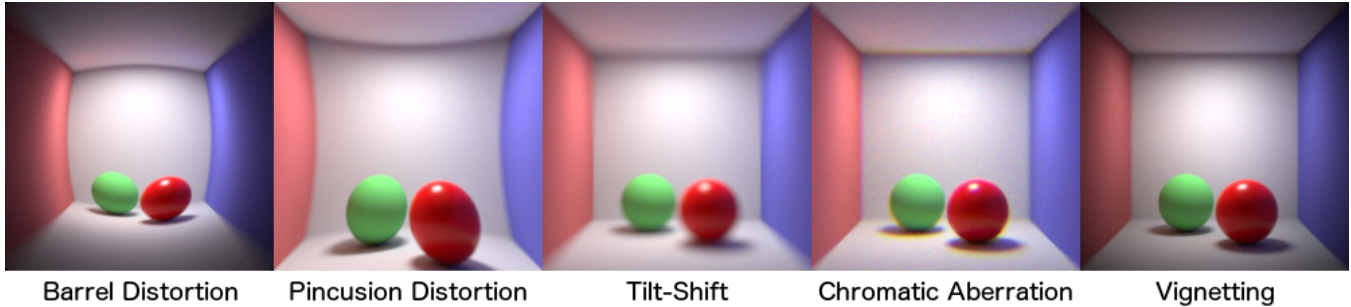


# PxrCamera

A camera model that approximates a number of real world physical effects. This supports all of the traditional prman perspective camera settings including shaped motion blur and bokeh.

Some examples of the effects PxrCamera can do:



## Parameters

### Standard Perspective

#### **fov**

Field of view (FOV) in degrees. For rectangular images this is normally the FOV along the narrower image dimension.

### Tilt-Shift

#### **tilt**

Angle in degrees to tilt the lens. Makes the plane of focus non-parallel to the image plane. Has no effect unless depth of field is enabled. Positive tilts up, bringing the focus in the top of the image closer and pushing the focus in the bottom further. Negative does the reverse.

#### **roll**

Roll the lens clockwise. If the lens tilt is non-zero this can be used to rotate the plane of focus around the image center.

#### **shiftX**

Shift the lens horizontally. This can be used to correct for perspective distortion. Positive values shift towards the right.

#### **shiftY**

Shift the lens vertically. This can be used to correct for perspective distortion "keystone" effects. To keep vertical lines parallel, aim the camera horizontally and adjust this to include the subject. Positive values shift towards the top.

### Lens Distortion

#### **radial1**

Quadratic radial lens distortion coefficient. Positive values produce pincushion distortion. Negative values produce barrel distortion.

#### **radial2**

Quartic radial lens distortion coefficient. Positive values produce pincushion distortion. Negative values produce barrel distortion.

#### **assymX**

Distortion applied only in the X direction. Horizontal lines will remain straight. Positive values produce pincushion-like distortion. Negative values produce barrel-like distortion.

#### **assymY**

Distortion applied only in the Y direction. Vertical lines will remain straight. Positive values produce pincushion-like distortion. Negative values produce barrel-like distortion.

#### **squeeze**

Anamorphic lens squeeze. Values greater than one decrease the effect of the lens distortion in the X direction. Values less than one increase it.

### Chromatic Aberration

### **transverse**

Transverse (or lateral) chromatic aberration. This specifies the magnification factors for the red, green, and blue primaries respectively. When unequal, this can produce a tinge which is most pronounced near the image edges. It will increase color noise, however.

### **axial**

Axial (or longitudinal) chromatic aberration. This specifies the chromatic focal shift for the red, green, and blue primaries respectively. When unequal, this can produce a tinge on bokeh and out of focus objects. It will increase color noise, however.

## Vignetting

### **natural**

Natural vignetting. When one, directions off of the primary camera axis will be darkened realistically. Wide-angle perspectives will show this effect more strongly. Setting to zero disables this and intermediate values will blend accordingly.

### **optical**

Optical vignetting. Simulates light blockage due to a hood or other additional lens elements. With depth of field enabled, this creates cat's eye bokeh. However, it also increases image noise.

## Shutter

### **sweep**

Shutter direction. Specifies the direction that the shutter sweeps. The default, down, is the most common direction for rolling shutters.

### **duration**

Exposure duration. Zero means an ideal rolling shutter where each line is exposed instantaneously when read. The default, one, is equivalent to a global shutter where all lines are exposed and read at the same time.