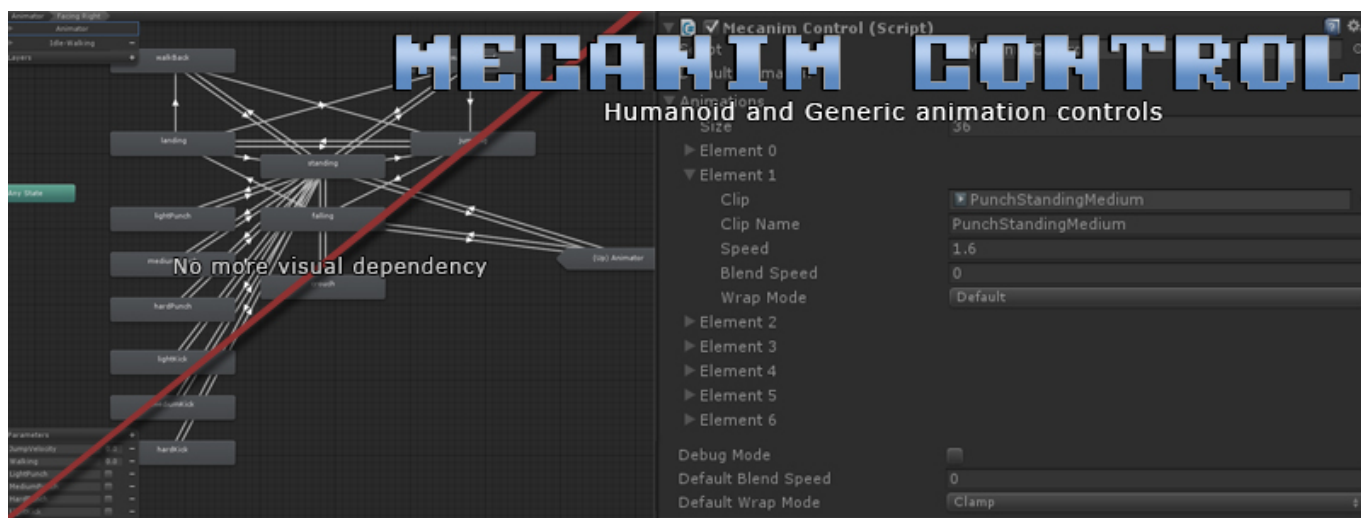


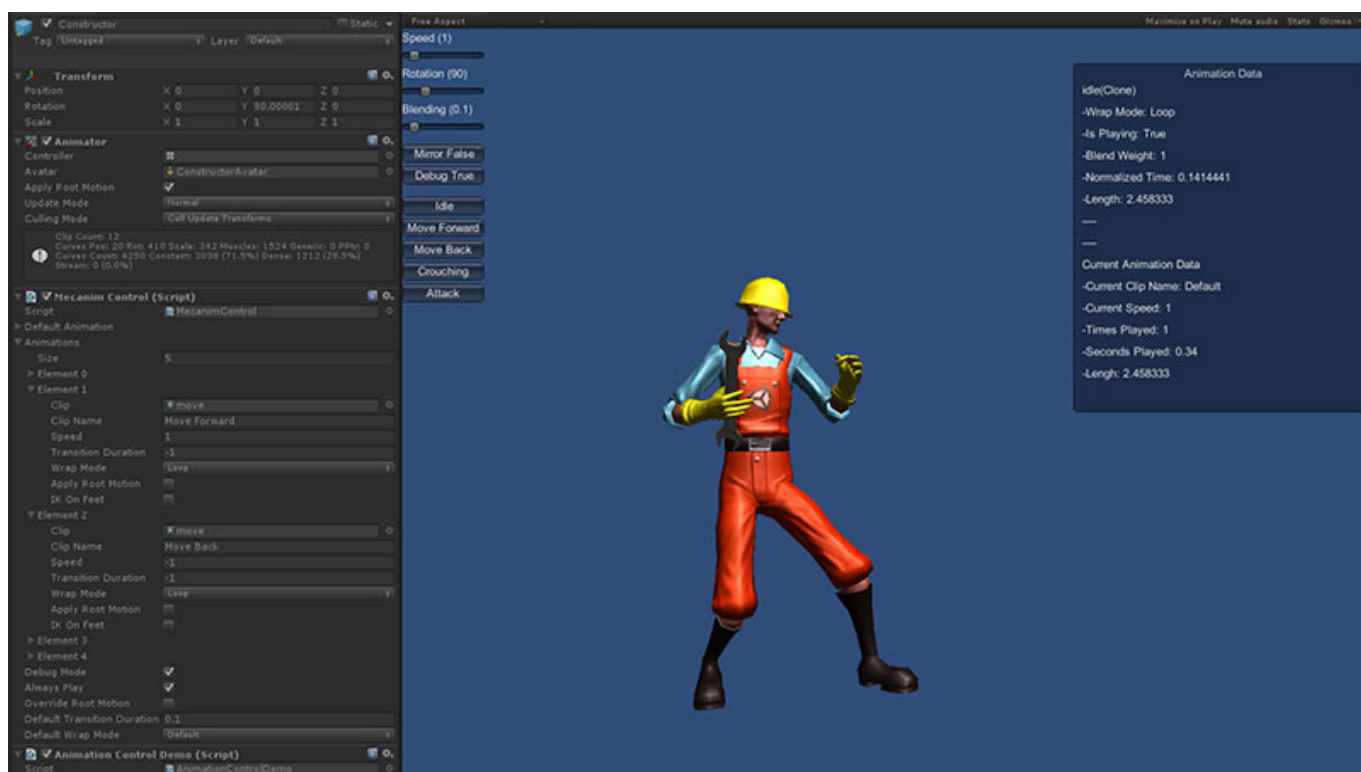
# Mecanim Control

Your ultimate solution for Mecanim based games!



**Mecanim Control** is a coding tool made that allow for a wider variety of common methods used by the [Animation component](#) with Mecanim (Humanoid/Generic) animations. It allows you to not only dynamically load any animation clip during runtime, but also tap into several methods currently missing in this magnificent system.

## Overview



You can use MecanimControl much like you would use the animation component.

To play a simple animation use *MecanimControl.Play*

To cross-fade between animations use *MecanimControl.CrossFade* -or- one of the *MecanimControl.Play* alternatives.

To change how animations wrap (Loop, Once, PingPong) change the WrapMode of the respective *AnimationClip* in their import settings, or use *MecanimControl.SetWrapMode* to change it at runtime. *AnimationData* can be used to modify the clip, playback speed, and direct control over blending.

MecanimControl also supports enumerators so you can loop through all AnimationData like this:

```
using UnityEngine;
using System.Collections;

public class AnimationControlDemo : MonoBehaviour {

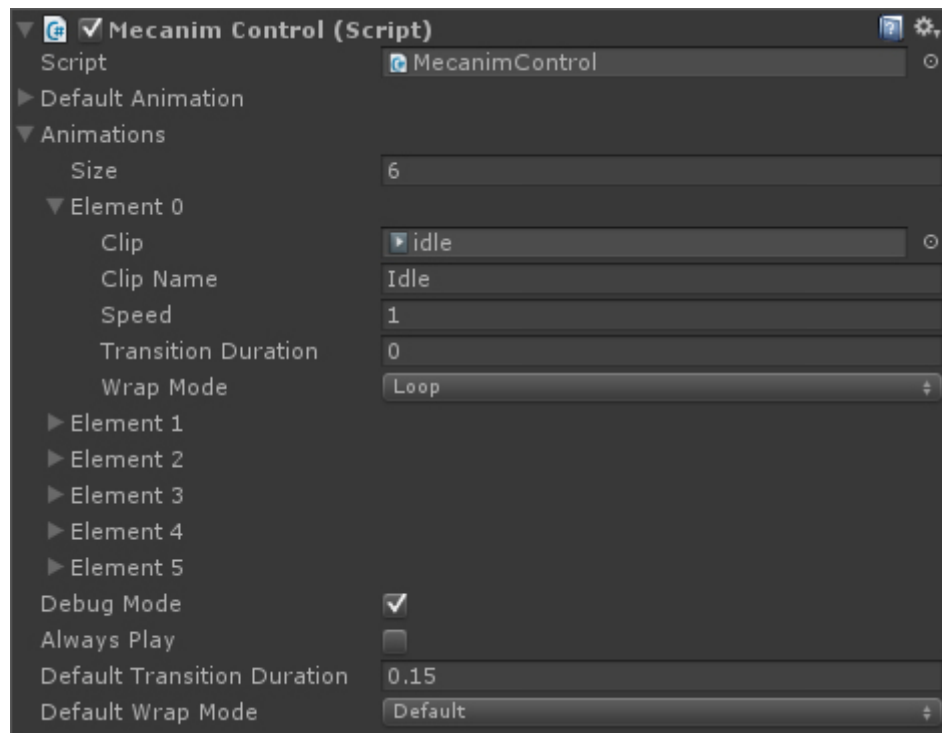
    private MecanimControl mecanimControl;

    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
    }

    void OnGUI(){
        foreach(AnimationData animationData in mecanimControl.animations){
            if (GUILayout.Button(animationData.clipName)){
                mecanimControl.Play(animationData, mirror);
            }
        }
    }
}
```

---

## Public Variables



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---

### [defaultanimation](#) **Default Animation**

AnimationData *defaultAnimation*;

By default, if no order is given, the animator will play the animation stored in this AnimationData. If you don't assign an animation, Mecanim Control will instantiate the first animation listed on [animations](#).

```
void Start () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.defaultAnimationData.speed = .5f;  
}
```

---

### [animations](#) **Animations**

AnimationData[] *animations*;

### **Properties**

AnimationClip clip - The AnimationClip file.

string clipName - Animation name.

float speed - Animation speed.

float transitionDuration - Blending Duration.

WrapMode wrapMode - The animation's default [WrapMode](#).

bool applyRootMotion - If this and *Override Root Motion* is toggled this animation will toggle the Animator's [Root Motion](#)

## Description

This array contain all the AnimationData stored by either the UI or by using AddClip. Its then used to emulate a state machine under the *Animator Controller*.

```
void Start () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    foreach(AnimationData animationData in mecanimControl.animations) {
        animationData.speed = .5f;
    }
}
```

## [debugmode](#) Debug Mode

bool debugMode;

Toggles a GUI box containing all the information about the current clip playing as well as its blending weight.

```
void Start () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.debugMode = true;
}
```

## [alwaysplay](#) Always Play

bool alwaysPlay;

If an animation is set to *WrapMode.Once* and *alwaysPlay* is toggled on, after the clip ends it will immediately play the *default animation*.

```
void Start () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.alwaysPlay = true;
}
```

## [overriderootmotion](#) Override Root Motion

bool overrideRootMotion;

If both applyRootMotion (under the animation element) and this variable is *true*, this animation will toggle the Animator's [Root Motion](#).

```
void Start () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.overrideRootMotion = true;
    mecanimControl.animationData[0].applyRootMotion = true;
}
```

```
}
```

### defaulttransitionduration **Default Transition Duration**

float *defaultTransitionDuration*;

If an animation has its blending speed set to 0, it will use this value instead.

```
void Start () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.defaultTransitionDuration = .2f;
}
```

### defaultwrapmode **Default Wrap Mode**

float *defaultWrapMode*;

If an animation has its *wrapmode* set to *default*, it will use this value instead.

```
void Start () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    mecanimControl.defaultWrapMode = WrapMode.Once;
}
```

## Public Functions

```
void OnGUI() {
    if (GUILayout.Button("Invert Speed")) mecanimControl.SetSpeed(-mecanimControl.GetSpeed());
    if (GUILayout.Button("Mirror " + mirror)) {
        mirror = !mirror;
        mecanimControl.SetMirror(mirror);
    }

    GUILayout.Space(10);

    foreach(AnimationData animationData in mecanimControl.animations){
        if (GUILayout.Button(animationData.clipName)){
            mecanimControl.Play(animationData, mirror);
        }
    }
}
```

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---

### [addclip](#) **AddClip**

`void AddClip(AnimationClip clip, string name);`

`void AddClip(AnimationClip clip, string name, float speed, WrapMode wrapMode);`

#### Parameters

clip - The AnimationClip file.

name - Animation name.

speed - Animation speed.

wrapMode - The animation's default [WrapMode](#).

**Description:** Adds a clip to *animations* with the name *newName*.

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        mecanimControl.AddClip(walkClip, "walk");
    }
}
```

---

### [crossfade](#) **CrossFade**

`void CrossFade(string clipName, float blendingTime);`

`void CrossFade(string clipName, float blendingTime, float normalizedTime, bool mirror);`

`void CrossFade(AnimationData animationData, float blendingTime, float normalizedTime, bool mirror);`

#### Parameters

clipName - Animation name.

animationData - The correspondent animation data.

blendingTime - The blending duration between the 2 animations.

normalizedTime - The timeline's position of the animation to be played (0-1)

mirror - Should the animation be mirrored?

**Description:** Fades the animation with name *clipName* in over a period of *blendingTime* seconds as it fades other animations out.

You can also set *normalizedTime* to set where, in its timeline, you want the animation to start (0-1) as well as toggle [mirror](#).

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        mecanimControl.CrossFade("walk", .2f);
    }
}
```

### [getanimationdata](#) **GetAnimationData**

AnimationData *GetAnimationData*(AnimationClip clip);

AnimationData *GetAnimationData*(string clipName);

#### **Parameters**

clip - Animation clip.

clipName - Clip name.

**Description:** Returns the AnimationData related to that animation name or clip.

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        mecanimControl.AddClip(walkClip, "walk");
        Debug("Animation Name:" +
mecanimControl.GetAnimationData(walkClip).clipName);
    }
}
```

### [getcurrentanimationdata](#) **GetCurrentAnimationData**

AnimationData *GetCurrentAnimationData*();

**Description:** Get the AnimationData currently running.

```
using UnityEngine;
```

```
using System.Collections;

public class Example : MonoBehaviour {
    public AnimationClip walkClip;
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        Debug("Animation Name:" +
mecanimControl.GetCurrentAnimationData().clipName);
    }
}
```

---

### [getcurrentclipname](#) **GetCurrentClipName**

string *GetCurrentClipName()*;

**Description:** Get the name of the current running clip.

```
using UnityEngine;
using System.Collections;

public class Example : MonoBehaviour {
    void Start () {
        mecanimControl = gameObject.GetComponent<MecanimControl>();
        Debug("Animation Name:" + mecanimControl.GetCurrentClipName());
    }
}
```

---

### [getcurrentclipposition](#) **GetCurrentClipPosition**

float *GetCurrentClipPosition()*;

**Description:** Get the *normalized time* of the current running clip. (0-1)

```
void CheckProgress() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    Debug("Animation Progress (%):" + mecanimControl.GetCurrentClipPosition()
* 100);
}
```

---

### [getcurrentclipplaycount](#) **GetCurrentClipPlayCount**

int *GetCurrentClipPlayCount()*;

**Description:** Get the number of times the current clip has played. Only works if the animation's WrapMode is set to either *WrapMode.Loop* or *WrapMode.PingPong*

```
void CheckProgress() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
```



```
Debug("Times Played:" + mecanimControl.GetCurrentClipPlayCount());
}
```

### getmirror **GetMirror**

bool *GetMirror()*;

**Description:** Get the current **mirror** state of the *emulated runtime animator*.

```
void FaceLeft () {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    if (!mecanimControl.GetMirror()) mecanimControl.SetMirror(true);
}
```

### getspeed **GetSpeed**

float *GetSpeed()*;

float *GetSpeed(AnimationClip clip)*;

float *GetSpeed(string clipName)*;

#### Parameters

clip - Animation clip.

clipName - Clip name.

**Description:** Get the speed value set for *animationClip/clipName*.

no parameters - Get the speed the animator is running based on the current running animation.

```
void SlowDown() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    if (mecanimControl.GetSpeed() > 1) mecanimControl.SetSpeed(1);
}
```

### isplaying **IsPlaying**

bool *IsPlaying(string clipName)*;

bool *IsPlaying(AnimationClip clip)*;

bool *IsPlaying(AnimationData animationData)*;

**Description:** Returns true if *clipName*, *clip* or *animationData* is playing.

```
void Example() {
    mecanimControl = gameObject.GetComponent<MecanimControl>();
    if (mecanimControl.IsPlaying("walk")) Debug.Log("Walk is playing");
}
```

### pause **Pause**

```
void Pause();
```

**Description:** Pauses the animator component.

```
void Example() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.Pause();  
}
```

## play Play

```
void Play();  
void Play(string clipName);  
void Play(AnimationClip clip);  
void Play(AnimationData animationData);  
void Play(string clipName, bool mirror);  
void Play(AnimationClip clip, bool mirror);  
void Play(AnimationData animationData, bool mirror);  
void Play(string clipName, float blendingTime, float normalizedTime, bool mirror);  
void Play(AnimationClip clip, float blendingTime, float normalizedTime, bool mirror);
```

## Parameters

clip - Animation clip.

clipName - Animation name.

animationData - The correspondent animation data.

blendingTime - The blending duration between the 2 animations.

normalizedTime - The timeline's position of the animation to be played (0-1)

mirror - Should the animation be mirrored?

**Description:** Plays animation. *Play* can be used in several ways, including blending. If no blending is set, *Play* will try using the default blending value. If blending is set to -1, the animation will be played abruptly without any blending.

If the animation is not set to be looping and *alwaysPlay* is toggled off it will be stopped after playing.

If no parameters are used, *Play* can be used as a follow up to *Pause*. It restores the speed of the Animator to the current animation speed value.

*Normalized Time* lets you start the animation from a predefined position in the animation timeline (0-1).

```
void Example() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.Play();  
}
```

```
void Example() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.Play("walk", .2f, 0, true);  
}
```

**removeclip RemoveClip**

```
void RemoveClip(string clipName);  
void RemoveClip(AnimationClip clip);
```

**Description:** Removes the *AnimationData* from *animations* related to *clipName/clip*.

```
void RemoveAnimation(string animation) {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.RemoveClip(animation);  
}
```

---

**restorespeed RestoreSpeed**

```
void RestoreSpeed();
```

**Description:** Restores the speed of the animator component to the original value from the current animation being played.

```
using UnityEngine;  
using System.Collections;  
  
public class Example : MonoBehaviour {  
  
    private MecanimControl mecanimControl;  
  
    void SlowMo(string animation) {  
        mecanimControl.SetSpeed(.01f);  
        Invoke("Restore", 2);  
    }  
  
    void Restore() {  
        mecanimControl.RestoreSpeed();  
    }  
}
```

---

**rewind Rewind**

```
void Rewind();
```

**Description:** Inverts the speed of the animator component.

```
void Example() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.Rewind();  
}
```

### setcurrentclipposition **SetCurrentClipPosition**

`void SetCurrentClipPosition(float normalizedTime);`

`void SetCurrentClipPosition(float normalizedTime, bool pause);`

**Description:** Set the position in the timeline of the current playing clip (0-1). If pause is toggled on, the animation will be paused afterwards.

```
void Example() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.SetCurrentClipPosition(.3f, true);  
}
```

---

### setdefaultclip **SetDefaultClip**

`void SetDefaultClip(AnimationClip clip, string name, float speed, WrapMode wrapMode);`

**Description:** Sets the *defaultclip* through code (instead of the UI).

```
using UnityEngine;  
using System.Collections;  
  
public class Example : MonoBehaviour {  
  
    private MecanimControl mecanimControl;  
    private AnimationClip idle;  
  
    void Start() {  
        mecanimControl.SetDefaultClip(idle, "Idle", 1, WrapMode.Loop);  
    }  
}
```

---

### setmirror **SetMirror**

`void SetMirror(bool mirror);`

`void SetMirror(bool mirror, float blendingTime);`

`void SetMirror(bool mirror, float blendingTime, bool forceMirror);`

**Description:** When toggled on, every animation will be played with the *mirror* tag toggled on.

```
void FaceLeft () {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    if (!mecanimControl.GetMirror()) mecanimControl.setMirror(true);  
}
```

---

### setspeed **SetSpeed**

```
void SetSpeed(float speed);  
void SetSpeed(string clipName, float speed);  
void SetSpeed(AnimationClip clip, float speed);
```

**Description:** Change the speed value of the Animator component or AnimationData based on *clipName/clip*.

If no parameters are used, SetSpeed will change the global speed from the Animator component.

```
void SlowDown() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    if (mecanimControl.GetSpeed() > 1) mecanimControl.SetSpeed(1);  
}
```

---

### setwrapmode **SetWrapMode**

```
void SetWrapMode(WrapMode wrapMode);  
void SetWrapMode(AnimationData animationData, WrapMode wrapMode);  
void SetWrapMode(AnimationClip clip, WrapMode wrapMode);  
void SetWrapMode(string clipName, WrapMode wrapMode);
```

**Description:** Sets the Wrap Mode of an AnimationData based on *clipName/clip*.

If no parameters are used, SetWrapMode will change *defaultWrapMode*.

```
void ClampCurrentClip() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.SetWrapMode(mecanimControl.GetCurrentAnimationData,  
WrapMode.Clamp);  
}
```

---

### stop **Stop**

```
void Stop();
```

**Description:** Stops any animation from playing and starts playing the default animation.

```
void PlayDefaultAnimation() {  
    mecanimControl = gameObject.GetComponent<MecanimControl>();  
    mecanimControl.Stop();  
}
```

---

## Public Events

```
Animation Data
Current Clip Name: Default
Wrap Mode: Loop
Normalized Time: 0.1442214
Blend Weight: 1
Current Speed: 1
Times Played: 1
```

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- [OnAnimationEnd](#)
- [OnAnimationLoop](#)

---

### [onanimationbegin](#) **OnAnimationBegin**

`void AnimEvent(AnimationData animationData);`

**Description:** Fires when an animation begins.

```
void OnAnimationBegin(AnimationData animData) {
    if (animData.clipName == "walk") Debug.Log("character is walking");
}
```

---

### [onanimationend](#) **OnAnimationEnd**

`void AnimEvent(AnimationData animationData);`

**Description:** Fires when an animation ends.

```
void OnAnimationEnd(AnimationData animData) {
    if (animData.clipName == "walk") Debug.Log("character has stopped walking");
}
```

---

### [onanimationloop](#) **OnAnimationLoop**

`void AnimEvent(AnimationData animationData);`

**Description:** Fires when an animation loops. This is only triggered if the animation WrapMode is set to either *WrapMode.Loop* or *WrapMode.PingPong*

```
void OnAnimationLoop(AnimationData animData) {
    if (animData.clipName == "walk")
        Debug.Log("walking animation has looped " + animData.timesPlayed + " times.");
}
```

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