



SRanipal Unreal SDK Guide

Release version: 1.3.3.0

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Prerequisites

The SRanipal SDK for Unreal can be implemented only when the SRanipal SDK has been setup. If not, follow the following guideline to setup the SRanipal SDK — *SRanipal_version\SRanipal_SDK_Guide.pdf*.

Create a new project and add the SDK

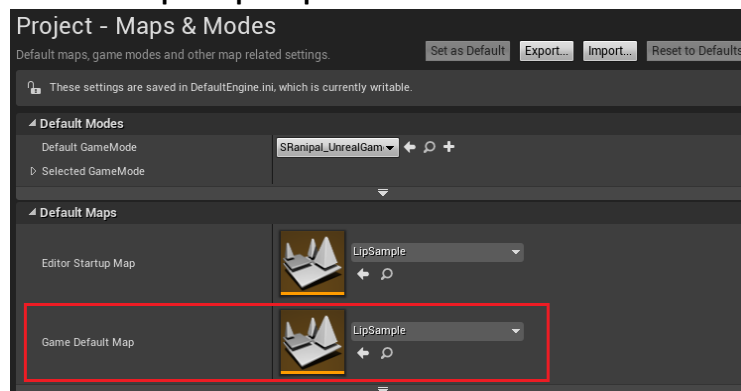
1. Open Unreal Engine and create a new **C++ project**.
2. Unzip the plugins at *SRanipal_version\03_Unreal\Vive-SRanipal-Unreal-Plugin.zip*
3. Copy the folder **Plugins** inside the folder you unzip above into your project.
4. Restart the editor and enable **SRanipal** in **Settings > Plugins**.

Play the sample level

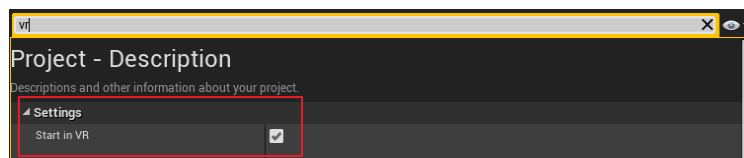
1. In the Unreal content browser, you can find the sample level in:
SRanipal Content/Level/LipSample.
2. Ensure that all Requirements mentioned in *SRanipal_SDK_Guide.docx* are met and then click **VR_Preview**.

Package the sample app

1. In **Edit > Project Settings** choose **Maps & Modes**
2. Change the **Game Default Map** to **LipSample**.



3. In **Edit > Project Settings** choose **Description** (Or you can search “vr”).
4. Enable **Start in VR**.



5. Select **File > Package Project > Windows > Windows (64-bit)**.

Enable SRanipal functionality in your Unreal project.

NOTE that the **Enable SRanipal functionality** step has been changed after **SRanipal v1.3.0.9**.

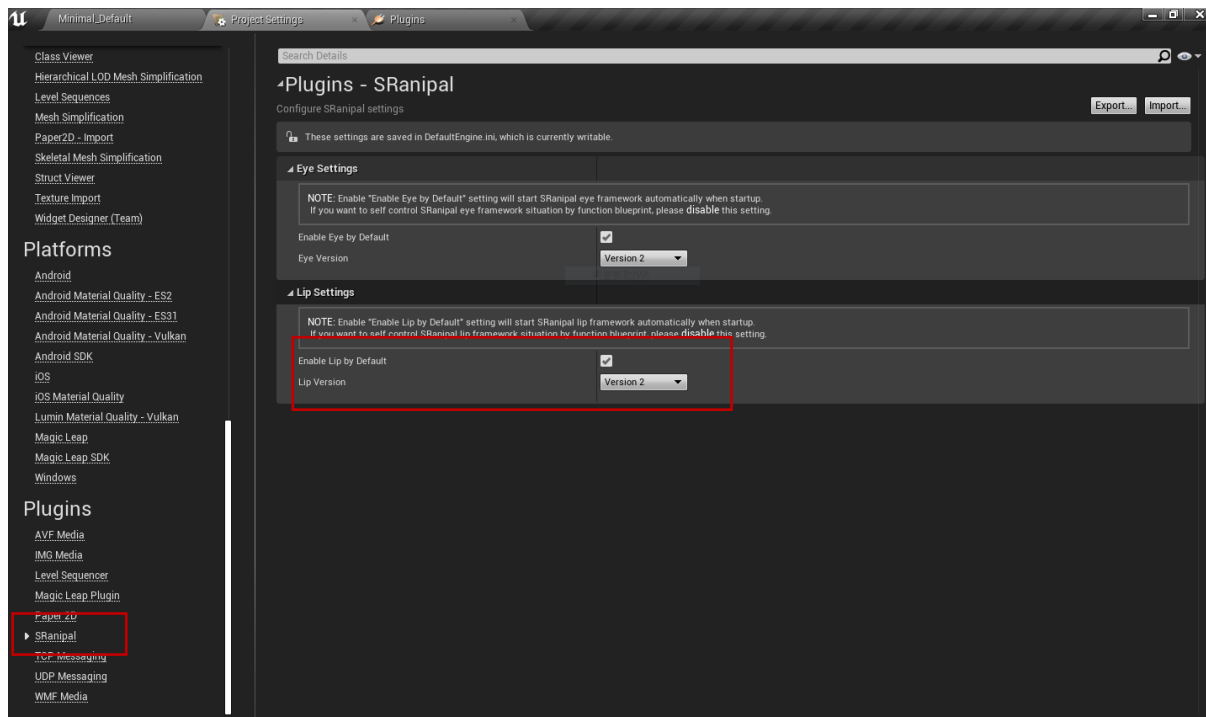
Enable the SRanipal Framework (You should ignore this step if you are using SRanipal version after 1.3.0.9.)

1. You can find the actor: **SRanipal_Lip_Framework** under: **SRanipal C++ Classes/SRanipal/Public**
2. Put the framework actor in your level.
3. Toggle “**Enable Lip**” in the actor’s Details Panel to enable the lip-tracking feature of the SRanipal SDK.
4. Explore the Lip features.

Enable the SRanipal Framework in SRanipal v1.3.3.0

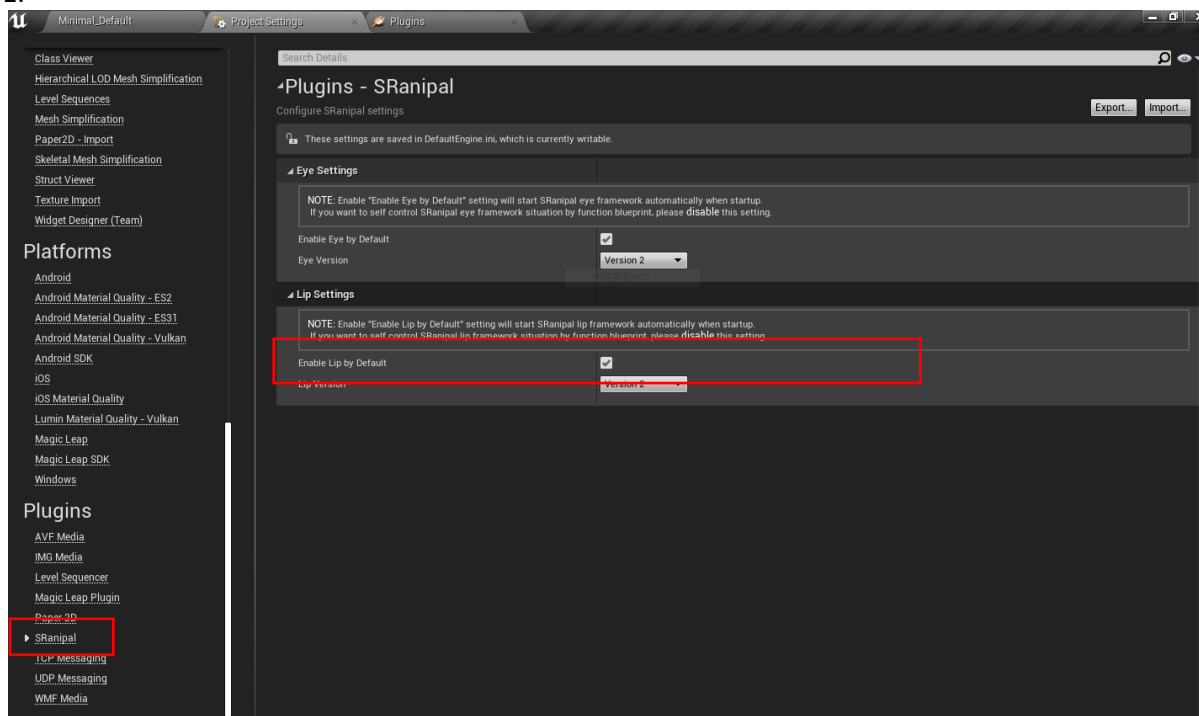
In SRanipal v1.3.3.0, Lip Tracking is **disabled** by default.

- If you want to use Lip tracking in Editor, you need to tick the box “**Enable Lip by Default**” in **Project Settings -> Plugins -> SRanipal** of your UE4 project.

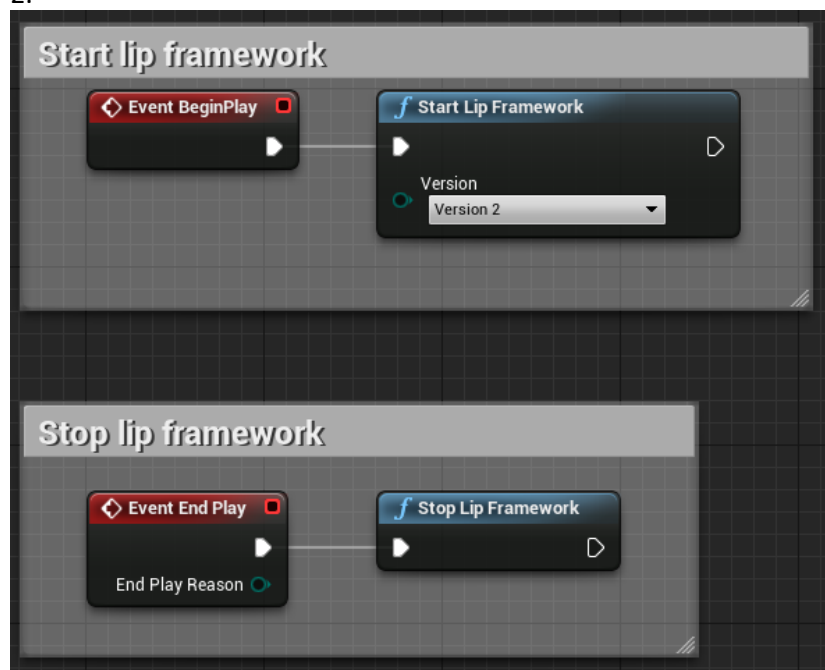


- If you want to use Lip tracking in a **Package Build**, you can **1. Tick the box “Enable Lip by Default” in Project Settings -> Plugins -> SRanipal** or **2. Call the “Start Lip Framework” function.**

1.



2.



Lip relative features

Control Avatar' lip

To reflect the player's lip movement on an avatar, refer to the actor **SRanipal_AvatarLipSample** in **SRanipal C++ Classes/SRanipal/Public**



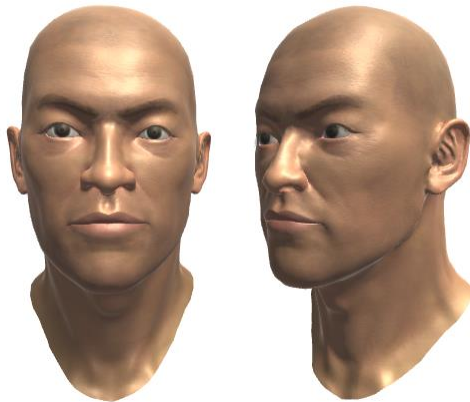
SRanipal Compatible Avatar

Overview

Through SRanipal's lip-tracking features, an avatar's morph targets values can be animated with the player's lip movement. A compatible avatar for SRanipal has 26 blendshapes in version 1 and 38 blendshapes (37 + 1 no detect) in version 2 for lip tracking. Demonstrated in this section.

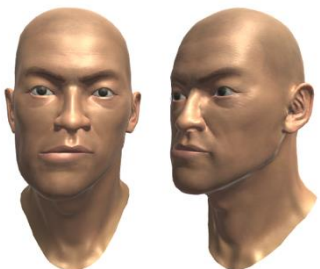
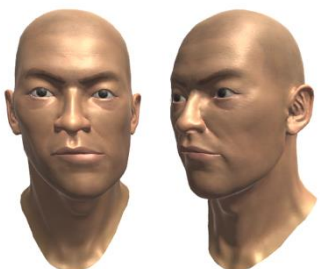
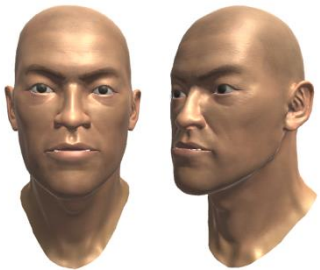

(Note that the development will focus on version 2, version 1 will still support the system but will not be updated in the future.)

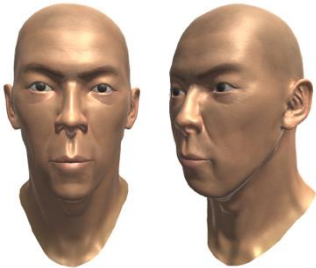
Note: Blendshape name with prefix annotation "*" means that it is composed of multiple blendshapes.




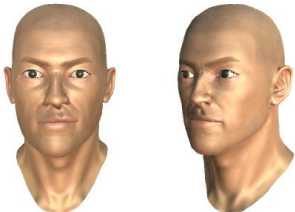
Sample Avatar

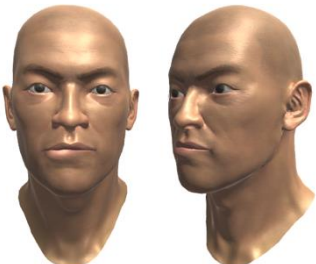
Jaw, Mouth and Cheek BlendShapes – version 2

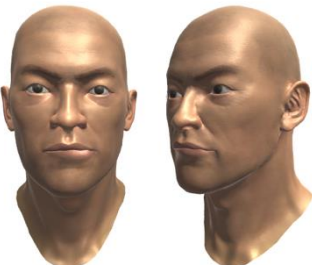
Jaw_Right	
	Description
	This blendShape moves the jaw further rightward with a higher value.
Jaw_Left	
	Description
	This blendShape moves the jaw further leftward with a higher value.
Jaw_Forward	
	Description
	This blendShape moves the jaw further forward with a higher value.
Jaw_Open	
	Description
	This blendShape opens the mouth further with the higher value.



Mouth_Ape_Shape	
	Description
	This blendShape stretches the jaw further with a higher value.



Mouth_Upper_Right	
	Description
	This blendShape move your upper lip rightward.

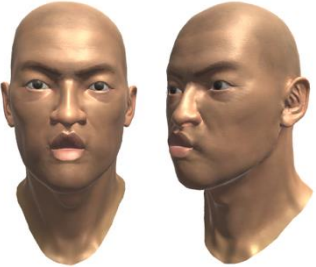
Mouth_Upper_Left	
	Description
	This blendShape move your upper lip leftward.

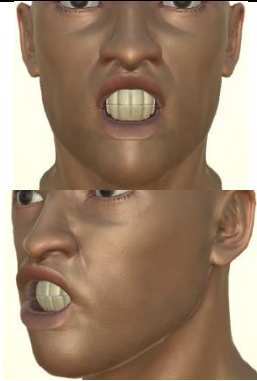
Mouth_Lower_Right	
	Description
	This blendShape moves the lower lip further rightward with a higher value.

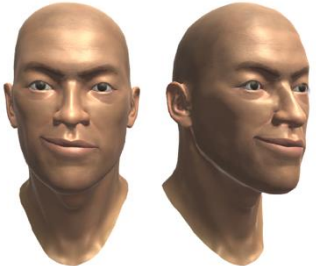
Mouth_Lower_Left	
	Description
	This blendShape moves the lower lip further leftward with a higher value.

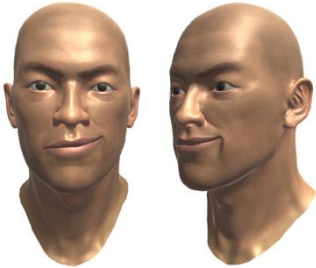
*Mouth_Upper_Overturn	
	Description
	<p>This blendShape pout your upper lip.</p> <p>Must be used with UpperRight_Up and UpperLeft_Up to complete Upper O mouth.</p> 

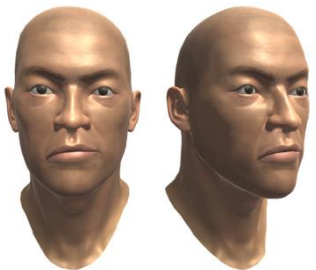
*Mouth_Lower_Overturn	
	Description
	<p>This blendShape pout your lower lip</p> <p>Must be used with LowerRight_Down and UpperLeft_Up to complete Lower O mouth.</p> 

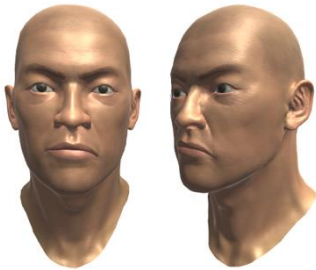
Mouth_Pout	
	Description
	This blendShape allows the lips to pout more with a higher value.

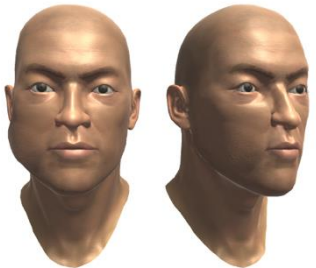
Mouth_Upper_Overturn + Mouth_Lower_Overturn + Lip Up and down (Note that we did not provide this as independent blendShape)	
	Description
	The entire O-shaped mouth is formed by the combination of 6 blendshapes: Mouth_Upper_Overturn Mouth_Lower_Overturn Mouth_UpperLeft_Up Mouth_UpperRight_Up Mouth_LowerLeft_Down Mouth_LowerRight_Down

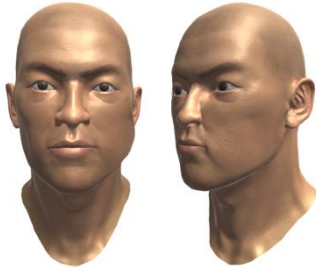
Mouth_Smile_Right	
	Description
	This blendShape raises the right side of the mouth further with a higher value.

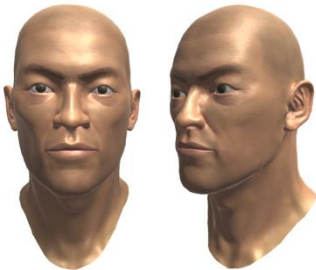
Mouth_Smile_Left	
	Description
	This blendShape raises the left side of the mouth further with a higher value.


Mouth_Sad_Right	
	Description
	This blendShape lowers the right side of the mouth further with a higher value.


Mouth_Sad_Left	
	Description
	This blendShape lowers the left side of the mouth further with a higher value.

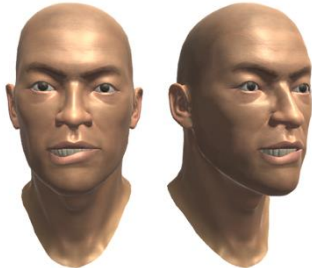
Cheek_Puff_Right	
	Description
	This blendShape puffs up the right side of the cheek further with a higher value.

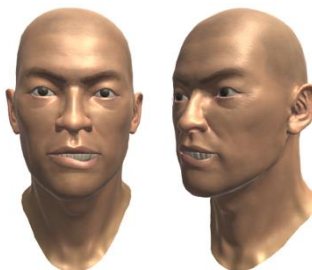
Cheek_Puff_Left	
	Description
	This blendShape puffs up the left side of the cheek further with a higher value.

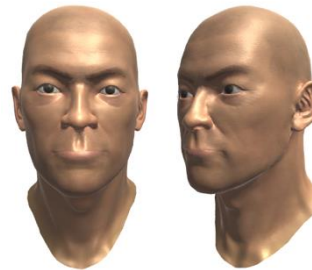
Cheek_Suck	
	Description
	This blendShape sucks in the cheeks on both sides further with a higher value.

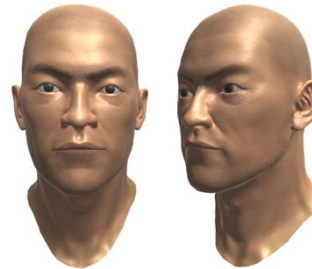
Mouth_Upper_UpRight	
	Description
	This blendShape raises the right upper lip further with a higher value.

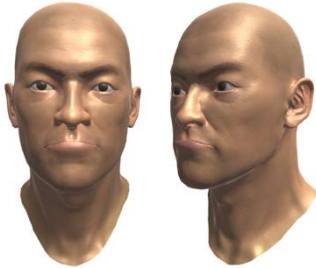
Mouth_Upper_UpLeft	
	Description
	This blendShape lowers the left upper lip further with a higher value.


Mouth_Lower_DownRight	
	Description
	This blendShape lowers the right lower lip further with a higher value.


Mouth_Lower_DownLeft	
	Description
	This blendShape lowers the left lower lip further with a higher value.

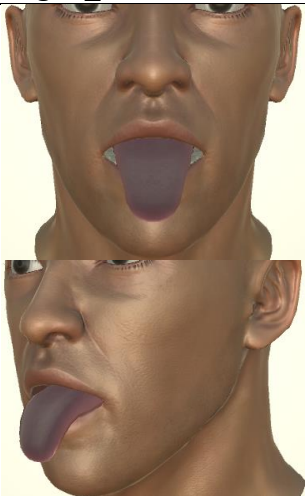
Mouth_Upper_Inside	
	Description
	This blendShape rolls in the upper lip further with a higher value.

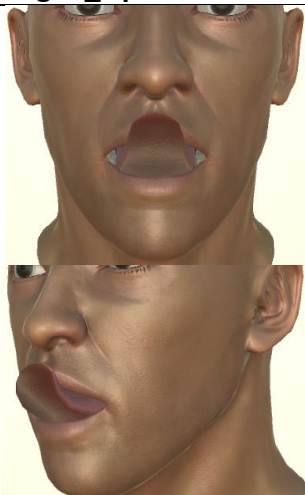
Mouth_Lower_Inside	
	Description
	This blendShape rolls in the lower lip further with a higher value.

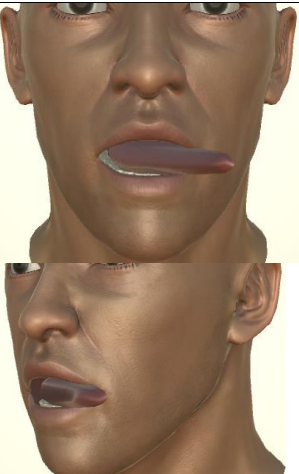
Mouth_Lower_Overlay	
	Description
	This blendShape stretches the lower lip further and lays it on the upper lip further with a higher value.

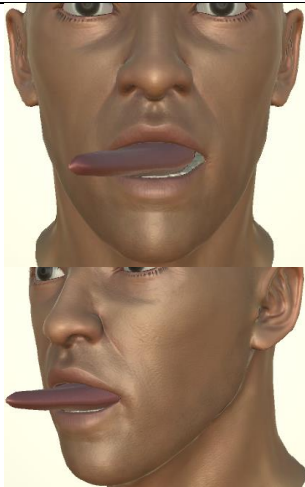
Tongue_LongStep1	
	Description
	<p>This blendShape stick the tongue out slightly.</p> <p>In step1 of extending the tongue, the main action of the tongue is to lift up, and the elongated length only extends to a little bit beyond the teeth.</p>

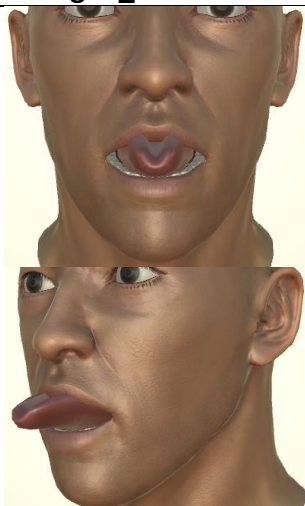
Tongue_LongStep2	
	Description
	<p>This blendShape stick the tongue out extremely.</p> <p>Continuing the step1, extend the tongue to the longest.</p>

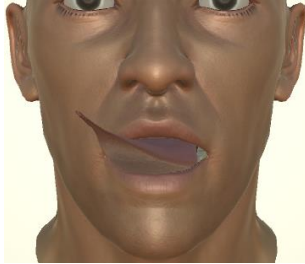

*Tongue_Down	
	Description
	<p>This blendShape stick the tongue out and down extremely.</p> <p>This example contains (Tongue_Down + Tongue_LongStep2 + Tongue_LongStep1)</p>

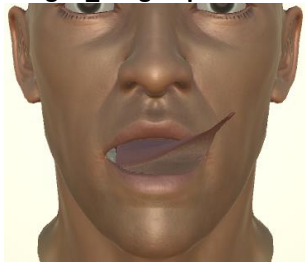
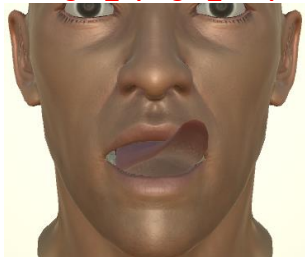
*Tongue_Up	
	Description
	<p>This blendShape stick the tongue out and up extremely.</p> <p>This example contains (Tongue_Up + Tongue_LongStep2 + Tongue_LongStep1)</p>

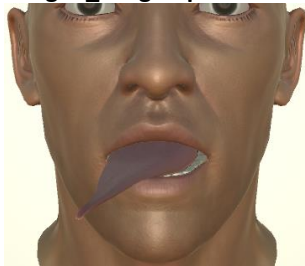
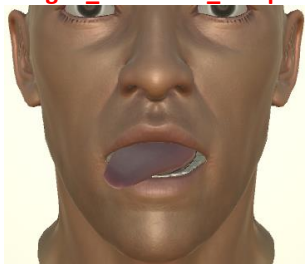
*Tongue_Right	
	Description
	<p>This blendShape stick the tongue out and right extremely.</p> <p>This example contains (Tongue_Right + Tongue_LongStep2 + Tongue_LongStep1)</p>

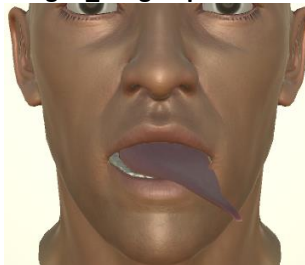

*Tongue_Left	
	Description
	<p>This blendShape stick the tongue out and left extremely.</p> <p>This example contains (Tongue_Left + Tongue_LongStep2 + Tongue_LongStep1)</p>

*Tongue_Roll	
	Description
	<p>This blendShape stick the tongue out and Roll.</p> <p>This example contains (Tongue_Roll + Tongue_LongStep2 + Tongue_LongStep1)</p>

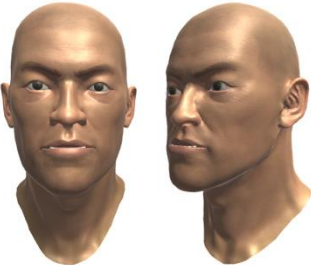
*Tongue_UpLeft_Morph	
<p>Tongue_Left+Tongue_Up+ Tongue_LongStep2 + Tongue_LongStep1:</p>  <p>Tongue_Left+Tongue_Up+ Tongue_LongStep2 + Tongue_LongStep1 + Tongue_UpLeft_Morph:</p> 	<p>Description</p> <p>This blendShape has no effect when it exist alone, it is used as a component of other blendShapes.</p> <p>When both the Left and Up (Tongue_Left+ Tongue_Up+ Tongue_LongStep2 + Tongue_LongStep1) Blendershape appear at the same time, the tongue will be deformed, add this blendShape to fix it.</p>

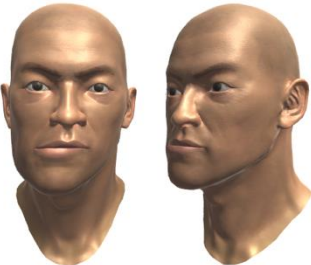
*Tongue_UpRight_Morph	
<p>Tongue_Right + Tongue_Up+ Tongue_LongStep2 + Tongue_LongStep1:</p>  <p>Tongue_Right + Tongue_Up+ Tongue_LongStep2 + Tongue_LongStep1 + Tongue_UpRight_Morph:</p> 	<p>Description</p> <p>This blendShape has no effect when it exist alone, it is used as a component of other blendShapes.</p> <p>When both the Right and Up (Tongue_Right+ Tongue_Up+ Tongue_LongStep2 + Tongue_LongStep1) Blendershape appear at the same time, the tongue will be deformed, add this blendShape to fix it.</p>

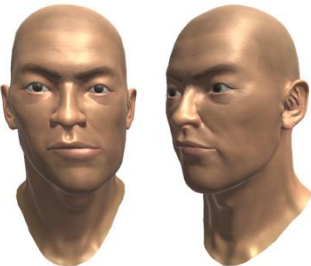
*Tongue_DownLeft_Morph	
<p>Tongue_Left+Tongue_Down+ Tongue_LongStep2 + Tongue_LongStep1:</p>  <p>Tongue_Left+Tongue_Down+ Tongue_LongStep2 + Tongue_LongStep1+ Tongue_DownLeft_Morph:</p> 	<p>Description</p> <p>This blendShape has no effect when it exist alone, it is used as a component of other blendShapes.</p> <p>When both the Left and Down (Tongue_Left+ Tongue_Down+ Tongue_LongStep2 + Tongue_LongStep1) Blendershape appear at the same time, the tongue will be deformed, add this blendShape to fix it.</p>

*Tongue_DownRight_Morph	
<p>Tongue_Right+Tongue_Down+ Tongue_LongStep2 + Tongue_LongStep1:</p>  <p>Tongue_Right+Tongue_Down + Tongue_LongStep2 + Tongue_LongStep1 + Tongue_DownRight_Morph:</p> 	<p>Description</p> <p>This blendShape has no effect when it exist alone, it is used as a component of other blendShapes.</p> <p>When both the Right and Down (Tongue_Right+ Tongue_Down+ Tongue_LongStep2 + Tongue_LongStep1) Blendershape appear at the same time, the tongue will be deformed, add this blendShape to fix it.</p>


Jaw, Mouth and Cheek Morph Target Examples – version 1

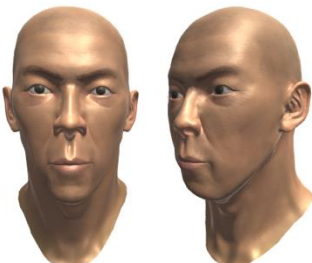
Jaw_Forward	
	Description
	This blendShape moves the jaw further forward with a higher value.

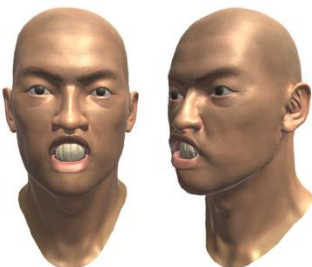
Jaw_Right	
	Description
	This blendShape moves the jaw further rightward with a higher value.

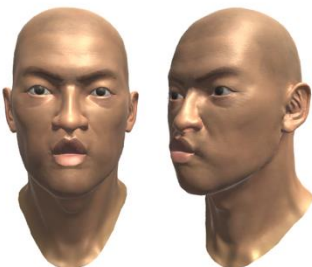
Jaw_Left	
	Description
	This blendShape moves the jaw further leftward with a higher value.

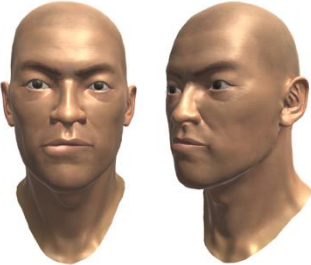
Jaw_Open	
	Description

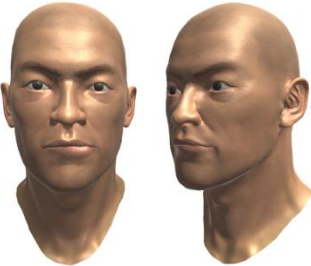
	<p>This blendShape opens the mouth further with the higher value.</p>
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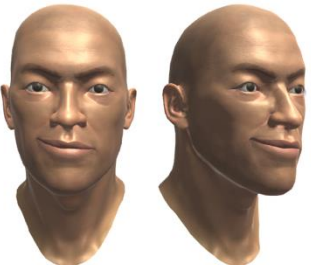
Mouth_Ape_Shape			
	<table><tr><th>Description</th></tr><tr><td>This blendShape stretches the jaw further with a higher value.</td></tr></table>	Description	This blendShape stretches the jaw further with a higher value.
Description			
This blendShape stretches the jaw further with a higher value.			

Mouth_O_Shape			
	<table><tr><th>Description</th></tr><tr><td>This blendShape allows the lips to form an “O” shape with a higher value.</td></tr></table>	Description	This blendShape allows the lips to form an “O” shape with a higher value.
Description			
This blendShape allows the lips to form an “O” shape with a higher value.			

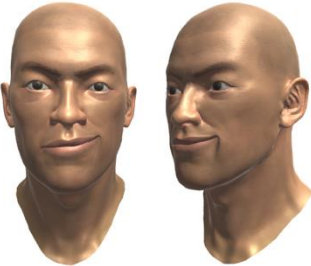
Mouth_Pout			
	<table><tr><th>Description</th></tr><tr><td>This blendShape allows the lips to pout more with a higher value.</td></tr></table>	Description	This blendShape allows the lips to pout more with a higher value.
Description			
This blendShape allows the lips to pout more with a higher value.			

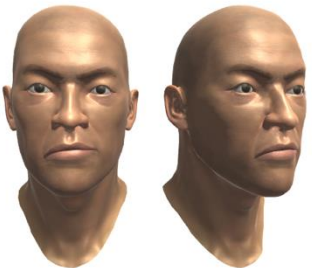
Mouth_Lower_Right	
	Description
	This blendShape moves the lower lip further rightward with a higher value.

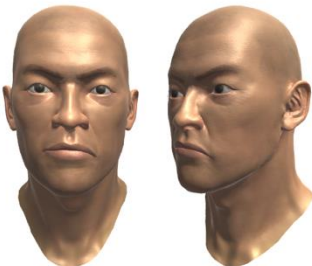
Mouth_Lower_Left	
	Description
	This blendShape moves the lower lip further leftward with a higher value.

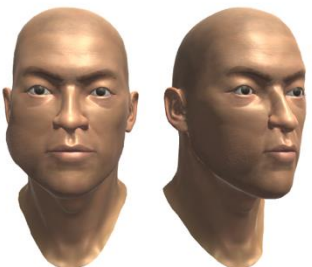
Mouth_Smile_Right	
	Description
	This blendShape raises the right side of the mouth further with a higher value.

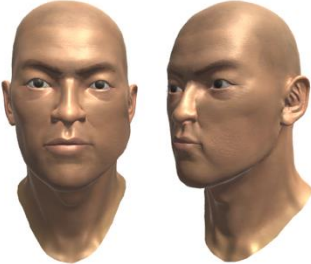
Mouth_Smile_Left	
	Description

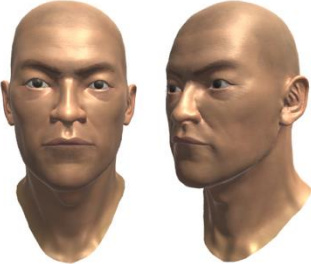
	<p>This blendShape raises the left side of the mouth further with a higher value.</p>
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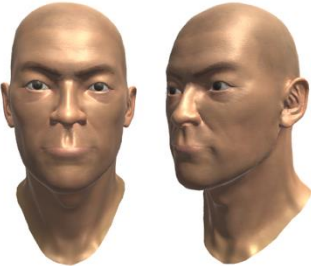
Mouth_Sad_Right			
	<table><tr><th>Description</th></tr><tr><td>This blendShape lowers the right side of the mouth further with a higher value.</td></tr></table>	Description	This blendShape lowers the right side of the mouth further with a higher value.
Description			
This blendShape lowers the right side of the mouth further with a higher value.			

Mouth_Sad_Left			
	<table><tr><th>Description</th></tr><tr><td>This blendShape lowers the left side of the mouth further with a higher value.</td></tr></table>	Description	This blendShape lowers the left side of the mouth further with a higher value.
Description			
This blendShape lowers the left side of the mouth further with a higher value.			

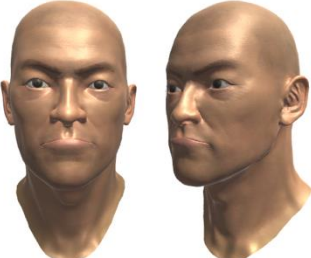
Cheek_Puff_Right	
	Description
	This blendShape puffs up the right side of the cheek further with a higher value.

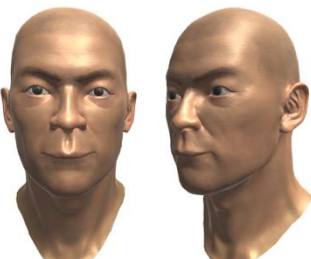
Cheek_Puff_Left	
	Description
	This blendShape puffs up the left side of the cheek further with a higher value.

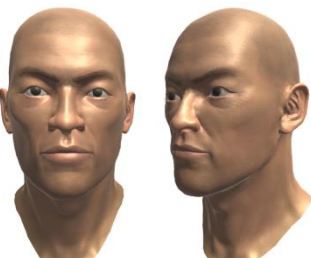
Mouth_Lower_Inside	
	Description
	This blendShape rolls in the lower lip further with a higher value.

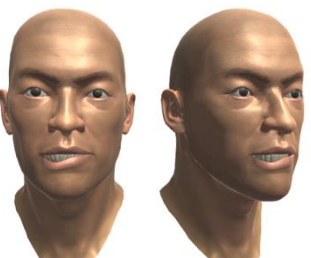
Mouth_Upper_Inside	
	Description
	This blendShape rolls in the upper lip further with a higher value.

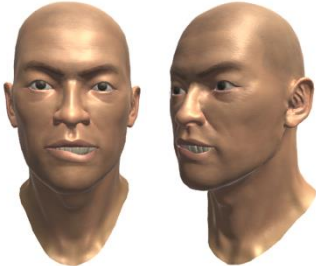
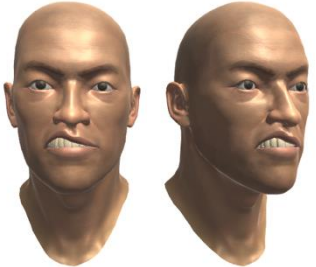
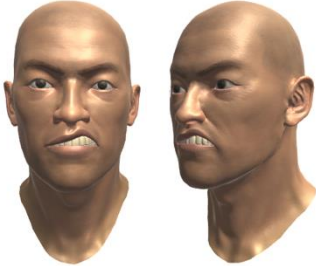
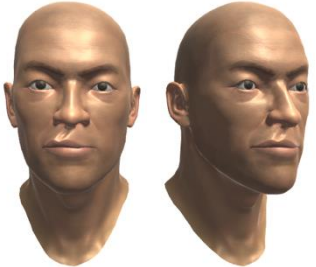
Mouth_Lower_Overlay	
	Description

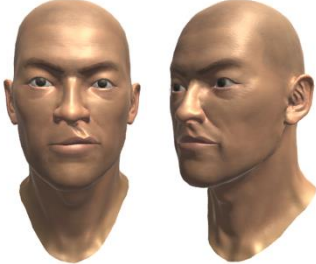
	<p>This blendShape stretches the lower lip further and lays it on the upper lip further with a higher value.</p>
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Mouth_Upper_Overlay	
	<p>Description</p> <p>This blendShape stretches the upper lip further and lays it on lower lip further with a higher value.</p>

Cheek_Suck	
	<p>Description</p> <p>This blendShape sucks in the cheeks on both sides further with a higher value.</p>

Mouth_LowerRight_Down	
	<p>Description</p> <p>This blendShape lowers the right lower lip further with a higher value.</p>

Mouth_LowerLeft_Down	
	Description
	This blendShape lowers the left lower lip further with a higher value.
Mouth_UpperRight_Up	
	Description
	This blendShape raises the right upper lip further with a higher value.
Mouth_UpperLeft_Up	
	Description
	This blendShape lowers the left upper lip further with a higher value.
Mouth_Philtrum_Right	
	Description
	This blendShape moves the philtrum further rightward with a higher value.

Mouth_Philtrum_Left	
	Description
	This blendShape moves the philtrum further leftward with a higher value.