by Kalagaan

VertExmotion

What is VertExmotion?

VertExmotion is a shader based softbody system coupled with a procedural animation system.

You can easily animate parts of your mesh like hair, cloths, fatness... within Unity editor !
All elements will move with a procedural way, so no need to add bones for everything !

Because it's shader based, it's really fast !
Because you don't have time to waste, it's super easy to use !

- Add a single component.
- Paint what you want to see moving !
- Add sensors and set motion properties
- Hit play and enjoy !

All parts will follow the mouvement of the mesh !
Compatible with more than 80 Unity builtin shaders.
Easy to include in your custom shaders.
Works with static mesh or skinned mesh.

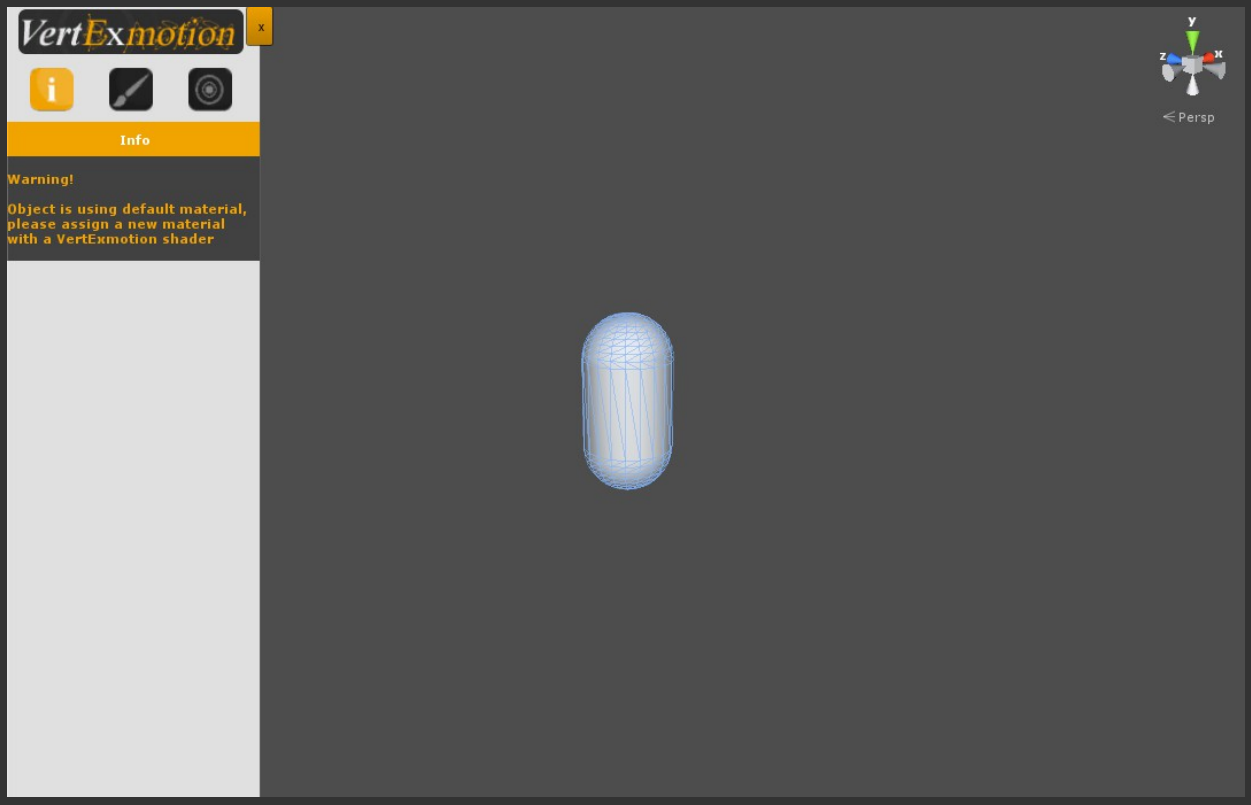
Tested on PC/MAC/iOS/Android/Webplayer

Unity 4 Free /Pro
Unity 5 Personal / Pro

How to use it ? (Tutorial)

The easiest way to learn is to follow a tutorial, let's go!

- First, select your mesh, in this case: the basic capsule.
- Add VertExmotion component (menu->Component->VertExmotion).
  VertExmotion panel appears.



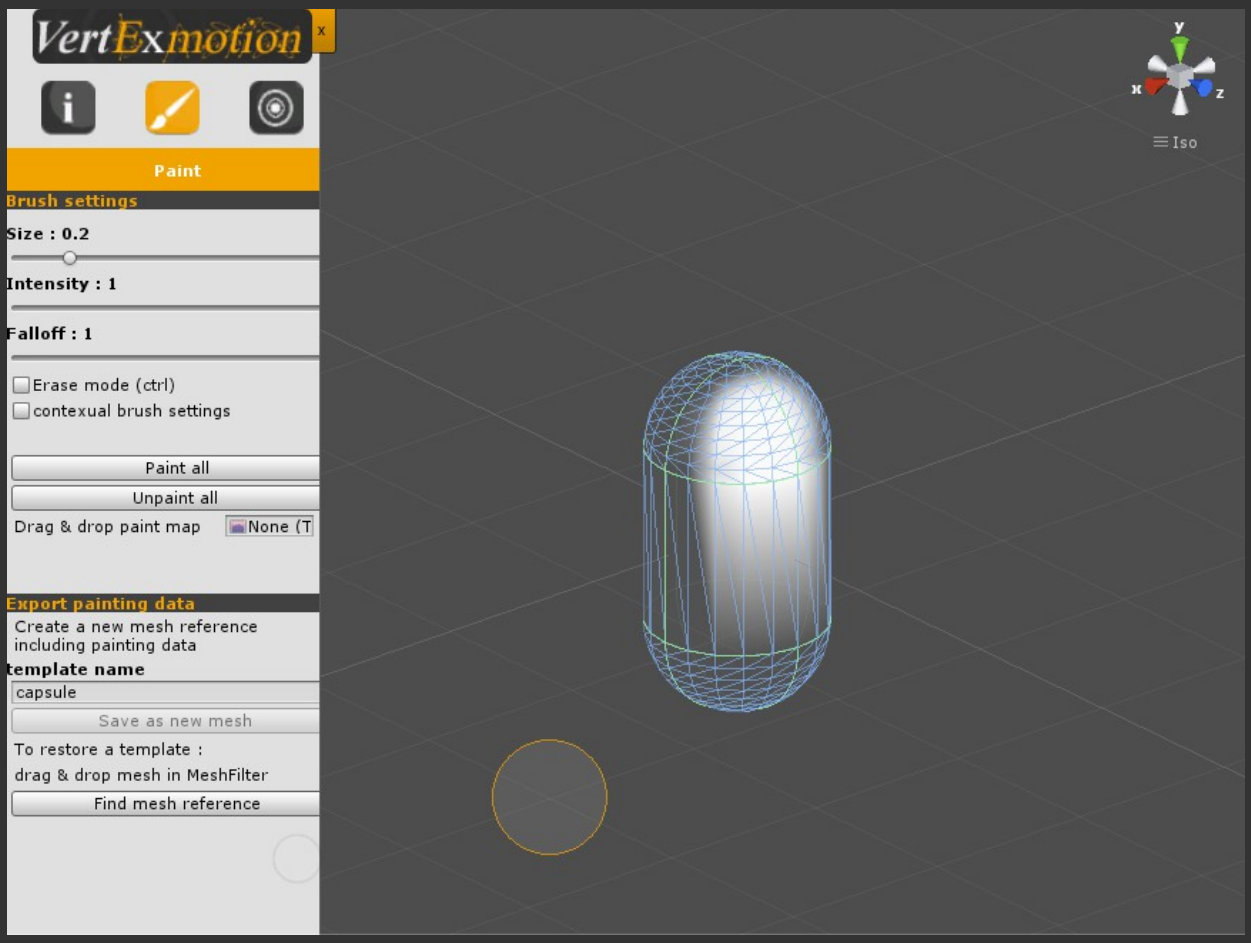
  This mesh use the default material, you have to create a new one.
- Drag & drop the material on the mesh.

  VertExmotion is a shader based system, the material must use one of the compatible shader.

- Press 'Fix material' button or choose a VertExmotion shader in the material list.
  The shader is replaced by a compatible one.
  Now some help appears in the info panel.
  Time to paint !

Paint Settings

- Press the brush icon.
- Set up size, intensity and falloff with sliders.
- Paint on the mesh



- Press ctrl to switch to erase mode.
  White vertices will be ready for motion.
  Black vertices will be static like a standard mesh.
  Intensity will affect motion.

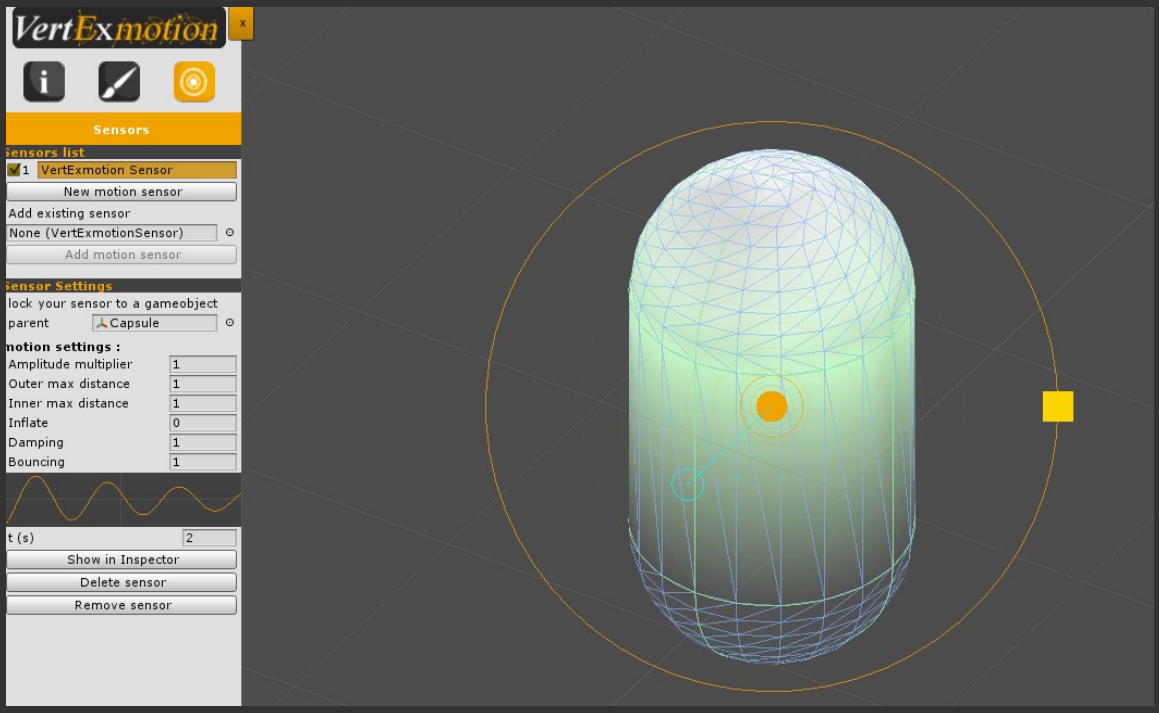
You can export painting data as a new mesh. This is very usefull, because you can share painting information between different prefabs, or save different painting templates.
Exporting as a new mesh will also enable mesh sharing between the instances and optimize memory.

- Enter a template name : 'capsule'
- Click 'Save as new Mesh'
  Now, the new mesh reference is saved in another prefab.
  Painting data are linked to this asset, so you don't need t save it again.

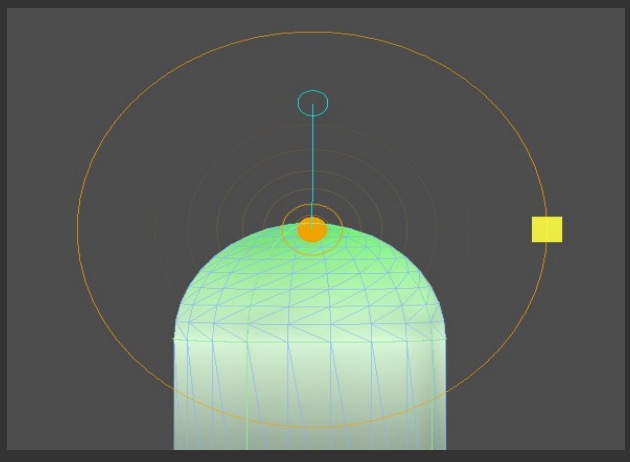
Note : To import a reference mesh, drag&drop it from the project window to the import field.

Sensors Settings

- Press sensor icon.
- Press 'New motion sensor'
  A sensor defines how mesh parts will move.

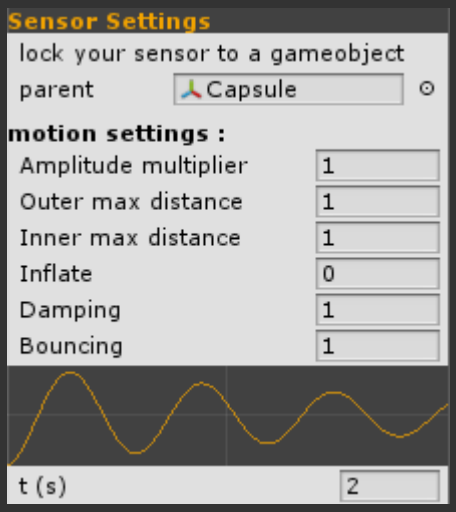


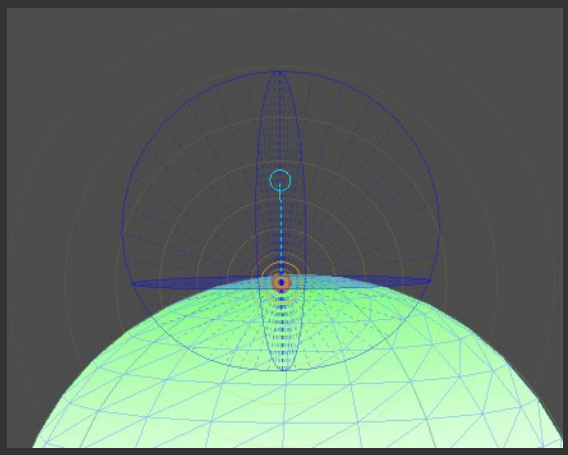
- Drag the sensor on the top of the mesh.
  Green vertices are in sensor range.
- Try to change it by draging the yellow square handler.



  Blue line is the sensor orientation
- Keep it out of the mesh by draging blue circle handler.
- Hit Unity play button to try it with basic settings.
- Move your mesh in sceneview.
  That's it ! You have made your first jelly capsule !

- Now, have a look to these sensor settings

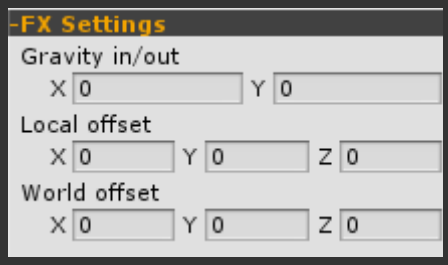




Outer/Inner max distances

- Try to change settings and move your object.

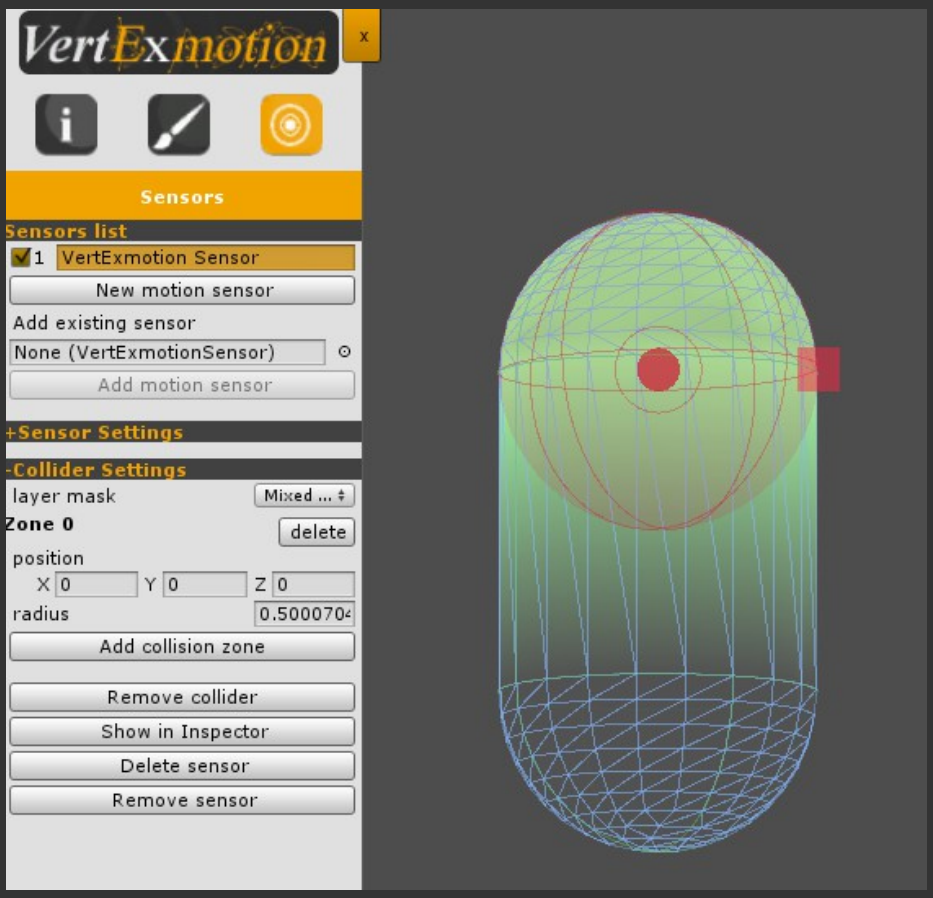
Parent : the parent of sensor transform (set nearest bone for SkinnedMeshRenderer).
Amplitude multiplier : amplify or reduce motion amplitude.
Outer max distance : max vertex displacement in the sensor direction
Inner max distance : max vertex displacement in the opposite of sensor direction.
Inflate : inflate vertices from sensor position.
Damping : increase to stabilise motion.
Bouncing : increase to amplify bounce.
t(s) : change curve time for visualisation only.



Gravity in/out : gravity (Physics.gravity) applied on vertices.
Local offset : translation offset in sensor space.
World offset : translation offset in world space.

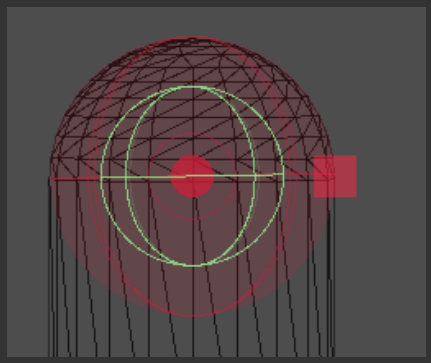
How to setup collision system ?

Each sensor can interact with physics by adding some collision zones.



- Click on 'collider settings'
- Press 'Add Collider'
- Set the physics layer mask to collide with.
- Add a new collider zone.
- Change the position and the radius.
- Add other collision zones to suit the mesh surface.

If your mesh has already a physic collider (SphereCollider, BoxCollider...), collision zones must be larger than collider area.



How to share sensors between mesh ?

You can add an existing sensor in the sensor panel.
Vertexmotion components will share sensors settings.

How to include VertExmotion in my custom shader ?

First, copy your shader in another file.
*Change the name of the shader to '**VertExmotion/shadername**' for editor compatibility.*

- *For surface shader you have to modify these lines in your shader :*

```
#pragma surface surf Lambert alpha vertex:vert addshadow
#include "Assets/VertExmotion/Shaders/VertExmotion.cginc"
void vert (inout appdata_full v) {VertExmotion( v );}
```

- *If your shader has already a vertex function, add theses lines :*

```
#include "Assets/VertExmotion/Shaders/VertExmotion.cginc"
void vert (inout appdata_full v) {
        VertExmotion( v );
        //original shader code
}
```

- *If the vertex function don't use appdata_full add theses lines :*

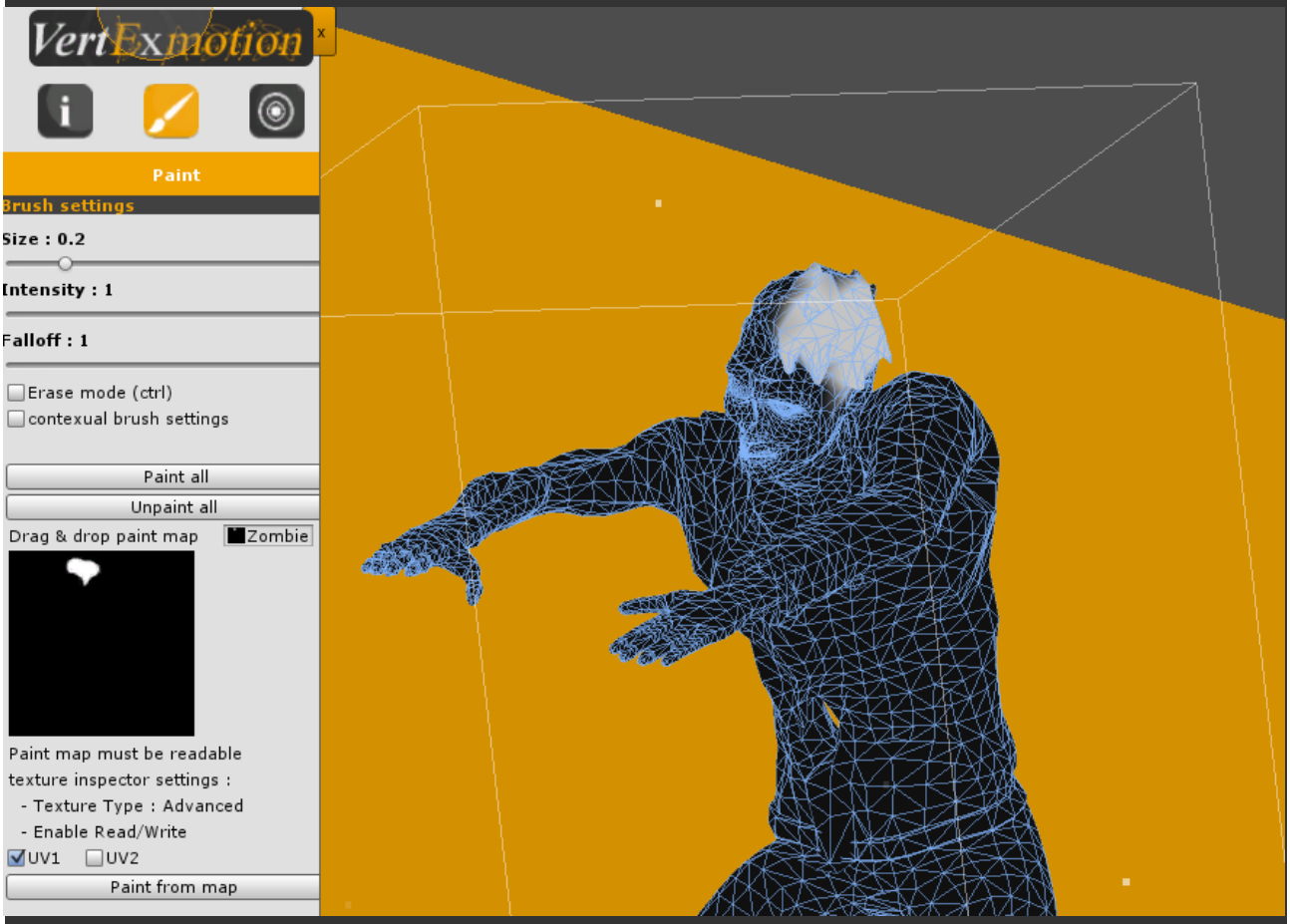
```
#include "Assets/VertExmotion/Shaders/VertExmotion.cginc"
void vert (inout appdata v) {
        v.vertex = VertExmotion( v.vertex, v.color );
        //original shader code
}
```

How to use Unity5 standard shader

Unity VertExmotion is compatible with Unity5 standard shader.
Unpack 'VertExmotionStandardShader.unitypackage' from 'VertExmotion/Unity5' folder.

How to import paint data from a map

Sometime painting on a mesh is very difficult, importing a texture for painting data is a real time saver.



Here a tutorial :

- *Make a copy of the diffuse map.*
- *Open it in your favorite software (photoshop, gimp...)*
- *create a black layer with 50% alpha.*
- *paint a white mask for softbody parts.*
- *Set layer to 100% alpha (only mask is visible)*
- *Save it in the unity project*
- *Select image file in Project panel.*
- ***In inspector panel set 'Texture type' to 'Advanced'***
- ***Check 'Read/Write Enabled'***
- *Select VertExmotion object*
- *Open Paint panel*
- *Drag & drop paint map*
- *Select you UV channel (UV1 by default)*
- *Click 'Paint from map'*

Support

*More informations about **VertExmotion** on the forum :*
http://forum.unity3d.com/threads/vertexmotion-released.277294/

Email for support : contact@kalagaan.com