**

5. **For install instructions from Microsoft, see the following link:**

   https://msdn.microsoft.com/en-us/library/dn782035.aspx

Installing Cinema Face Cap Unity Package

Cinema Face Cap is a standard Unity Software Extension, and installs like any other Unity package by downloading it off of the Unity Asset Store.

The image below shows the Import Package dialog box, and the contents of the Cinema Face Cap Unity Package.
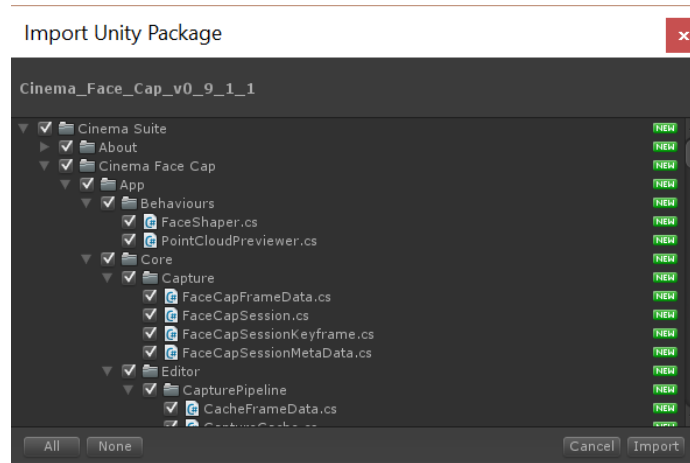
Once the Import dialogue appears, click the Import button. After approximately ten seconds, you will see a new drop down menu (Cinema Suite) under the Window pulldown. Once installed, Cinema Face Cap will appear in a folder inside of your Unity project.

Figure 2: Unity Pull down for Cinema Face Cap

Figure 3: Unity Project Folder

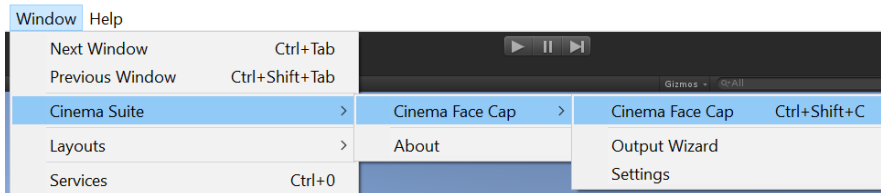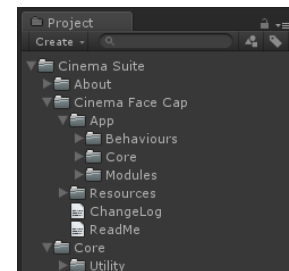# Cinema Face Cap Features

Detailed Overview

To open the Cinema Face Cap window, select **Window > Cinema Suite > Cinema Face Cap** from the toolbar, or press **ctrl + shift + C** on your keyboard.
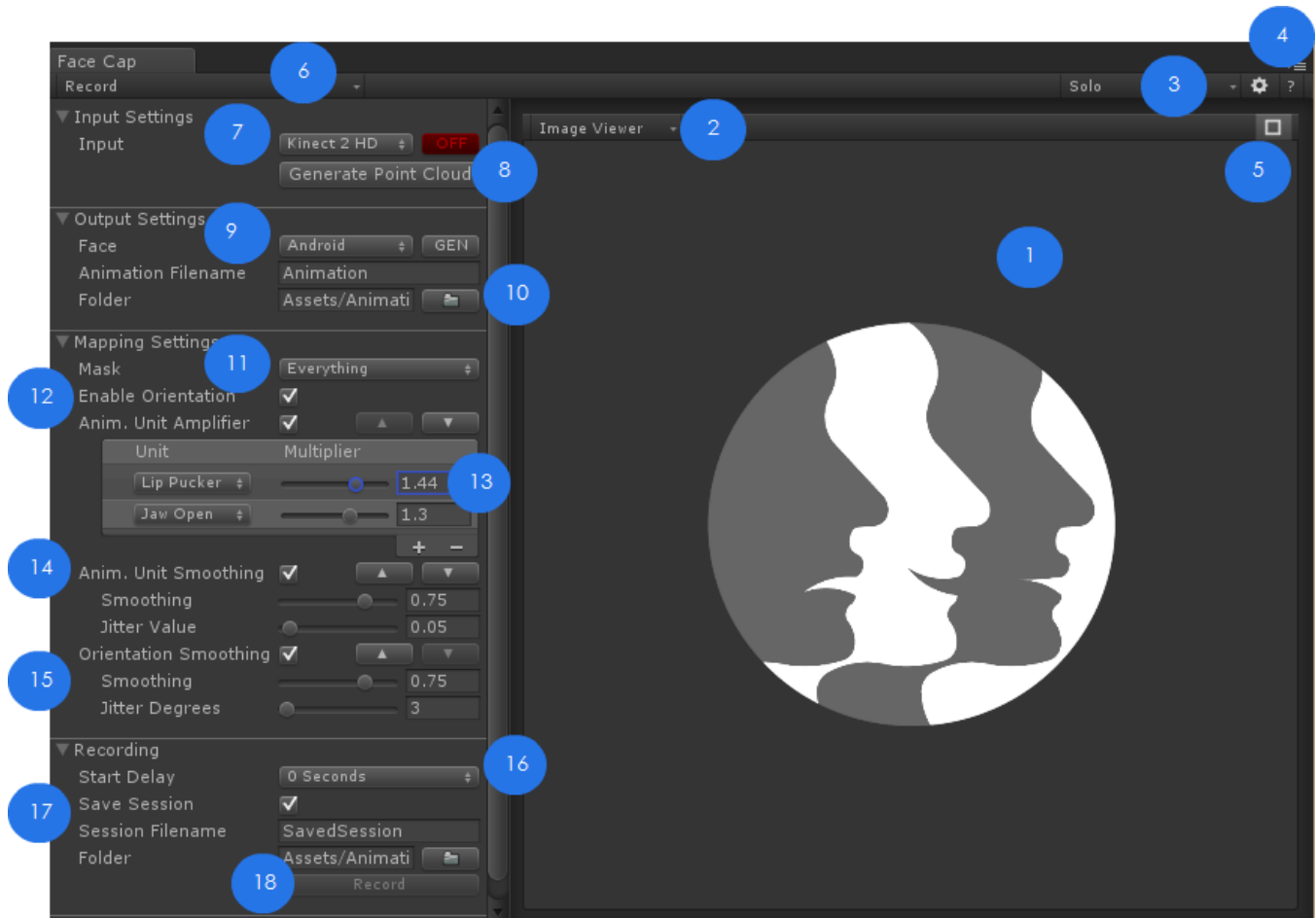
Figure 4: Cinema Face Cap Window – Detailed Overview

This is the window that will display when you first start Cinema Face Cap. The window is Unity compliant and can be resized, dragged, and docked, just like any other Unity window. Let's get into a breakdown of all the available features in Cinema Face Cap.

1. Viewer Panel

The viewer panel will show feedback to the user, while they are performing actions being recorded by the motion capture device. When you start Cinema Face Cap, a single viewer panel will display with only the Cinema Face Cap logo. When you turn on an input device, the viewer panel will enable, and you will see the image viewer that the input device sees.

2. Viewer Type

Allows you to select what information will be shown in the viewer panel. Choices are Image Viewer and Infrared viewer.

3. Layout Options

Allows the user to select how many viewer panels they would like to have open, and how they are arranged. Options are:
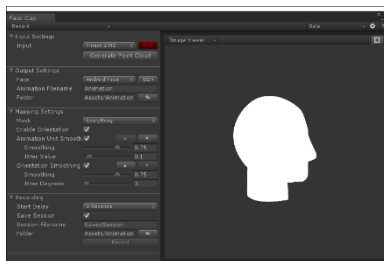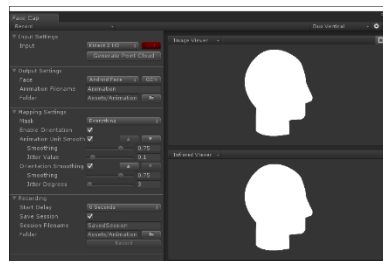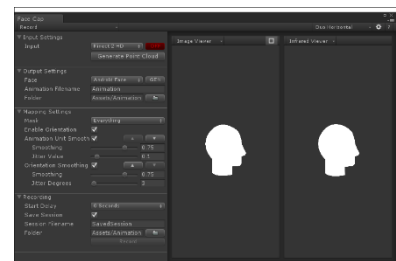

| *Solo* | *Dual Vertical* | *Dual Horizontal* |

Figure 5: Window Configuration Options

4. Settings & Help

Open the Face Cap settings and help windows. The settings window provides the following options:

Save Locations: **If you would like default locations in your project to be set for where Cinema Face Cap stores animations, sessions and extensions, you may change them here.**

Wizards: **Opens the Output wizard window so you control custom mapping values. (covered later in this documentation)**

5. Toggle Bounding Box Display

This option allows the user to decide if they would like to turn the bounding box display on or off during facial capture. This is a green box that follows the subjects face when the Kinect 2 is enabled.

6. Workflow Mode Select

There are two modes that you can use when in Cinema Face Cap. They are "Record" mode and "Review" Mode.

Record: **Will display the user interface required for recording animations with Cinema Face Cap. This is the default setting.**

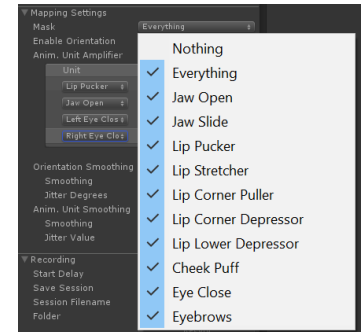*Review:* **Changes the user interface into review mode, which allows you to load past recorded sessions and review them frame by frame, apply masks and filters, and save a new animation. We will discuss the review functionality more in depth later in this documentation.**

7. Input Selection

Currently set to only allow you to select a Kinect 2 HD device. Pressing the red off button will turn the Kinect's tracking sensor on, and the button will turn green. When enabled, the viewer panels will update to present what the Kinect is viewing.

8. Generate Point Cloud

Cinema Face Cap gives the ability to view the raw motion capture data being captured in a point cloud model of a human face. To enable this object, click the Generate Point Cloud button. A temporary game object will be created in your project hierarchy called "Point Cloud". To remove, simply delete the object. Otherwise, the object will automatically be deleted when you close the Cinema Face Cap window.
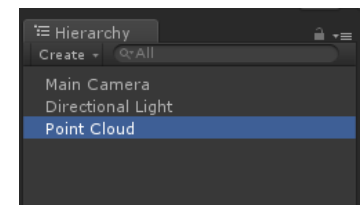
9. Output Settings

Here you can select the output that the system will create an animation for. Cinema Face Cap comes with two sample models, a full body model called "Android" and a floating head version called "Android Head". Cinema Face Cap's output is mapped to 20 animation units, including inputs for eyes, mouth, cheeks and eyebrows.

To improve the quality of the captured recording, the user can import a live model preview into their Unity project. Once the subject is detected by the Kinect sensor, the model will match the movements that the user is making, live inside of the Unity project. To generate a live model, hit the GEN button. A new, temporary game object will be created in the root folder of the Unity Hierarchy called "Cinema_Face_Cap_Android_Face". The game object will automatically be deleted when the Cinema Face Cap window is closed.
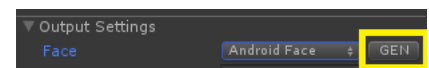
10. Animation Filename

Enter the name of the file that Cinema Face Cap should create when the animation is complete. Once captured, the model will be saved to the folder "Assets/Animation" within your existing Unity project. If you would like to specify a different location, select the folder icon, and browse to the new location that you would like the animation to be saved.

11. Masking Options

Face masking in Cinema Face Cap allows you to restrict your animation to record only certain facial features. For example, if you only want to create an animation involving the eyebrows, but ignore the rest of the face, de-select all jaw, lip, cheek and eye options.

12. Enable Orientation

If you uncheck this option, Cinema Face Cap will ignore the orientation of the subject's face being captured, and lock the head's rotation. Select this option if you only want to record the face's features, and not record looking up, down, left or right.

13. Animation Unit Amplifier

This grants the ability to exaggerate or dampen the movement of a certain facial feature (blendshape) on the model. You can add what animation unit is to be controlled, and then use the slider to assign a value (from 0 to 2 units) that will multiply the movement of the unit. A value greater than one will exaggerate the effect. A value less than one will dampen the default effect.

14. Animation Unit Smoothing

Raw data from the Kinect 2 device can be jittery. To correct this, we have added the ability to control the amount of smoothing applied to facial animation. This smoothing only applies to actual animation units (eyes, brows, cheeks, lips, etc.).

15. Orientation Smoothing

These smoothing options will control the amount of jitter that is reduced in the orientation of the head. These options will exclude actual facial feature animations.

16. Start Delay

We have provided an option to delay when your motion capture begins, so that the user can get into the proper position before recording. This option reduces the amount of cleanup required in the final animation. If you select a start delay, you will see a countdown represented in the capture window.

17. Session Settings

If you want the ability to review your recordings at a future date, and make changes to past recordings, you can choose to save your session. Select the checkbox beside "Save Session" and type in a filename. If you would like to change the location that the session is saved in your project, select the browse button.

18. Record Button

This button will start, and stop the motion capture session. If you have selected a start delay, you will see a countdown on the screen before recording begins.

Using Cinema Face Cap

Creating a motion capture session

Cinema Face Cap allows you to capture facial animations with a standard facial capture rig that we include in the software. We have also developed a wizard, which allows you to assign a custom model of your choice to be used in Cinema Face Cap. Cinema Face Cap saves a Unity animation file **(.anim)** in your current project that you can then apply to any custom face that has the same configuration as the model that has been setup in our wizard. **In order for Cinema Face Cap to work on your model, the model must have a face configured for blendshapes.**

Step 1: Output Settings

By default, your animation will simply be called "animation". Pick a name that would be associated with the animation you are attempting to create. If you are creating an animation of someone talking, name it something like, "talk". If you create a new animation with the same file name as a previous recording, Cinema Face Cap will create the new file, with an incremented number at the end (Talk1, Talk2, etc.)
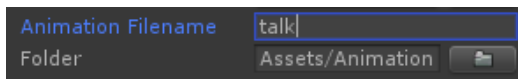
By default, the animation that is captured will be saved to a folder called "Animations" in your current Unity project. The file will be named after what has been entered in the "Animation Filename" box. In the sample to the right, we captured an animation called "talk".
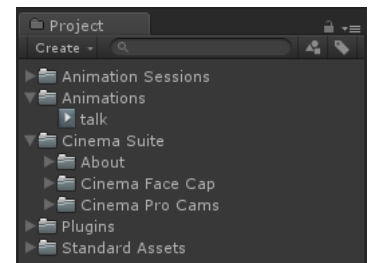
Selecting your model:

By default, you can select two different models for use in Cinema Face Cap. The **"Android"** model includes our standard face attached to a full body. The **"Android Head"** model will use a model of a head only. To view a preview of the face while you record your animation, hit the **GEN** button. The model will temporarily appear in your project's scene view, and the gameobject will be called **"Cinema_Face_Cap_Android"** in your project's hierarchy.
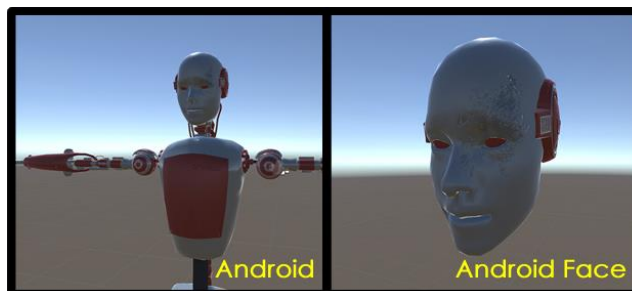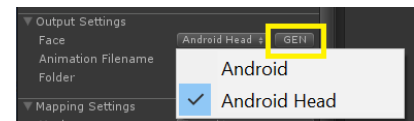
Figure 6: Cinema Face Cap Standard Models

Step 2: Set Motion Capture Options

Input: **Push the red OFF button to enable the Microsoft Kinect 2 sensor. When toggled, the button will turn green, and the viewer panel will update with what the sensor is seeing. This will be a live screen which constantly monitors the environment.**

Generating Point Cloud Data: **If you would like to see a live preview of the raw point cloud data that Cinema Face Cap is utilizing, click this button. A temporary model will be displayed in your scene view, and named "Cinema_Face_Cap_Android_Head" in your project's hierarchy. Make sure to double click the gameobject in your hierarchy to focus on the model in your scene view. You can display both point cloud data and model preview at the same time. Note: This may be laggy on some machines.**

Figure 7: Raw Point Cloud Data

Viewer Panels: **You can choose two ways in which you would like each viewer panel to appear in Cinema Face Cap. Select the dropdown in the upper left corner of the capture window.**

Image Viewer: **This will enable the Kinect's webcam, and show its image in the capture window. Full colour representation of the environment and subject you are capturing.**

Infrared Viewer: **Will show the range of depth that the Microsoft Kinect can see accurately. (called "Infrared viewer" for Kinect 2)**

Figure 8: View options

To display both viewers at the same time, select the "Solo" pulldown in the upper right area of the display window and select either "Duo Horizontal or Duo Vertical" options.

Bounding Box Display: **Selecting this icon will show and hide the motion capture bounding box on the subject being captured. This is helpful to show you when the system is detecting your face.**
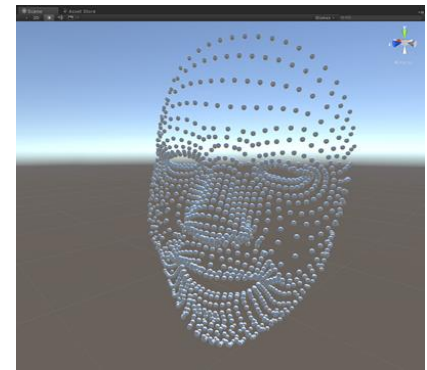
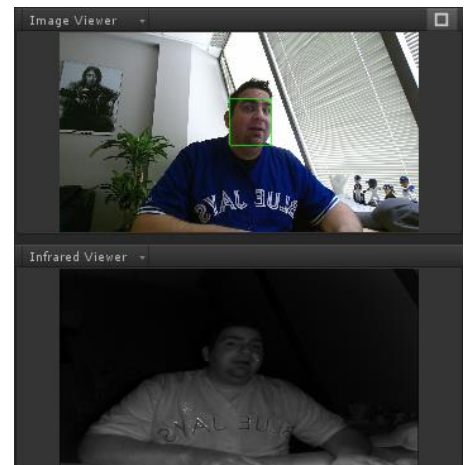## Step 3: Set Mapping Options

Mapping Settings: Cinema Face Cap converts what is captured by the input device into a format the output expects by mapping that data. Here you can choose options for how that data is mapped, and select filters which operate on the data.

Mask: Allows you to enable and disable different facial animation units. Different combinations of masking can give you control over specialized types of characters you chose to use in your project.

Enable Orientation: When you perform a recording, the rotation of your head will be captured and applied to the model. If you do not want this effect, uncheck this button. Once unchecked, the face's rotation will be locked, and only the facial animation will be captured.

Anim. Unit Amplifier: We have provided the ability to adjust how much specific animation units will be reflected on the model. This can be valuable for adapting Cinema Face Cap to work with many different models. Or, to limit control of certain features that would not apply to the face you are animating (such as non-human, monster type characters). To select an animation unity to control, click the plus (+) button. Selecting the unit on the left will display a dropdown list where you can select the unit. To remove the animation unit from the list, select the minus (-) button.
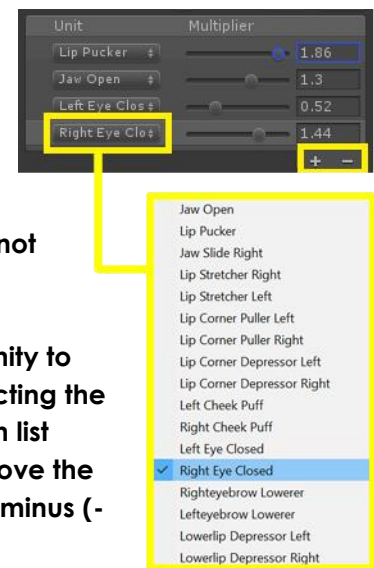
Anim. Unit Smoothing: When this is checked, animation unit data will be passed through a smoothing algorithm which will reduce jitter and outlier data.

Smoothing: A variable for determining how much smoothing should be applied. Select a value between 0 and 1. A value of zero will strictly use the current frame's data. A higher value will blend in data from previous frames. When adjusting smoothing, make sure to use a value that is a good balance of jitter reduction and latency.

Jitter Value: Measured in a percentage of a blend shape unit, this variable is a threshold used to check the difference in value between the last frame and the current frame. If the value is less than the threshold specified, then the movement is considered jitter.

Orientation Smoothing: **When this is checked, orientation data will be passed through a smoothing algorithm which will reduce jitter and outlier data. This is only applied if "Enable Orientation" is selected.**

Smoothing: **Smoothing algorithm for orientation is the same as for animation unit smoothing.**
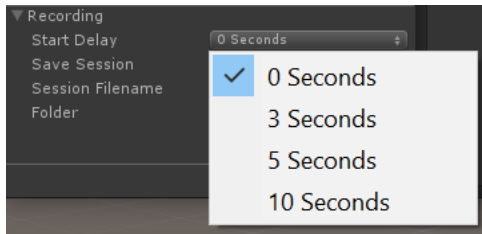
Jitter Degrees: **Measured in degrees, this value will control the difference in degrees between the last frame and the current frame. If the difference in degrees is less than the value specified, then the movement is considered jitter and reduced.**

Step 4: Recording

You can control how you would like the motion capture session to begin.

Start Delay: Select when capture will begin after the record button is pressed. Choices range from 0 to 10 seconds. If you pick a time greater than 0, a countdown will appear in the capture window as you stand in front of the Kinect sensor.

Saving your Session: Clicking the "Save Session" option under record sessions will give you the ability to save the raw data of your session in your Unity project. Saving the session gives you the ability to review the session at a later time, and make changes to many different options to help further refine your animation. If you want to save your session, select a filename for your session, and select a location using the browse button. We will talk about reviewing recorded sessions later in this documentation.
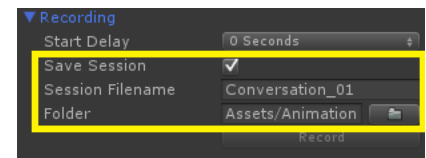
After going through the steps above, and setting the Cinema Face Cap environment, it is time to begin your motion capture session by hitting the record   button.

To ensure the best results, make sure that you follow the following guidelines:

1. *Check your surroundings:* Make sure you have enough space to operate. Typically, you will be seated when using Cinema Face Cap. For the best results, you should be seated approximately 3 feet (0.9m) away from the Kinect sensor. The Kinect should be placed level, at approximately 45 inches (127cm) from the floor.
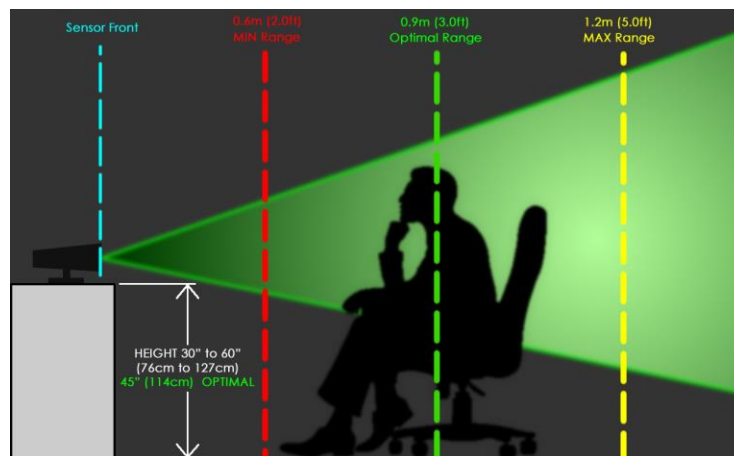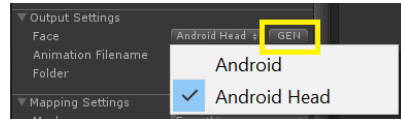

Figure 9: Optimal Positioning

2. *Enable Model Preview:* **Cinema Face Cap gives you the ability to watch your animation mapped to your output live inside of Unity. To view yourself as a Unity model, follow these quick steps.**

   a. **Click the Model Preview "GEN" Button.**

   b. **A preview model will appear in your Unity Hierarchy called "Cinema_Face_Cap_Android" The model will be located at the 0,0,0 coordinate in your current scene.**

   c. **Double-click on the model in the hierarchy to focus on that model in your scene. Reposition your view using Unity if required.**

   d. **Start Device Tracking and look towards the Kinect. After a few seconds, the Kinect will track your face, which will become constrained to a green bounding box. The Unity model will now represent your movements. Record your session when ready. See image below.**
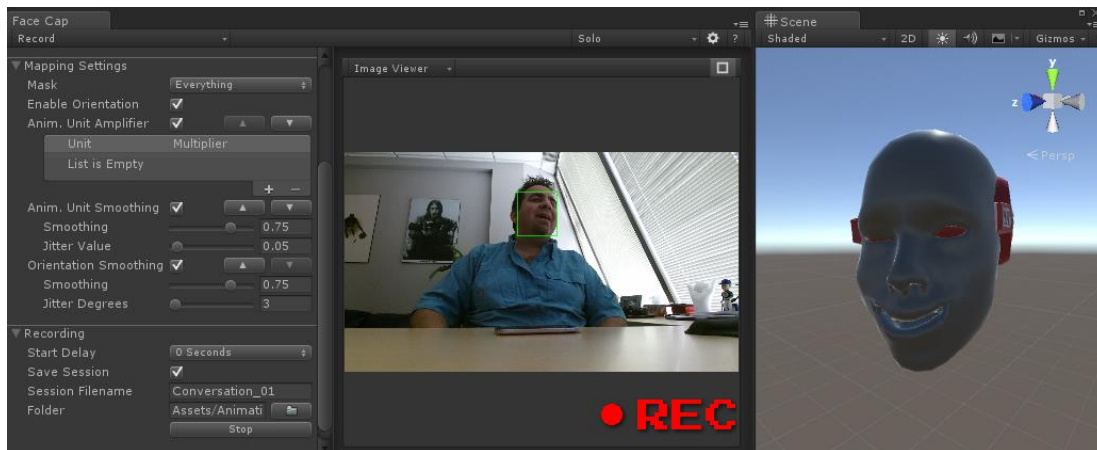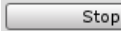
Figure 10: Model Preview Generation

3. *Completing your motion capture session:* **Once you have completed your session, hit the stop button.** **Your animation will then save to your Unity project under the filename that was originally entered, with the generated animation (.anim) file. By default, the file will be saved under the project folder Assets > Animations. If you no longer need the model preview, simply delete it from your project by selecting it in the Unity scene or highlighting and deleting from the Unity Hierarchy. The preview model will also automatically delete when you close the Cinema Face Cap window.**

Step 4: Reviewing a Saved Session
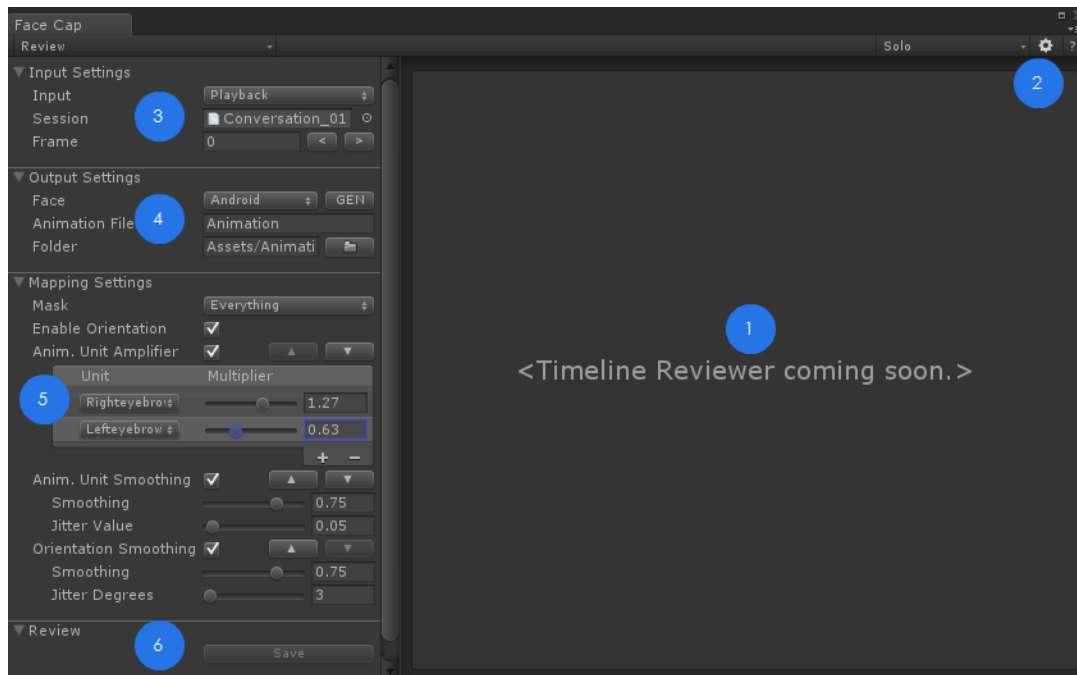
Figure 11: Review Mode for Cinema Face Cap

Cinema Face Cap allows you to save a face capture session for future review. To make changes to past sessions that have been saved, select "Review" from the main Cinema Face Cap window.
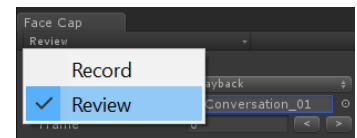
Input Settings: When in review mode, the input type will always be set to "Playback". To open a saved session, click on the target button to the right of the "Session" field. All available sessions in your existing Unity project will be listed for selection. Select your session from the list.

To view the recorded session, select the "GEN" button. A new face model will temporarily be generated in Unity's scene window.

Frame: To view the animation data, hover over the frame field, hold your left mouse button and drag left or right. The animation will then scrub from it's first to last frame. If you want to view each frame individually, use the arrow buttons.
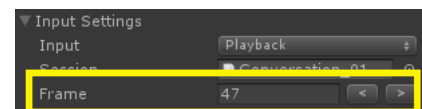
Figure 12: Frame scrubbing with live face preview

Output Settings: To see live changes applied to your model, click the "GEN" button beside the "Face" field. A live model will be generated in your current scene. Now, when scrubbing frames, you will see the model preview live.

When saving your session, a new animation will be saved in your Unity project. Select a new name and file location.

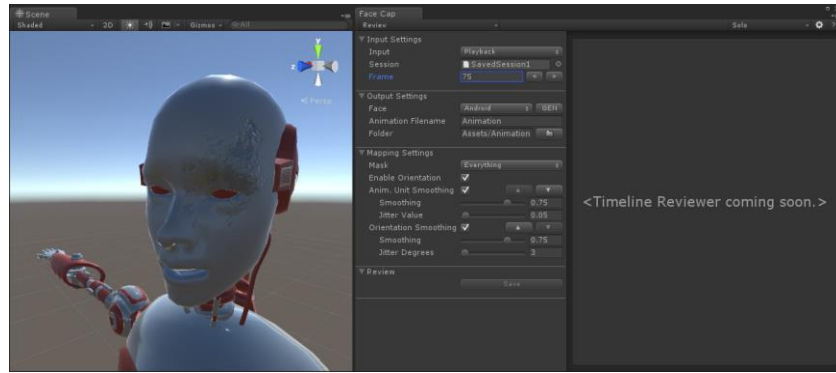*Mapping Settings:* To make changes to the motion capture data, use the same mapping settings as when the original animation was captured. Changes can be made to the model by enabling/disabling orientation, adjusting general smoothing for facial units or orientation. You can even select different facial masks, to discard facial units that formed the original animation. For more information about how smoothing options effect your model, see Step 3: Set Mapping Options.
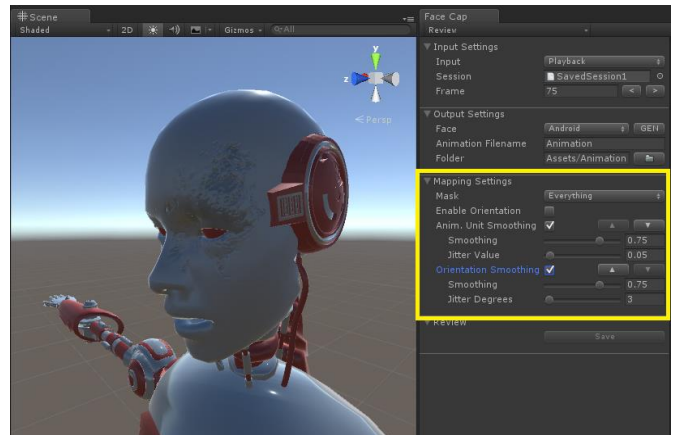
Figure 13: Mapping settings and their effect on the live model preview

Any changes you make to the mapping settings will be reflected live in the model preview. Once you are satisfied with the new changes you have made, it is time to save your session.

Review: When you are ready to save your changes, click the save button. The existing motion capture session will be updated to reflect your changes, and a new animation (.anim) file will be created in your Unity project with the new modifications. In Figure 14, Notice how disabling orientation changed the position of the live mode's face.

Timeline Editor: A future release of Cinema Face Cap will have a built in timeline editor, that will allow you to further refine your saved session, including the ability to clip the start and end point of your animation, as well as other features.

Using your own model with Cinema Face Cap

About the Output Wizard

In order to use custom models with Cinema Face Cap, you will be required to use the Output Wizard. The wizard allows you to create custom mappings for your model, then import it into Cinema Face Cap for use with facial capture. Once you create a custom mapping, that mapping can then be used for any future characters whose blendshapes are configured the same way. For example, if you are using Adobe Fuse models, you only need to create one mapping, then all fuse characters will work with that template.

To open the Output Wizard, you can either open by using the Unity menu pulldown, or by clicking the settings button on the right side of the Cinema Face Cap window.
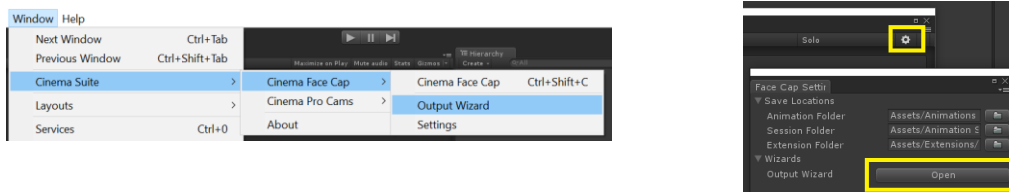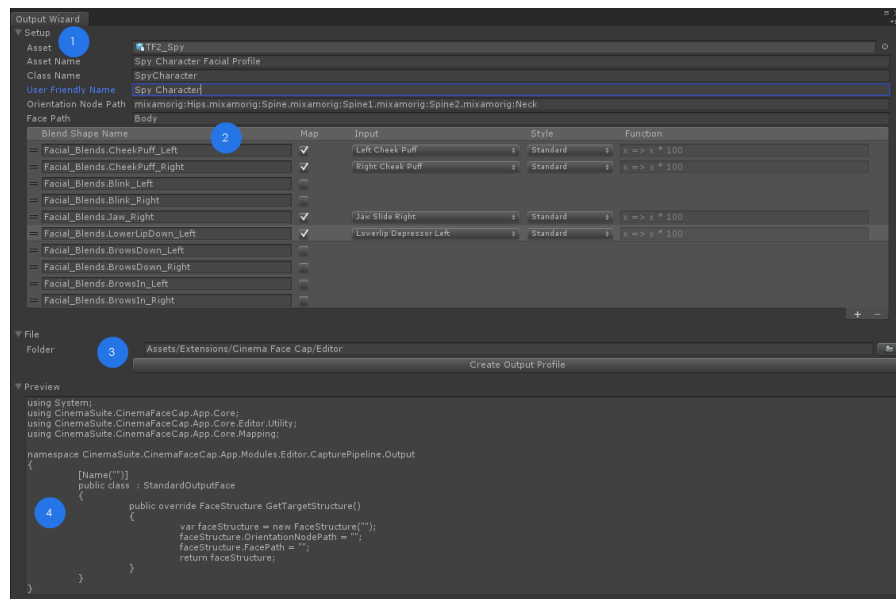

Figure 14: Options for opening Output Wizard

Using the Output Wizard

Let's take a detailed look at the Output Wizard interface and how it works:

	Setup Options		File Options
	Blend Shape Mapping		Class File Preview Area

Figure 15: Output Wizard Overview
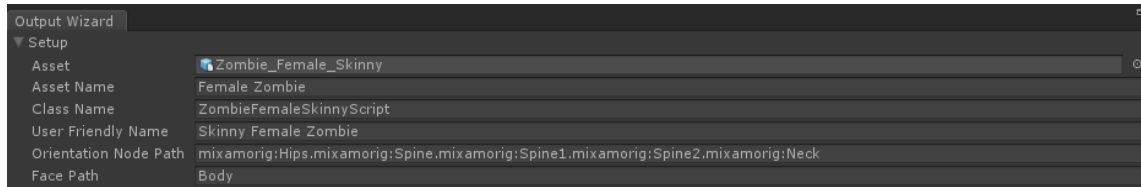
1. Setup Options

Figure 16: Setup Options Sample

Using the Output Wizard requires you to select an existing model in your Unity project. Once selected, you can modify how the new output profile will be saved in Unity. Options are as follows:

Asset:	Click this field to select the model from your Unity project that you want to perform blend shape mapping on for Cinema Face Cap. The model must have a blend shape rig configured.
Asset Name:	The name of the asset file which will be used to load the asset. Your asset is required to be in a Resources folder. By default, the model name will be used.
Class Name:	Type a name that you would like to call the class file that will be saved in your Unity project. By default, the model name will be used.
User Friendly Name:	This is the name that will be used inside of Cinema Face Cap when selecting which model to use for the live preview. By default, the model name will be used.
Orientation Node Path:	The output wizard will determine the node that controls the orientation (rotation) of the model's face. Usually, this will be the neck. If for some reason the correct node is not selected, then you can enter a custom path here. Use periods to separate model components while you define the tree.
Face Path:	This is the path to the game object with the SkinnedMeshRenderer attached that control's your model's blendshapes. Again, the wizard will take a best guess at where this is located. If the location is incorrect, you can manually enter the path here.

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2. Blend Shape Mapping

Once a model has been selected, it is time to map the model's blendshapes to the blendshapes that are supported by Cinema Face Cap. Since Cinema Face Cap uses the Microsoft Kinect 2, 20 total blendshapes for facial animation are supported.
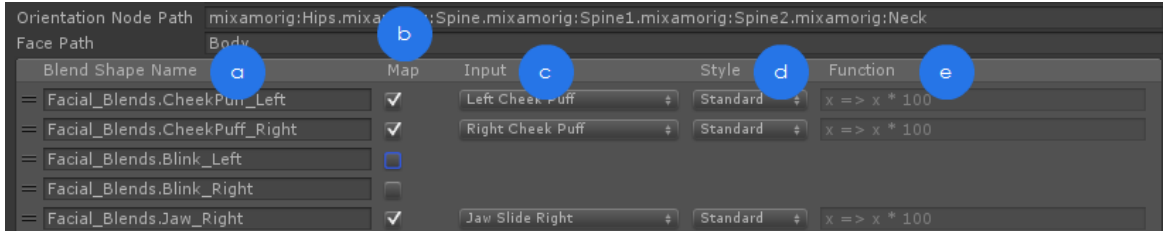

Figure 17: Blendshape Mapping Overview

a) *Blend Shape Name* – **All blendshapes used in the model you selected will be displayed in this list. The list can be reordered by clicking and dragging on the left of the blendshape name. The ordering here should match the ordering of the blend shapes in the asset file. You have the ability to add and remove items by hand using the + and – icons at the bottom of the list.**

If a blendshape you want to use was not detected by the Output Wizard, you can add a blendshape by clicking the plus button at the bottom of the list, which will create an empty row. Type in the path to the blendshape in your model.

b) *Map* – **Check this box to map a value from the system to your blend shape. Input options will appear after selection.**

c) *Input* – **Selects the blendshape that we want to map from. In Figure 18, we show a list of blendshapes that are available. In this example, we are mapping "Left Eye Closed" from the system to a left eye blink (from the original model. Keep in mind that much of the time names will not match exactly.**
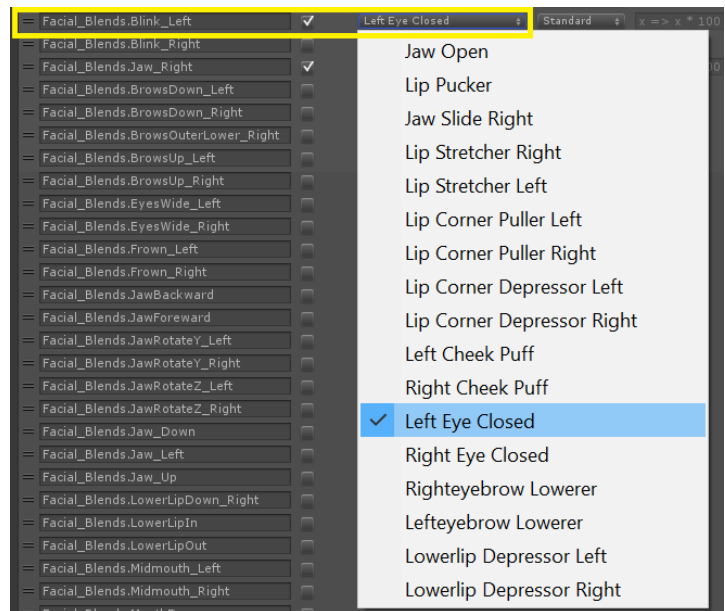

Figure 18: Blendshape Options

d) Style – This is the mapping style. In most cases, we want to convert the values gathered by the system from the range [0 to 1], to the range [0 to 100]. This would be

the standard case. In the cases of Jaw Slide Right, and both Eyebrow Lowerers the system gathers values from -1 to 1. In the case of Jaw Slide Right, we would want to map the Positive values to the model's jaw slide right blend shape, and map the negative values to the model's jaw slide left blend shape. You can select the positive and negative styles to help with that. This also applies to Eyebrow Lowerers where you would map negative values to an eyebrow raising blend shape.
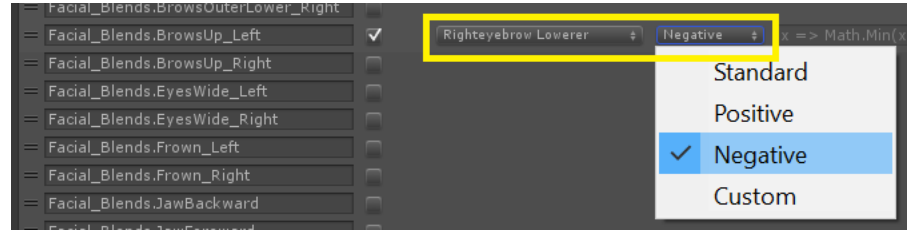
e) Function – Selecting a **custom** style will allow you to edit the function field. Here, you can enter in a lambda

expression that the mapper will use. In the example above, we are rewriting the input variable "x" to be "x * 150". More information can be found by web searching "C# Lambda Expressions".

3. File Options

Once blendshapes have been mapped, you can determine where the output profile will be saved. The final location must be in

an editor folder. If you specify a path that does not finish with an editor folder a warning will be displayed. Select the browse button to select a location. Once you have selected a location, press the "Create output profile" button. All required data bill be saved to your project.
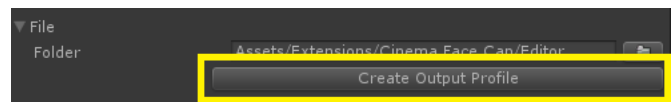
4. Class File Preview Area
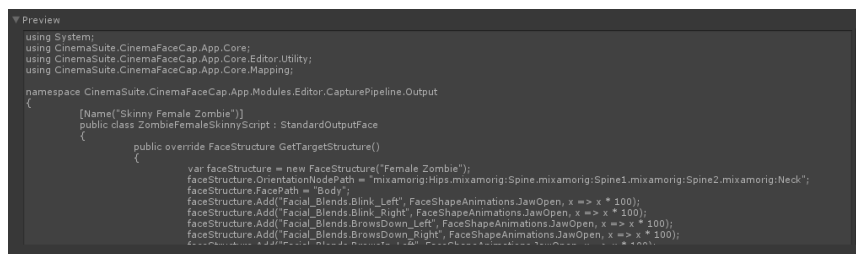
Figure 20: Output Wizard Preview Window

During the configuration of your output file, a live preview of the class file that controls the facial animation system for the model will be continually generated at the bottom of the Output Wizard window.

Using your model in Cinema Face Cap

Once you complete the Output Wizard and save your profile, your model will become available for use in Cinema Face Cap. Open the Cinema Face Cap window, and under Output Settings, select your new model from the Face list. The model will have the same name that was given in the "User Friendly Name" field in the Cinema Face Cap Output Wizard.
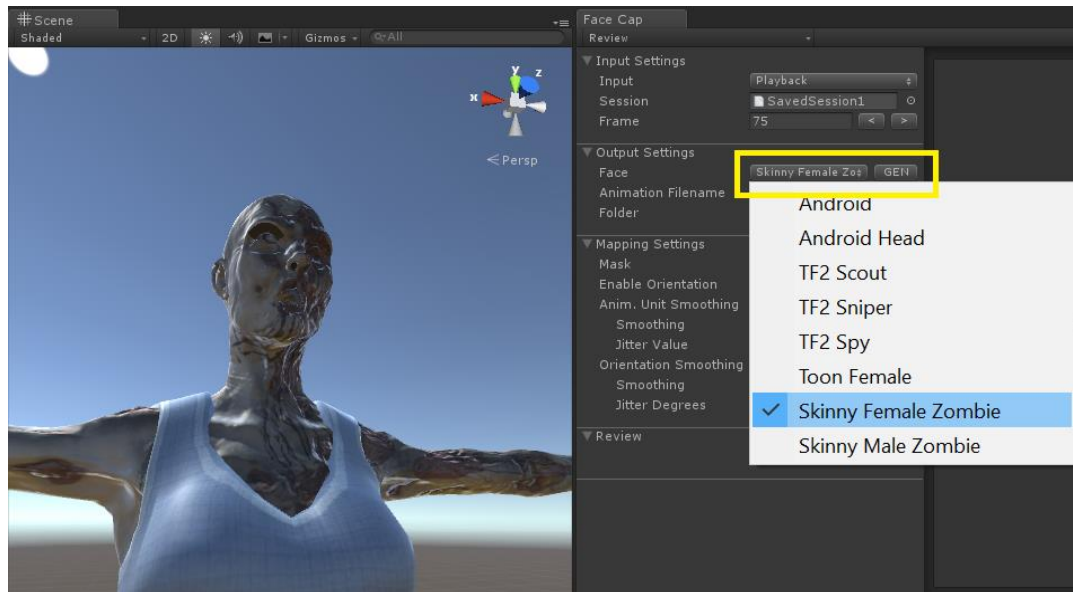
Figure 21: Custom Model Selection in Cinema Face Cap

Once your model is created, all animations recorded using that file will correctly map to the model in your project. If you create other models that use the same blendshape structure, those models will also be compatible with the output profile you created. Make sure to experiment with different settings in the Output Wizard for your blendshape mapping, such as using custom styles, to achieve the perfect configuration for your model.

Appendix A

Authoring your own face model

Setting up your own characters in Cinema Face Cap requires a base character with a Face that is ready for Motion capture. The face would require a mouth that can be opened with the inner part of the mouth completed (Teeth and tongue) as required for the desired scene. Cinema Face Cap uses blend shapes to register the facial movements within the Kinect 2.0. The program is set to recognize 20 different blend shapes that should be attached to the characters FBX file. These shapes are:

0.   Jaw Open

1.   Lip Pucker

2.   Jaw Slide Right

3.   Jaw Slide Left

4.   Lip Corner Puller Right

5.   Lip Corner Puller Left

6.   Lip Stretcher Left

7.   Lip Stretcher Right

8.   Lip Corner Depressor Left

9.   Lip Corner Depressor Right

10.   Left Cheek Puff

11.   Right Cheek Puff

12.   Left Eye Closed

13.   Right Eye Closed

14.   Left Eyebrow raise

15.   Right Eyebrow Raise

16.   Left Eyebrow Lower

17.   Right Eyebrow Lower

18.   Lower Lip Depressor Left

19.   Lower Lip Depressor Right

Each one of the facial expressions above represents one blend shape that needs to be created. This will allow recognized movement of the face through the Kinect's sensor. Unity is set to recognize the blend shapes with a value of 0-1 so having negative values (-1-1) to decrease the amount of blend shapes needed to be made will unfortunately not work.

Creating the blend shapes requires a 3D software of choice that allows the creating of blend shapes and the ability to export them into an FBX file. Two programs that can be used to create the blend shapes with ease would be Zbrush and Maya. These are the two programs that we recommend which allow easy, full customization of your blend shapes in a way that is organized and efficient.

Maya uses multiple duplicates to make the blend shapes. This would result in 20 facial expressions set up in the scene next to your base mesh. The setup in Maya makes it easy to see each face and make changes to a face if something goes wrong quickly.

Zbrush uses a different approach. When creating blend shapes, layers come into play. Zbrush's layer system is set up to a -1-1 scale but always creates the blend shape at 1 when recording. Zbrush takes all movement sculpts and additions to the character and turns it into a blend shape. Zbrush (unlike Maya) does not allow the view of each blend shape on one screen, the user will have to change a slider each time they want to see the shape and deactivate it when they want it to return to the neutral face.

How to: Combine Cinema Face Cap animations with other models

Most users will have a need to use their newly created facial animation on other models (or Cinema Mo Cap animations) in their project that already have existing animations. Below is a quick step by step approach on how this can be achieved. For combined animations, do the following:

1. **Import desired model into Cinema Face Cap using the Output Wizard. (Or use existing model).**

2. **Record desired facial animation.**

3. **Import model into scene.**

4. **Drag face animation onto model. This auto creates an animator controller.**

5. **Create an avatar mask call it "face". In it, under the humanoid drop down, disable every body part except for the head.**

6. **In the controller, the layers area, click the cog in the default layer to set the mask to the "face" (one we just created). Set blending to "override". Name the layer "face".**

7. **Create a new layer called "body".**

8. **Create an avatar mask, call it "body" and disable ONLY the head.**

9. **Back in the animator controller, set the body layers mask to the body mask. Set the weight to "1" on both layers. Set both layers to override.**

Creating Blendshapes in Maya

Maya requires the base mesh to be set with the transforms frozen or unchangeable, as it can affect the other blend shapes if moved. The base mesh is duplicated 20 times with each face placed beside one another until a line of 21 faces are present. That's 21 including the base. Once all the faces are set up, each one can be modified to create the desired face listed above. The blend shapes can be found in the animation tab in Maya and can be created using a deformable shape.

For more information, see the Autodesk knowledgebase for Maya here:

https://knowledge.autodesk.com/support/maya-lt/learn-explore/caas/CloudHelp/cloudhelp/2015/ENU/MayaLT/files/Blend-Shape-deformer-Set-blend-shape-deformers-htm.html

For a tutorial explaining the above, view the following video:

https://www.youtube.com/watch?v=WtfYPxhLO30

Creating Blendshapes in Zbrush

Blend shapes in Zbrush are created using layers. Once all 20 blend shapes are created they can be exported as an FBX and then imported into unity for use with Cinema Face Cap. The face inside Unity will be assigned a skin mesh renderer that collects all the data from the blend shapes attached to the FBX file. Cinema Face Cap then reads that information and applies it to the inputs recognized by the Kinect 2.0.

The Kinect collects that input and applies it to the character, so when facial movement of the person is spotted it is replicated on the model. This allows for animations such as cheek puffing, jaw opening, lip puckering action, etc. that can be recorded and turned into an animation. To create a separate deformation, each blend shape is set up on its own layer and Zbrush allows complete use of all its tools to change the facial expression on each layer. The character is required to be in its lowest subdivision when creating the blend shapes. This allows for easier change of the face to create the expressions. Once a layer is created, Zbrush does not allow any change to that layer unless it is recording the data. This allows for minimal mistakes in changing the wrong blend shape.

For a tutorial video on the process, click here:

https://www.youtube.com/watch?v=Ja31WotsKIc

Community

We want to hear from you! Quite simply, without you, none of what we develop would be possible. We always want to hear from our community, whether it is for feedback, sharing ideas, adding features, and providing additional help. Here's how you can find us:

Website:		www.cinema-suite.com
Facebook:	f	/CinemaSuiteInc
Twitter:	t	/CinemaSuiteInc
YouTube:	You Tube	/CinemaSuiteInc
Blog:		www.cinema-suite.com/blog
Email:		support@cinema-suite.com
Forums:		www.cinema-suite.com/forum

Help and Support

Cinema Suite Forums:

The fastest way to obtain support for Cinema Face Cap is to visit the Cinema Suite forums. Our forums can be found at www.cinema-suite.com/forum.

Before creating a post, please make sure to search the forum using the search bar located in the upper right area of our forum site.

If you cannot find what you are looking for, please create a new forum topic under the Cinema Face Cap category "Help and Support" by clicking on the text below.

Once inside the Help and Support area for Cinema Face Cap, create a new topic by selecting the new topic button in the upper left area of the page.

Email:

If you fail to receive an answer in the forums, you may also email our support team directly. Our email address is **support@cinema-suite.com**.

Please note the following when emailing support for quickest service:

1. We need 2-3 days to process email support requests, due to volume.
2. For fastest service, please provide your Unity Asset Store Purchase invoice number for our product.
3. Put invoice number in subject field, with brief description of problem.
4. In the body of the email, please provide as much of the following as possible, for quickest service:
   - Detailed explanation of the problem. Provide screenshots if possible.
   - What version of Unity?
   - What version of Cinema Face Cap? (Go to **Window>Cinema Suite>About** to obtain version number).
   - Sequence of events leading to issue.

Licensing:

Licensing for Cinema Face Cap is governed by the Unity Asset Store End User License Agreement (EULA). For more information about the EULA, please **click here** for more information.

Thank you

Without you, what we do would not be possible. We sincerely thank you for purchasing Cinema Face Cap.