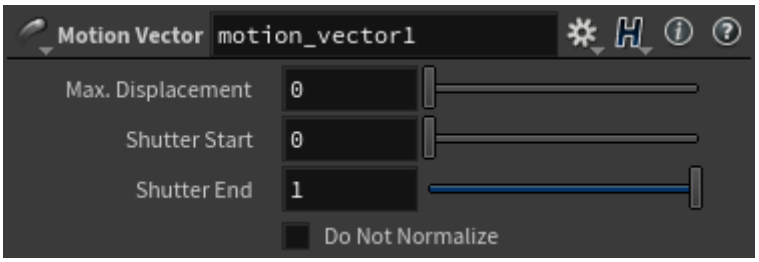
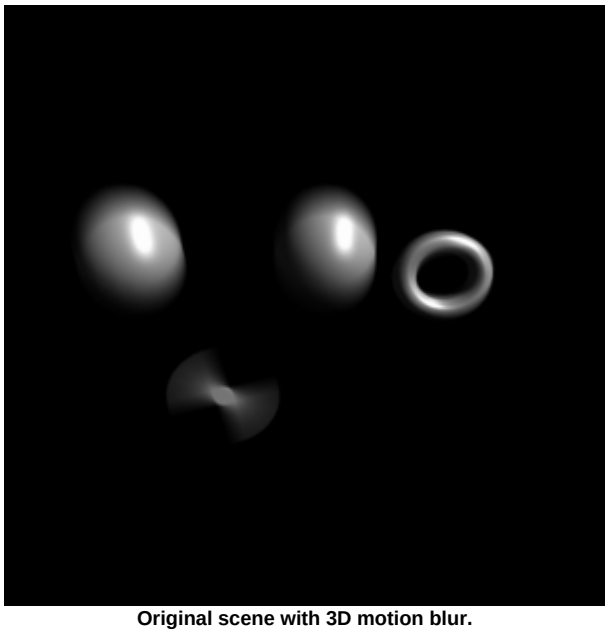
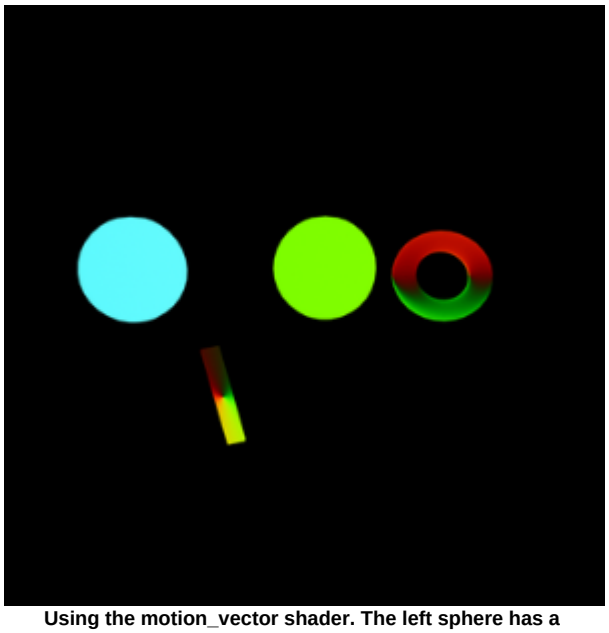
Motion Vector



This shader will encode a vector representing the motion of the object in the Red and Green components. The following two images illustrate the effect. The first image shows the original scene with motion blur rendered normally. The second shows the false-color effect of the motion vector.

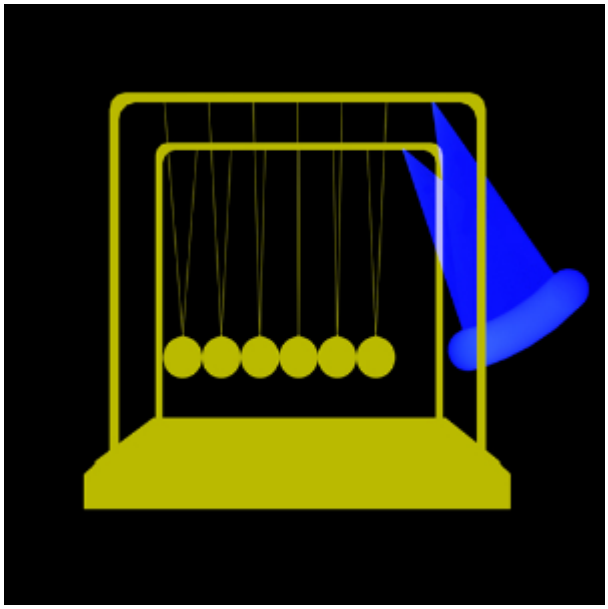


Original scene with 3D motion blur.

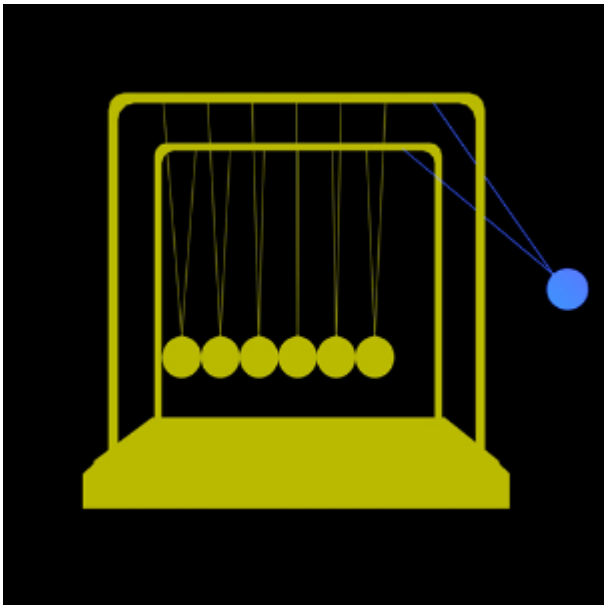


Using the motion_vector shader. The left sphere has a max_displace of 0 (hence blue). Other objects have max_displace of 1.

To use this shader correctly, you must enable *instantaneous_shutter For Motion Vectors* (Motion Blur settings).



Instantaneous Shutter For Motion Vectors: Disabled (incorrect)



Instantaneous Shutter For Motion Vectors: Enabled (correct)

A sample scene that demonstrates the correct workflow (motion vector AOV) can be found here.

Max. Displacement

When greater than 0, this is the maximum amount of screen-space motion. The motion vector encoded in the RG components is then normalized to this value. This is better when writing to 8 or 16-bit formats like JPEG, TIFF, etc. On the other hand, when this value is less than or equal to zero, magnitude encoding is used instead: RG holds the unit direction vector, and B holds the magnitude. This is better when writing to floating-point formats (EXR etc.).

Shutter Start

Sample time for shutter start.

Shutter End

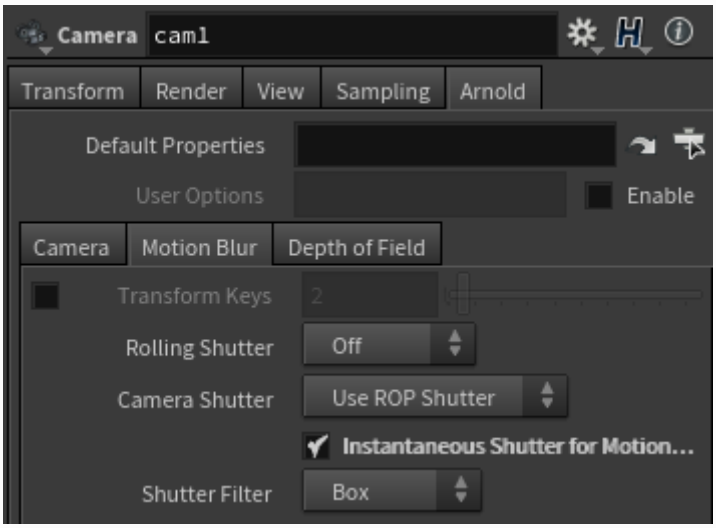
Sample time for shutter end.

Do Not Normalize

The vector won't be normalized.

Camera Shutter Workflow

- Transformation and/or deformation blur must be enabled.
- Select the "motionvector" AOV for output (type RGB is fine).
- Toggle *Instantaneous Shutter for Motion Vectors* in the camera properties.



'Instantaneous Shutter for Motion Vectors' enabled