

Exercise 2 – Particles

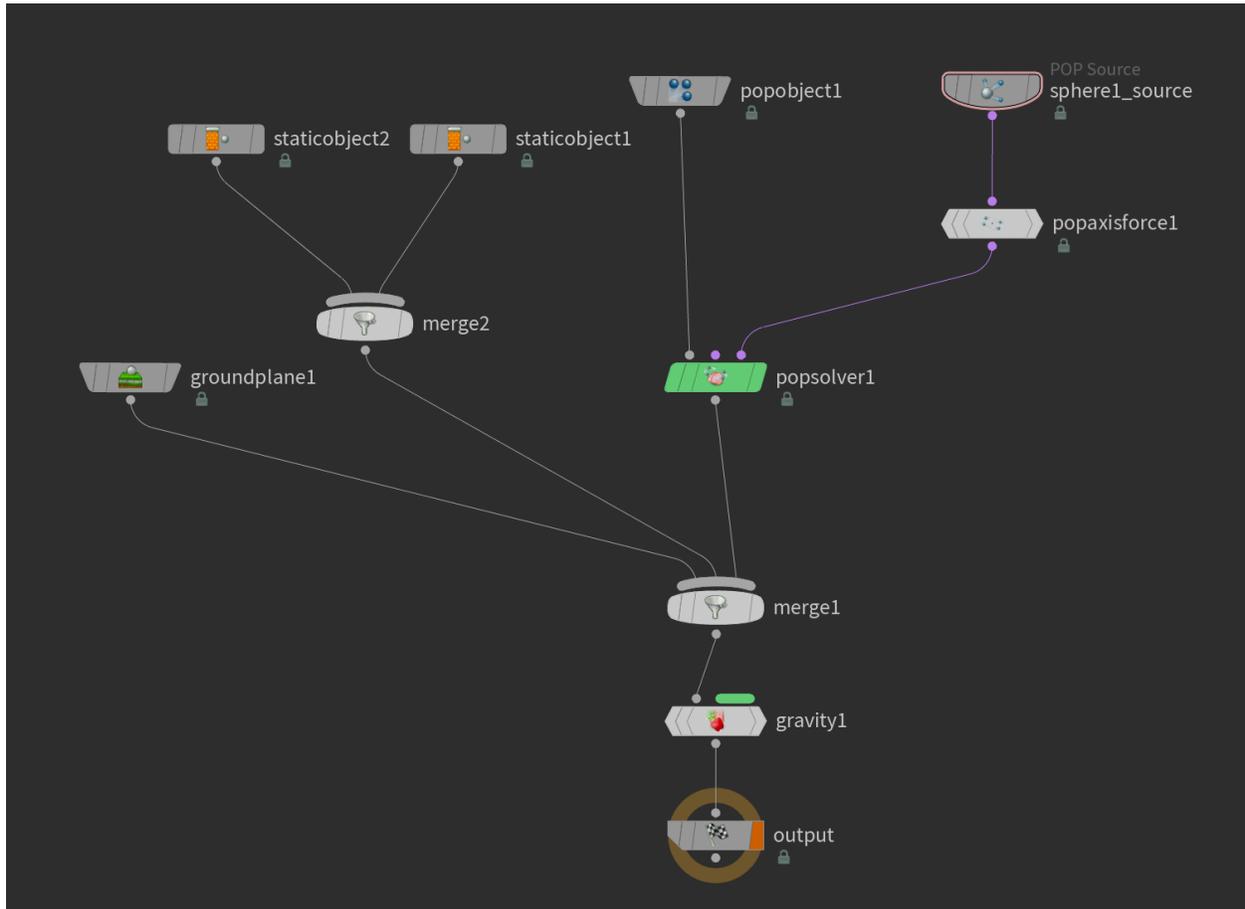


Important statistics

Renderer	: Mantra
Resolution	: 1280 * 720
Pixel Sample	: 8
Ray Samples	: 4/16
Average Render Time	: 6.3 mins
Number of Lights	: 1 HDRI dome light

Technical Guide

DOP Network



The image above is my DOP network. The only pop force I used is the “pop axis force.”

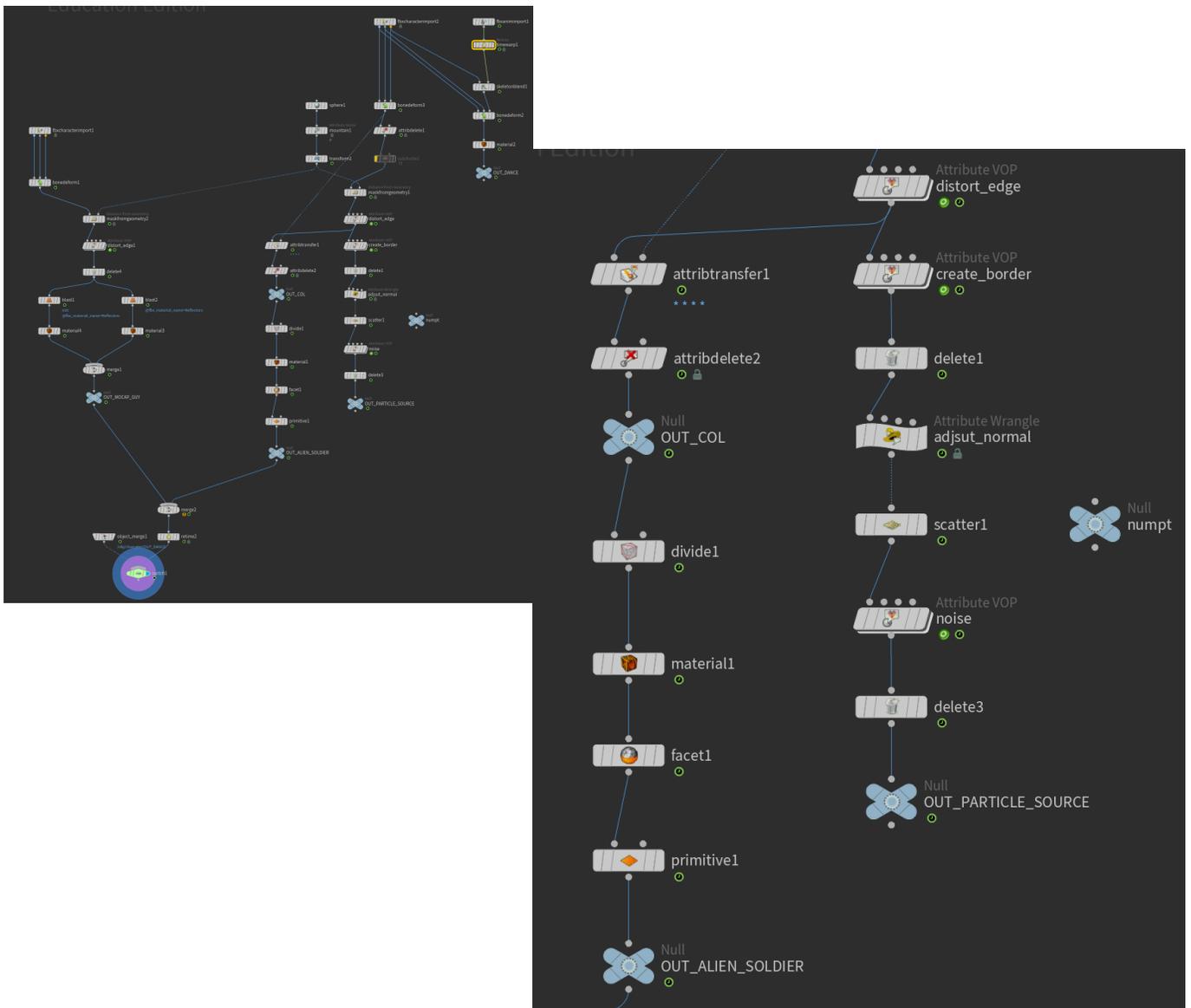
The node will create a force that makes the particles goes around along the Y-axis.

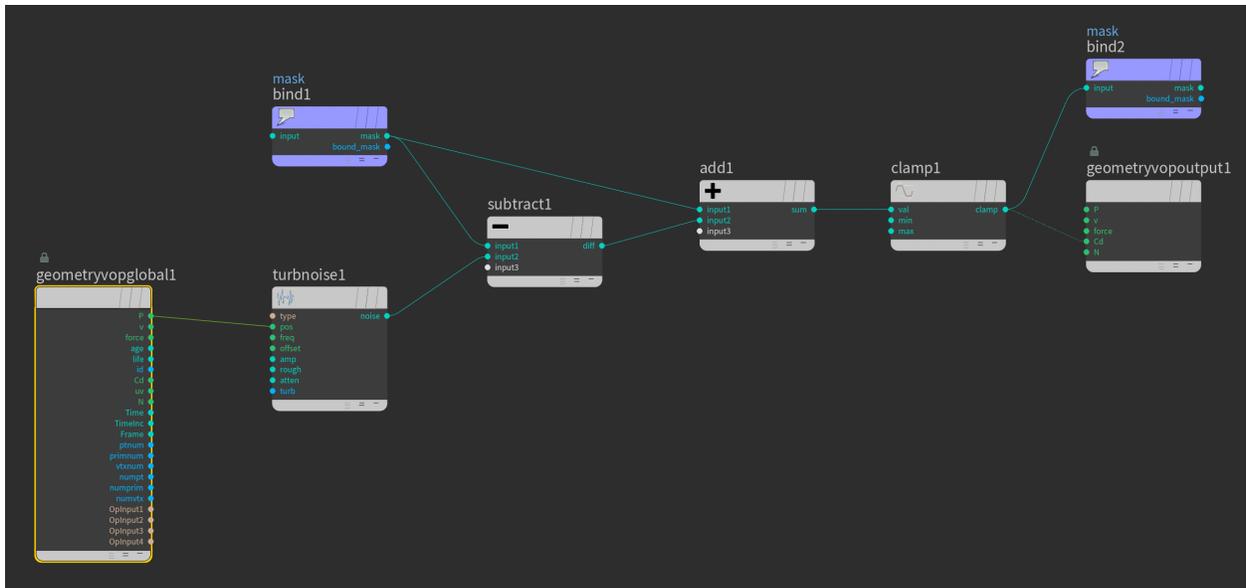
After that I just retime the simulation to create the changing character effect instead of disintegration.

Disintegrating Effect

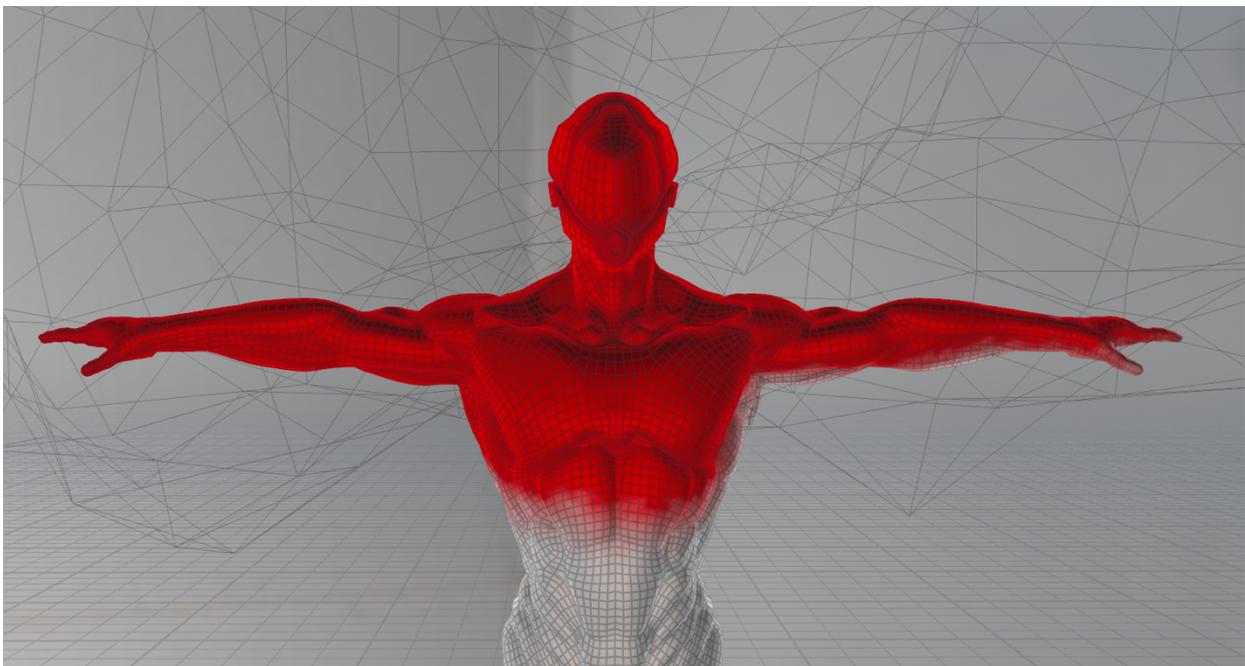
For the disintegrating effect, I followed [this tutorial](https://www.youtube.com/watch?v=yK2w7akqiB4&t=841s) on YouTube instead of using the Boolean or pyro spread method. The idea of the method is using mask by geometry to create a mask, and then use delete node to delete parts of the geometry instead of Boolean.

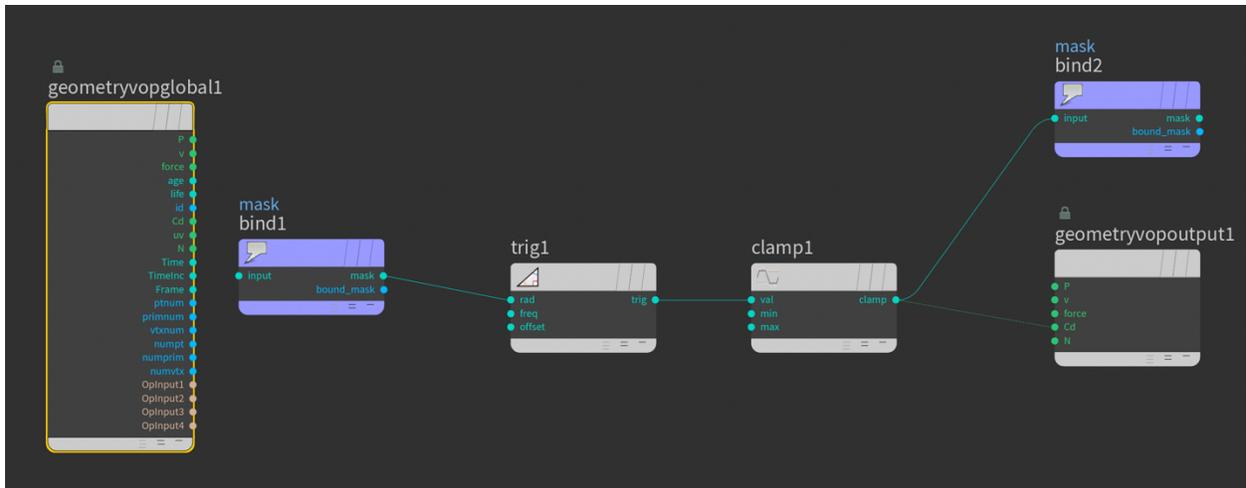
<https://www.youtube.com/watch?v=yK2w7akqiB4&t=841s>



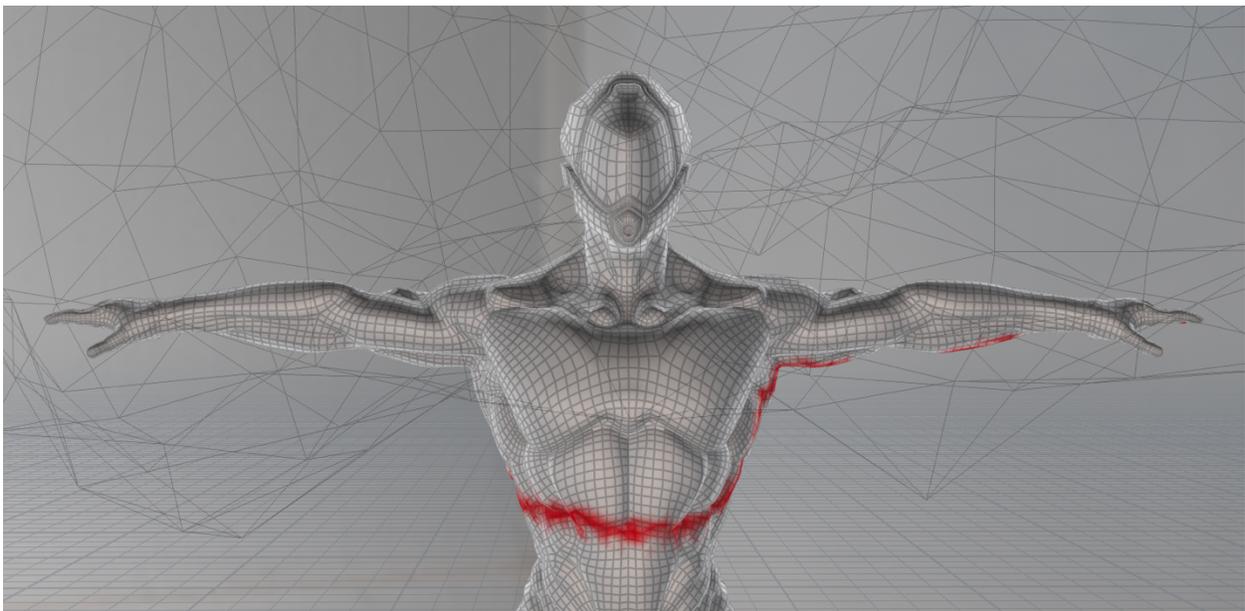


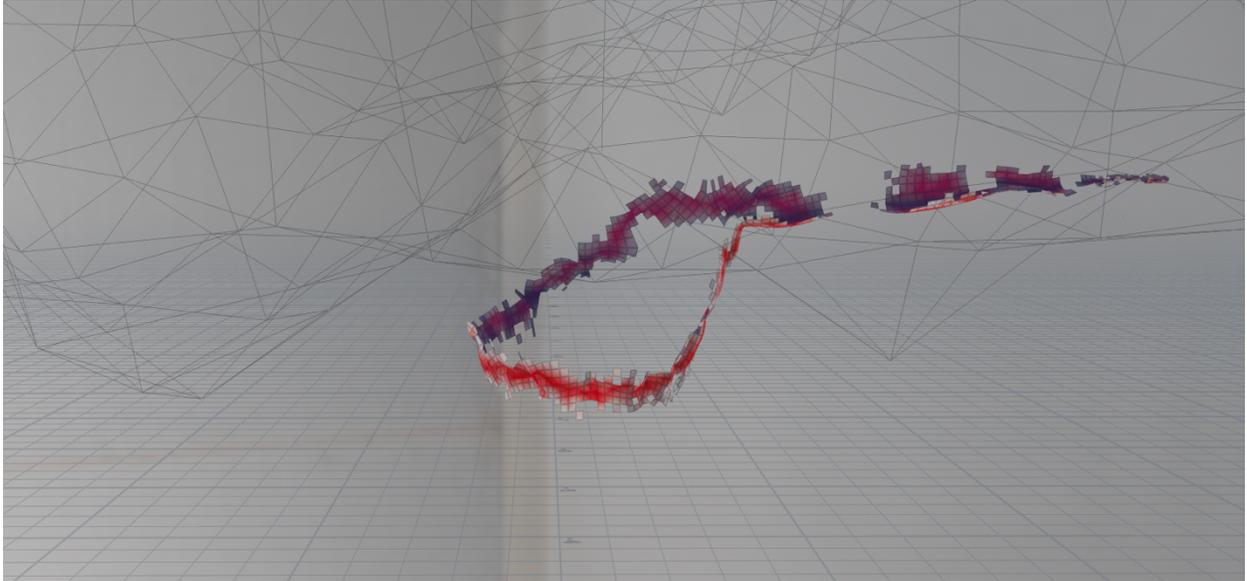
After the mask is created, I followed the tutorial and use Attribute VOP to manipulate the mask in order to get a cooler result. The first VOP is to distort the edge with a turbulent noise. The process is using the bind nodes to import and export the mask attribute. Subtracting the mask with the noise and then adding back the original mask, and then finally clamping the result to get a clearer mask.





After that, connect it through another VOP node to get only the edge of the mask. This is achieved by turning up the frequency of the sine trigonometry node.





Finally, I just need a delete node with delete my expression to delete @mask that is lower or higher than certain amount to get the source geometry for scattering points for the particles.

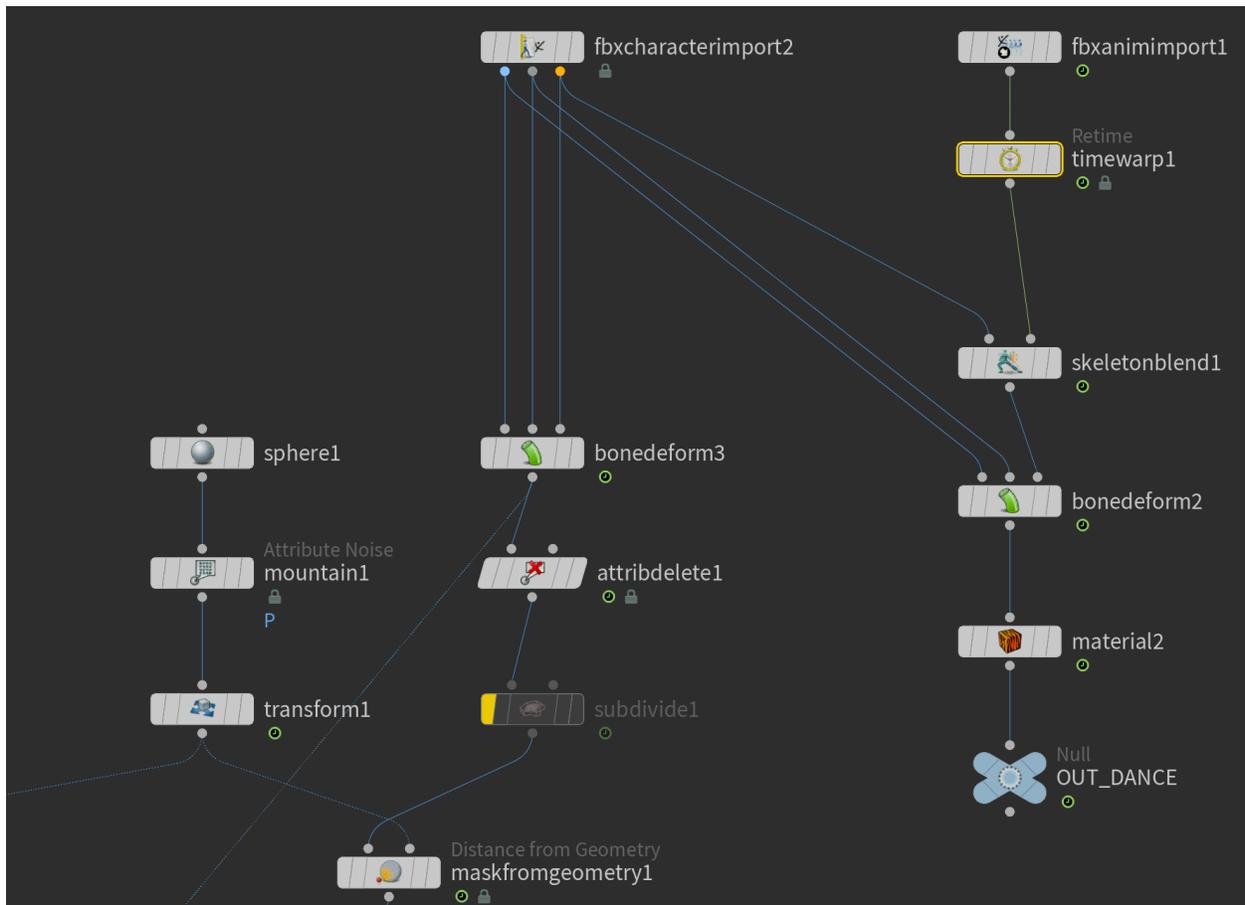
Manipulate Pscale and Velocity for Render

After the cache, I used a point wrangle to manipulate point scale in render according to its age and a random size each point. I also multiply the velocity attribute by 3 to make the motion blur for the particles looks longer in the render.

```
@pscale = fit01(rand(@id),0.002,0.006) * (1 - @age/@life);
```

```
@v *= 3;
```

Importing Characters and Animation from Mixamo



Something else I did for the project is that I imported two characters and a dance animation from Mixamo. I imported the character FBX files with an “FBX character import” and a “bone deform” to set up the character, and I imported the animation with “FBX animation import.” In order to add the animation to the character and smooth transition from T-pose to the dance, I used a “skeleton blend” and key framed the bias parameter.

Problem Encountered

The problems I have encountered while doing this project are motion blur is not working for the particles and I couldn't find a better way to manipulate how particles behave.

I checked all the checked marks that I needed to check for the motion blur, but the motion blur only works for the character, not the particles. I thought it's the velocity of the particles are too small, so I multiply to velocity with a point wrangle node, and it is still not showing any motion blur.

Additionally, I couldn't find a better way to manipulate the particles. I tried to use pop force to give it more turbulent, but the result is similar. I was also trying to make them stick together more and look like a wave, but I couldn't figure out a way other than maybe using pyro as an advection which I don't quite understand yet.

The main issue I faced is rendering. I believe there's something wrong with setting up UDIM for the mocap characters which is causing the geometry to change in renders.

However, the geometry issue only happened when I tried to render with Redshift.

Mantra didn't have the geometry issue, but it had problem rendering UDIM textures.

Therefore, I remove the textures for the final render with Mantra, and everything looks good.