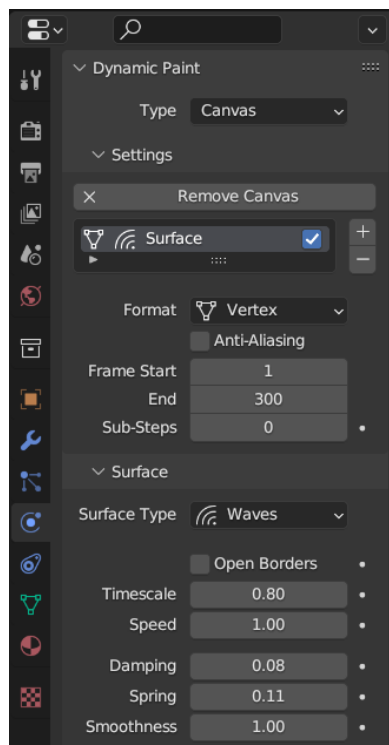


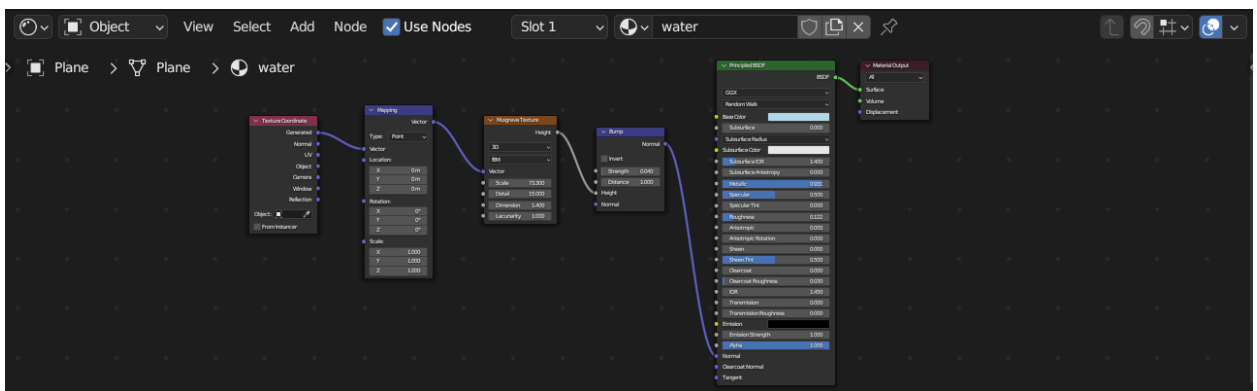
Tutorial: The Dancing Ghost

1. Water Simulation

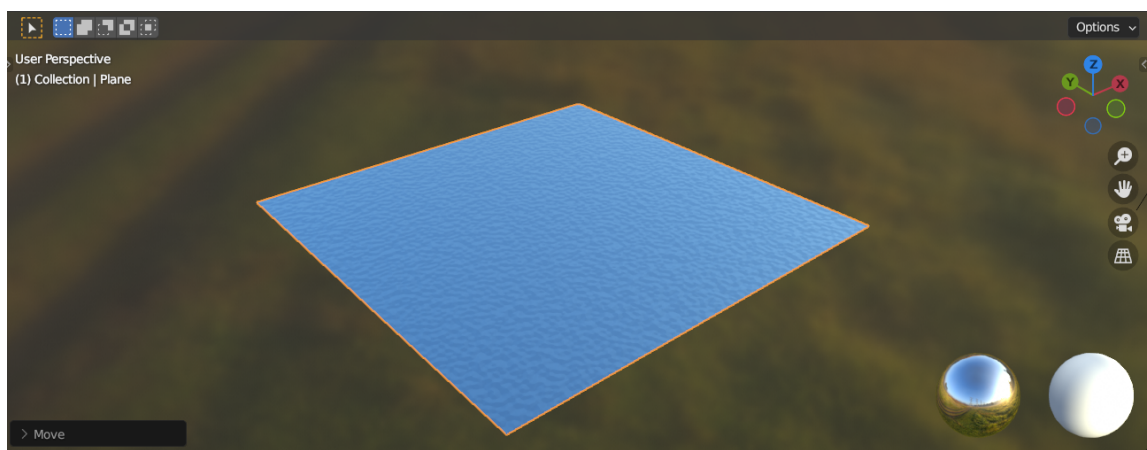
- Delete the default cube, camera and light.
- First insert a plane (Shift + A) from mesh and scale it to around 8.
- Press tab to go to edit mode and right click and press on subdivide.
- Subdivide the plane into 100
- Press Tab again to enter into object mode.
- Select the plane and go to physics properties.
- Click on dynamic paint and select create canvas.
- Select the surface type as waves.
- Now set the Timescale, Damping, Spring, Smoothness and Scale Influence to your liking.



- Now to add water like colour, go to the shading tab.
- Click on Use Nodes and add.
- Principled BSDF and Material output will already be displayed
- Press Shift + A to add the following: Bump, Musgrave Texture. Mapping and Texture coordinate.
- Now connect the Generated under Texture coordinate to Vector under mapping.
- Vector under Mapping to Vector under Musgrave texture.
- Height under Musgrave texture to Height under Bump.
- Normal under Bump to Normal in Principled BSDF.

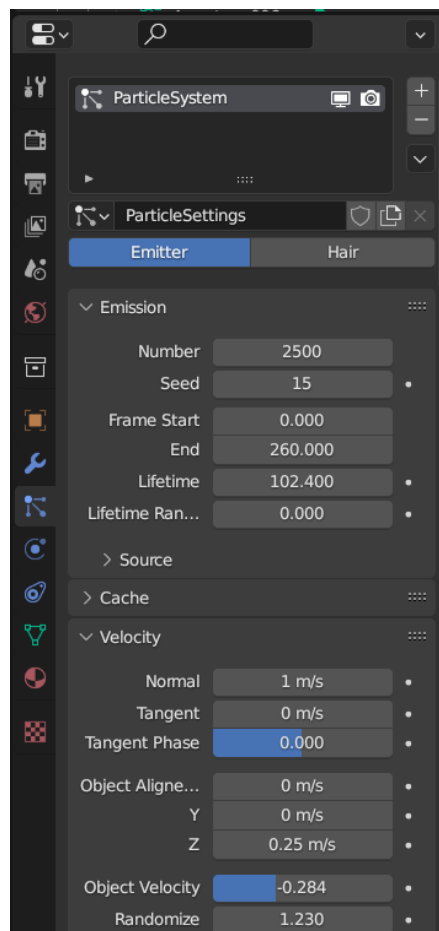


- Add a base colour under principled BSDF to give a blueish shade.
- Now adjust various factors like Strength, Scale and lacunarity, etc to your liking.
- Turn on the Viewport Shading to see the result. You can also add a HDRI to your liking

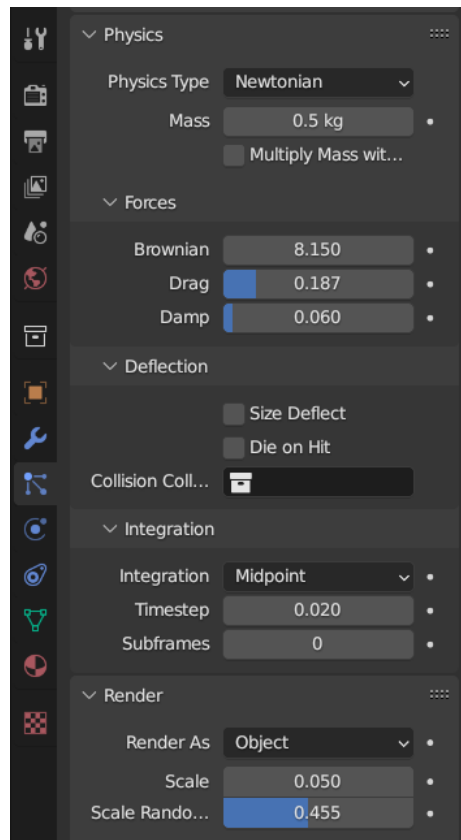


2. Snow Simulation

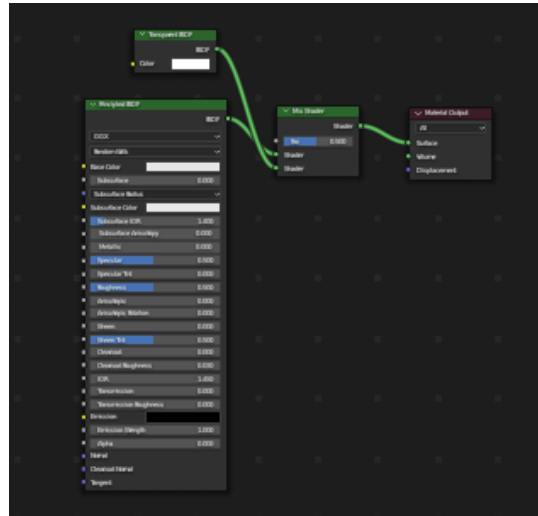
- Press Shift + A to insert a plane.
- Press G and then Z to lock it to Z-Axis and move it upwards.
- Press Shift + A to insert an Icosphere and move it to the side.
- Subdivide it to 1 and right click and shade smooth
- Now select the plane and select particle properties.
- Click on + to add a new particle system.
- Select Emitter.
- Now adjust various factors like number (you can increase it according to your system's GPU power), randomize, lifetime, etc.



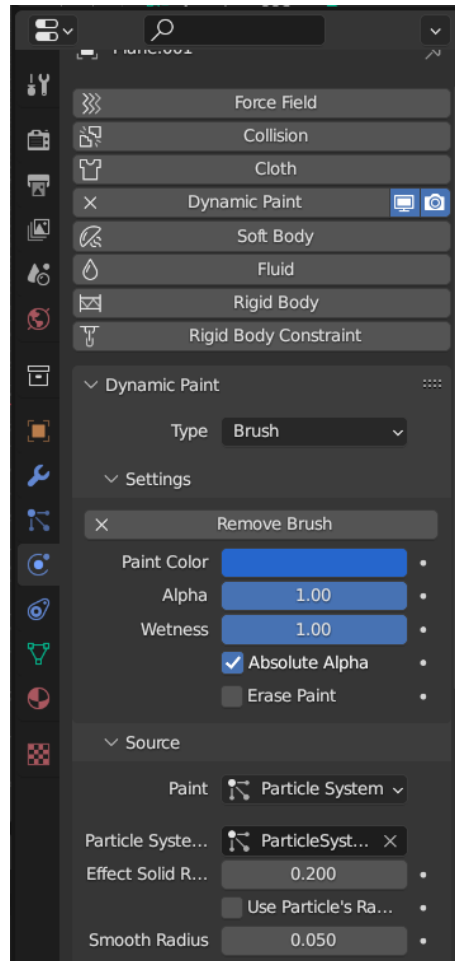
- Under the physics tab you can decrease the mass to around 0.5 and increase the Brownian. You can also adjust the Damp and Drag to your liking.
- Now under render, Click on Render as and select IcoSphere. Adjust the Scale Randomness.



- For snow-like behavior you can decrease the timestep and gravity so the particles fall slowly.
- To hide the plane emitter, you can make it transparent.
- Go on the shading tab and click use nodes.
- Shift + A to add mix shader and insert it between Principled BSDF and Material output.
- Shift + A to add Transparent BSDF.
- Connect the BSDF in Transparent BSDF to the shader in mix shader.

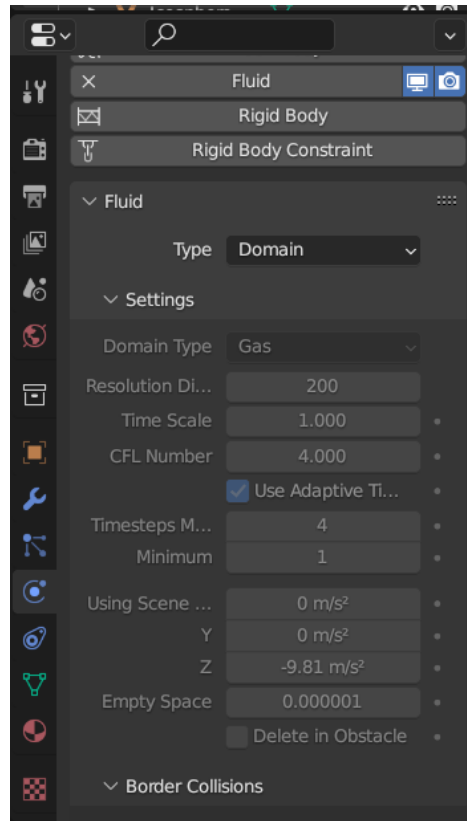


- Now in the material properties under the Viewport Display, select the blend mode as Alpha blend.
- Now under Principled BSDF, set Alpha to 0.
- To now decrease the opacity of the particles to make it look more snow like, select the icosphere and repeat the same steps as above.
- Set alpha to around 0.025.
- Turn on the Viewport Shading to see the result.
- Come back to the Layout tab.
- Now we will show the interaction when the snow hits the water.
- For that, Select the snow plane and go to the physics properties.
- Click on dynamic paint and add.
- Select the type as Brush and click add brush.
- Select Paint as Particle System.
- Now under that, select the particle system to your particle system.



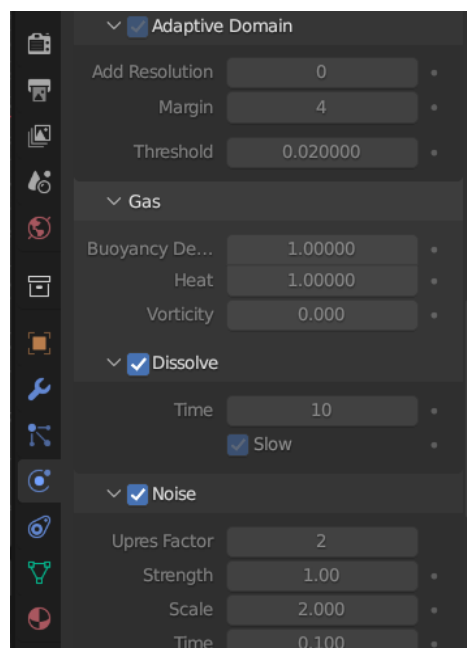
3. Dancing Ghost

- Go to Mixamo on your web browser and select a dancing animation of your choice.
- Download the .fbx file.
- Go to blender and click file and import .fbx.
- Select the downloaded file.
- Press Shift + A to add a cube.
- Scale it so that it covers the character completely.
- Go to the Physics properties and click on fluid.
- Change the type to domain.
- Change the settings as per your liking and GPU power like so.

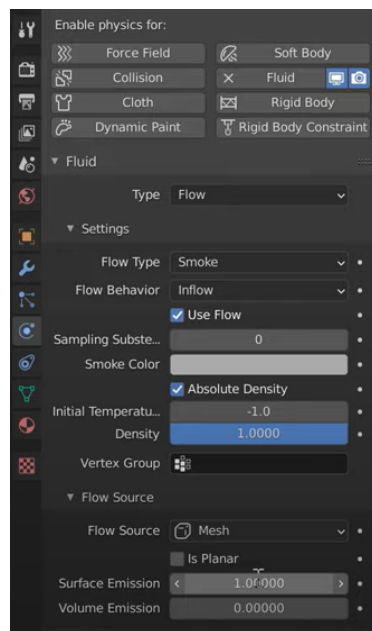


→ Turn on Adoptive domain and Dissolve.

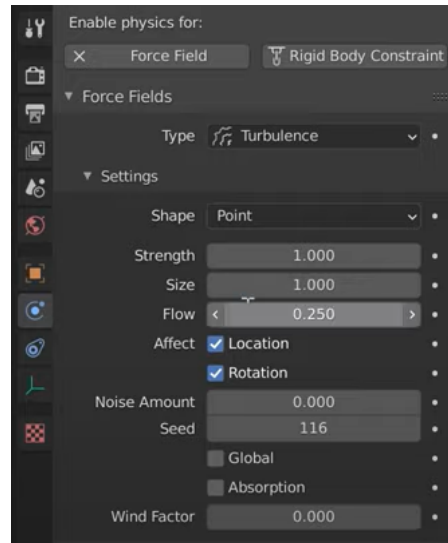
→ Add Noise and set the factor as 2.



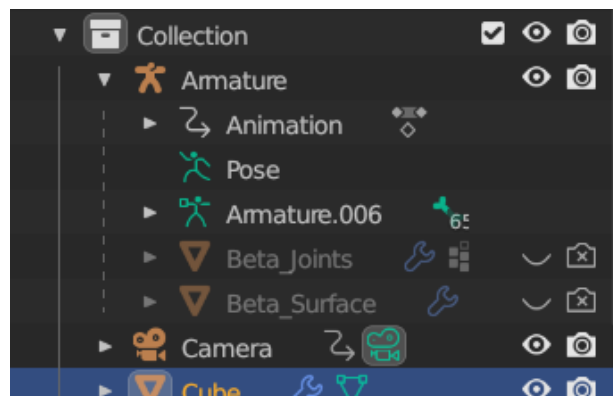
- Now click on the character.
- Go to the physics properties and click on Fluid.
- Change the type to flow.
- Change the behaviour to Inflow.
- Change the Initial temperature to -1.
- Open up the flow source and change the emission to 1.



- Turn on velocity.
- Change the source to .5 and Z to .25.
- Now we will add turbulence, so press shift + A, go down to the force field and add Turbulence.
- Now in the physics properties, set the size to 1, and set the flow to .25.

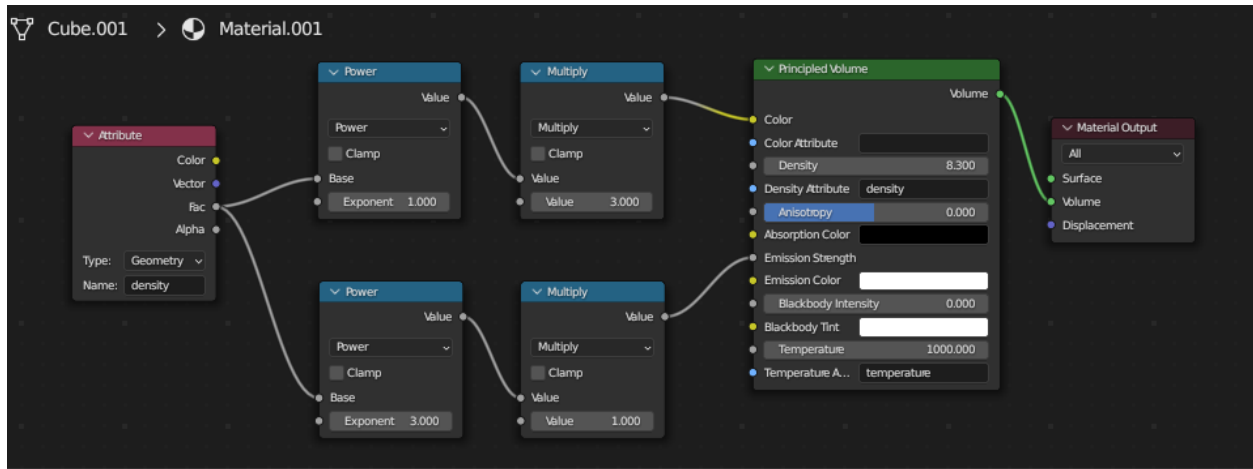


- Now click on the domain and scroll to the bottom.
- Under cache, make sure the start and end frames are matching the animation frame.
- Set the type to all and click on Bake All.
- Now we can hide our character by disabling the view and render toggle.



- Now we can go to the shading tab.
- Click on render preview.
- We can add a light by pressing Shift + A and add light. Select the type as sun.
- Set the position and rotation accordingly to be able to see the ghost.
- Select the domain and Click new and click on Principled BSDF and delete.
- Now add Principled volume, Power, Multiply and Attribute.

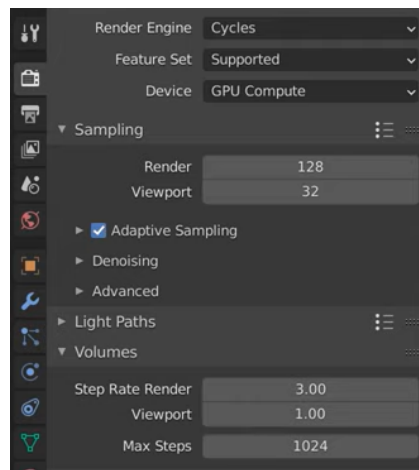
→ Now connect them like so.



→ Go to render properties and select the engine as Cycles and change device to GPU.

→ Turn on Adaptive sampling.

→ Go to volumes and change the step rate to 3.

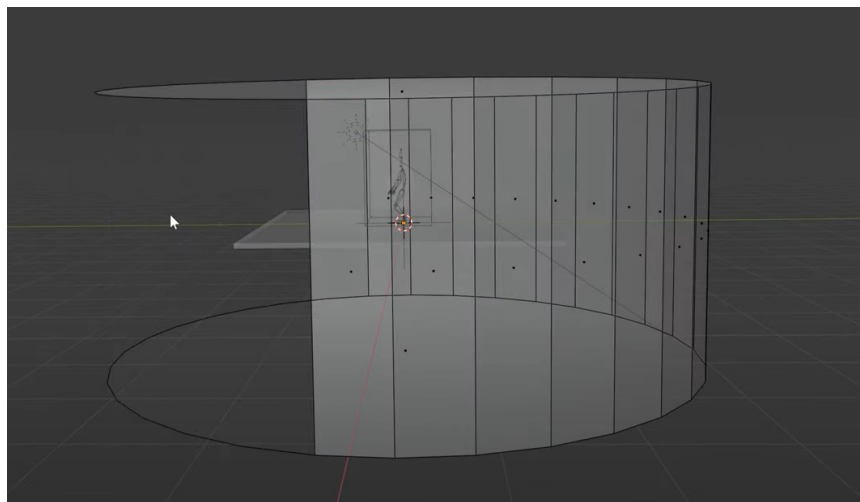
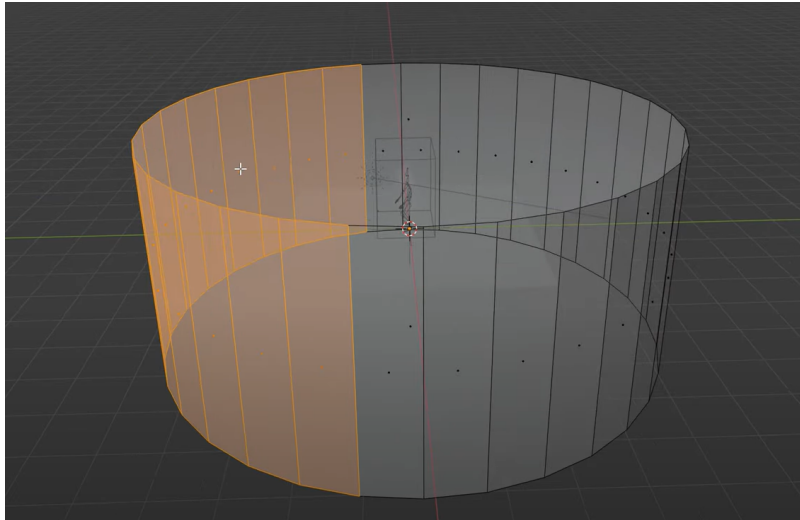


→ Now you can change various settings in the shader nodes to your liking to be able to view your smoke.

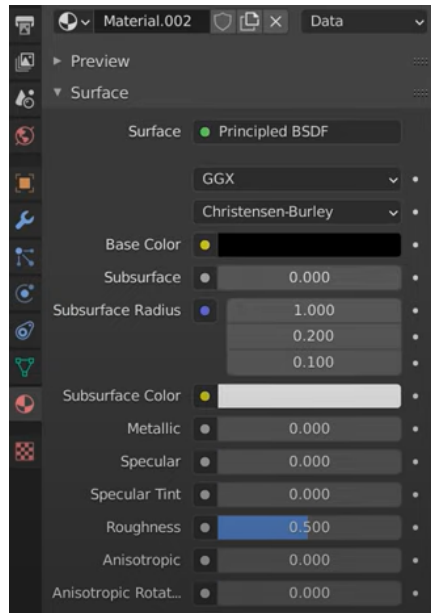
→ Now go back to the layout tab.

→ Press shift + A to add a new mesh and click Cylinder.

- Scale it and then click tab to go to the edit mode.
- Click faces and turn on x-ray.
- Select some faces to the middle and delete.



- Click on the upper face and delete that too.
- Turn off x-ray mode and go back to the object mode.
- Right click and shade smooth.
- Go to the materials properties and click new.
- Set the base colour to black and bring the specular value to 0.



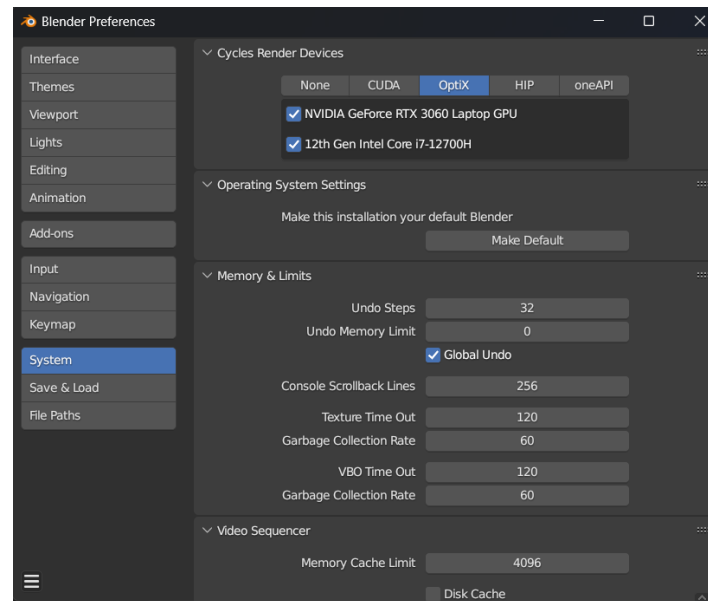
- Set the base colour to black and bring the specular value to 0.

4. Setting the camera

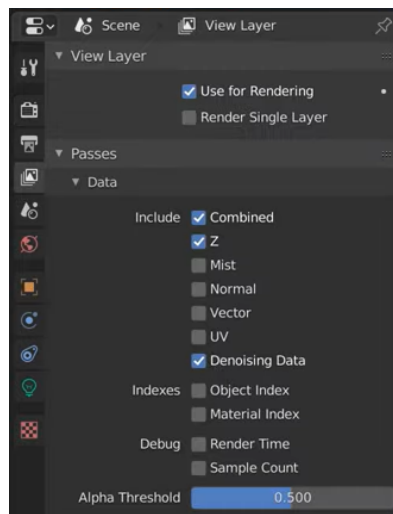
- Press Shift + A to insert a camera.
- Press G then Y to lock it to the y axis and move it to the front.
- Click ctrl+alt+0 on the numpad to view the active camera.
- Turn on Walk Navigation on View>Navigation>Walk navigation.
- Then you can set your camera scene accordingly.
- On the 1st frame, Press I and press location + rotation option.
- Now go to the 125th frame.
- Set the camera where you want it during the 125th frame.
- Press I and insert keyframe.
- Lastly on the 250th frame, set your camera to the final location and insert keyframe.
- Now you can view the camera view and if at anytime it goes out of scene you can turn on Walk navigation, set it accordingly and insert keyframe.
- You can also play around with the focal length in the object data properties to your liking.

5. Rendering

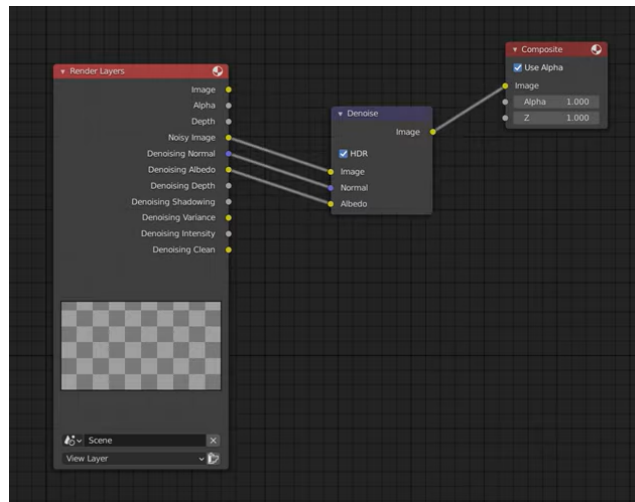
- Go to edit and click on preferences.
- Go to system
- There are various options, click on Optix and select your GPU, this will help render faster.



- Go to the composting tab and click on use nodes.
- Now we want to denoise our final image, so go to the layer properties.
- Select the denoising data.



→ Shift + A and search denoise and connect like so.



→ Now make sure you have a folder created for the output frames.

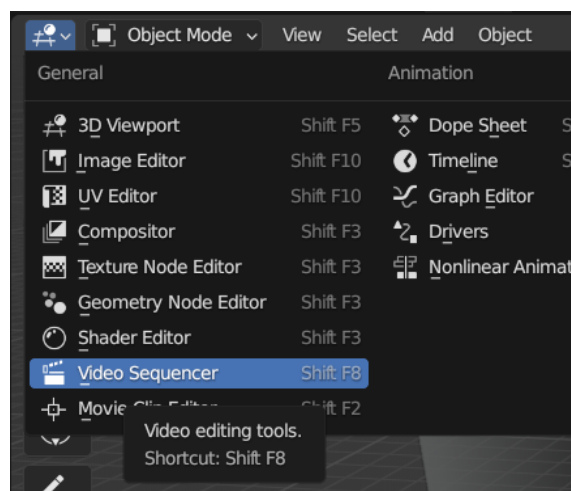
→ Go to output properties and under output select the folder.

→ Now go to the rendering tab and click on render animation.

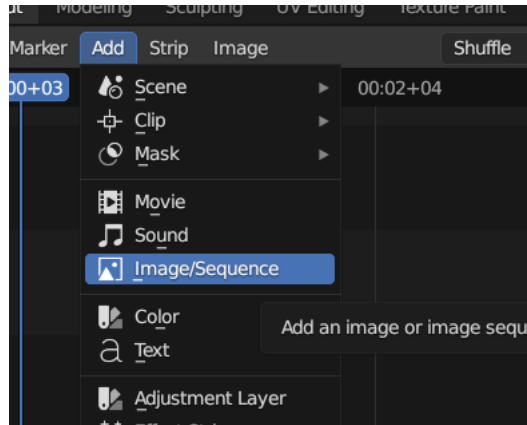
→ Now wait for all frames to render.

→ Once it is rendered you can go to Render > View Animation to preview.

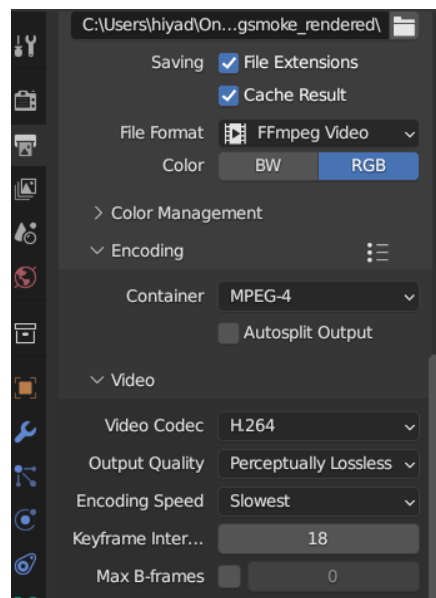
→ Now all the frames rendered are in png format, to convert it into video format go to video sequencer.



- Now all the frames rendered are in png format, to convert it into video format go to video sequencer.
- Now click on Add > Image Sequence



- Then navigate over to the folder where you have all the frames.
- Then press A to select all the images.
- Now go to the output properties and set the frame rate.
- In the file format, select FFmpeg video.
- Under encoding select the container as MPEG-4.
- Now under Video, select the output quality as Perceptually lossless, and encoding speed at slowest.



- Now go to the rendering tab and click on render animation.
- After rendering you can find your final video in your output folder.

Hurray, Now you have your Dancing Smoke!

References:

- [1] [▶ Real Time Fluid Simulation in Blender 2.9 EEVEE](#)
- [2] [▶ Making \(Fast n' Easy\) Snow with Particles | Blender 3.0 Tutorial](#)
- [3] [▶ Blender 2.9 | How to make a Dancing Smoke Simulation | Mantaflow | TUTORIAL](#)
- [4] [▶ Convert Image Sequence Into Video - Blender](#)

Contact Me:

Name: *Hiya Dey Sarkar*

E-mail ID: *hiya.deysark@gmail.com*