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Project 2: Using Transformations to Animate a Carousel Horse!

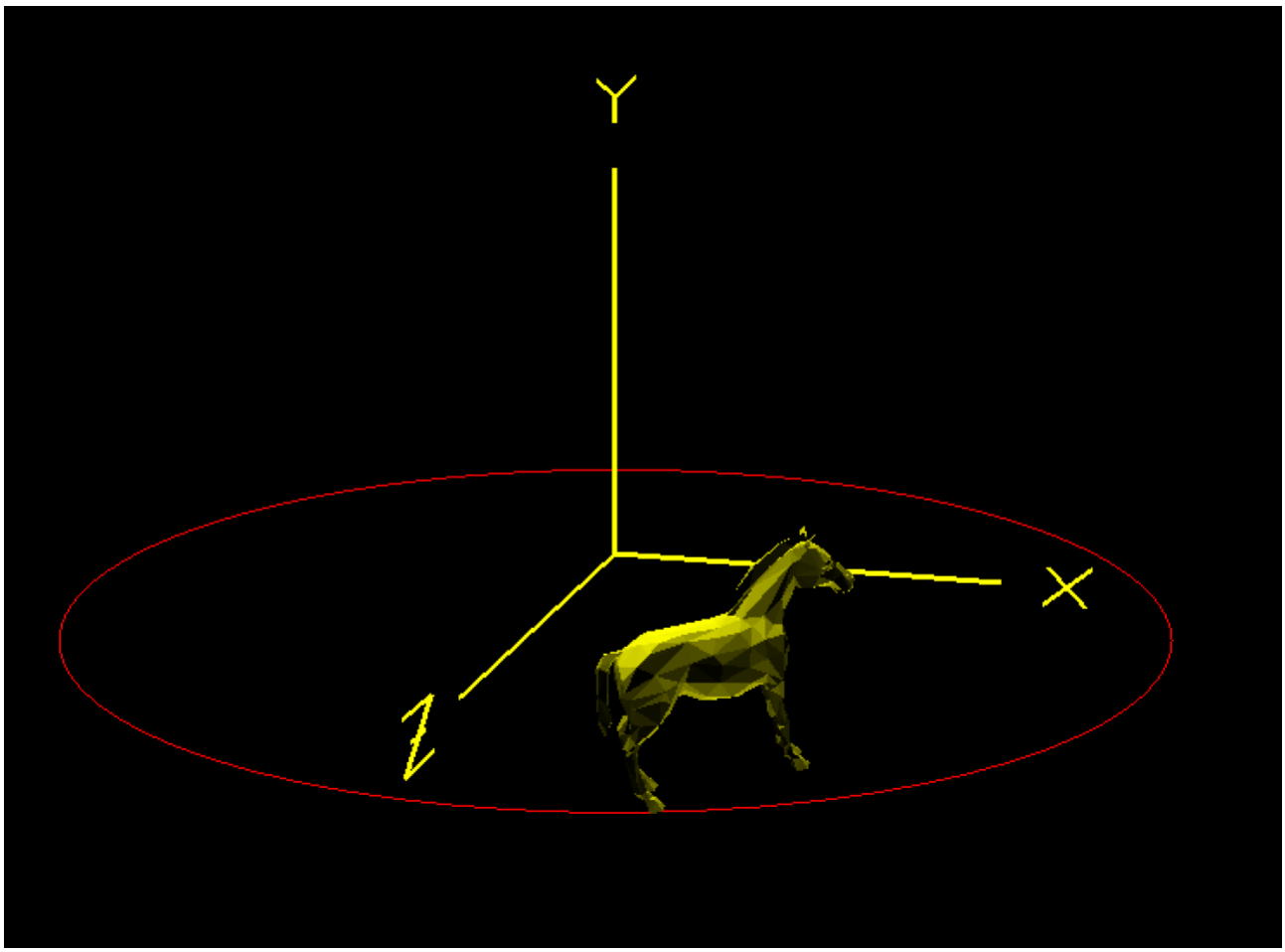
[Video Link]

Description:

After getting the circle drawn correctly, I brought the horse in. To get the horse to look like it is on a carousel, it is first rotated around the z axis to simulate the forward backward rocking motion (pitch), then translated along the y axis to simulate the up and down motion, then it is translated along the z axis to be at the radius of the circle, it is then rotated once more to simulate the motion around the carousal.
To actually get desired position at each instant, the Time variable, which alternates linearly between 0 and 1, is used in sin and cosine functions along with the desired galloping frequencies and amplitudes. The galloping frequency was determined with trial and error to actually look like the horse is jumping off the ground (within reason). The amplitude of the rocking and jumping, the number of gallops per rotation, the number of rotations per 10 seconds, and number of horses, can all be adjusted with hotkeys.

To allow for more than one horse, the glCallList() function is tucked within a for loop than adjusts the time value based on the current horse being drawn, the total number of horses, and the desired rotations per cycle.

Key	**Change**
- +	Horse count
[ ]	Rocking amplitude
{ }	Up / down amplitude
; ‘	Gallops per rotation
: “	Rotation per cycle
O	Orthographic view
P	Perspective view
L	Switch between inside/outside view
R	Reset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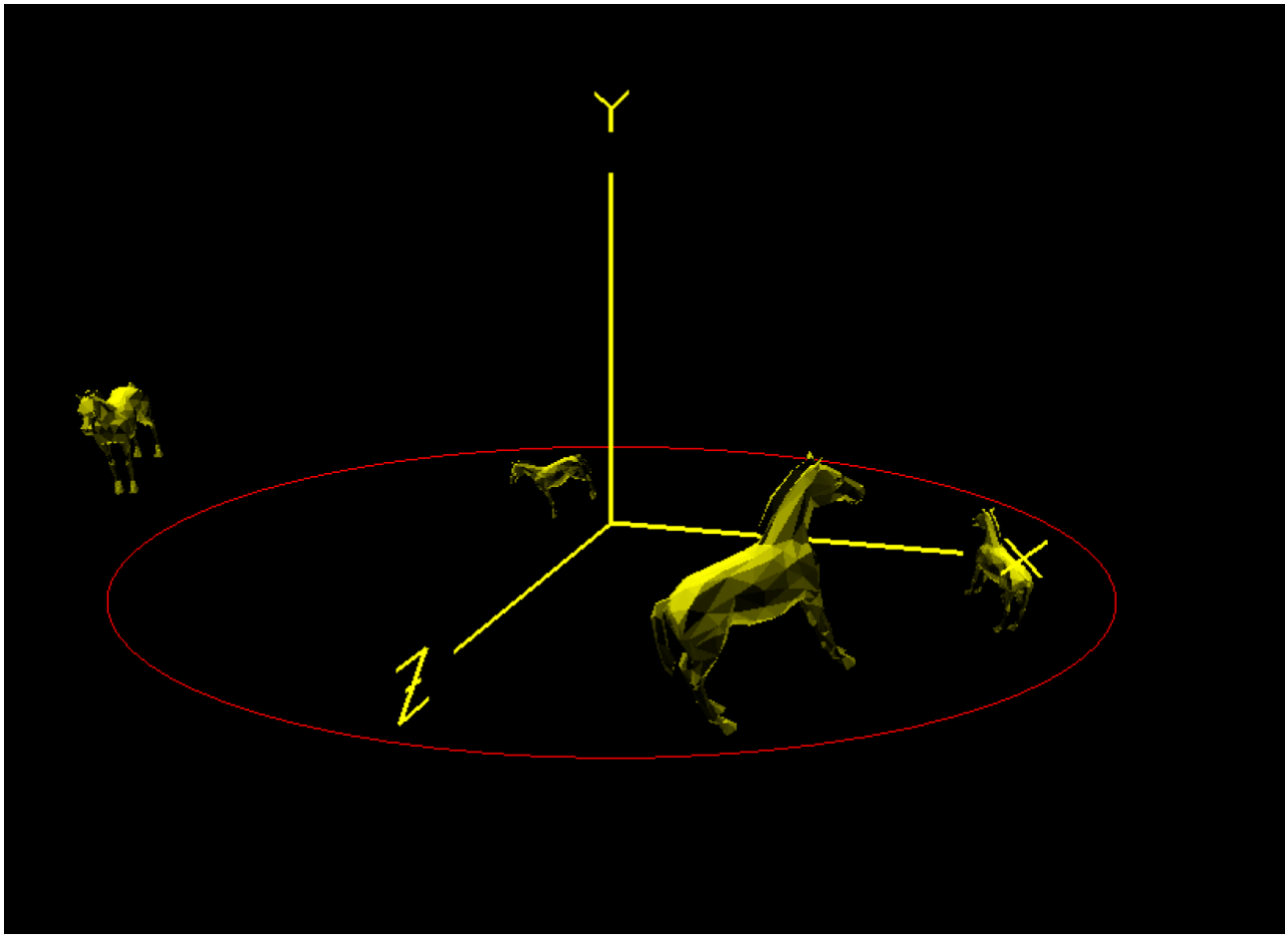
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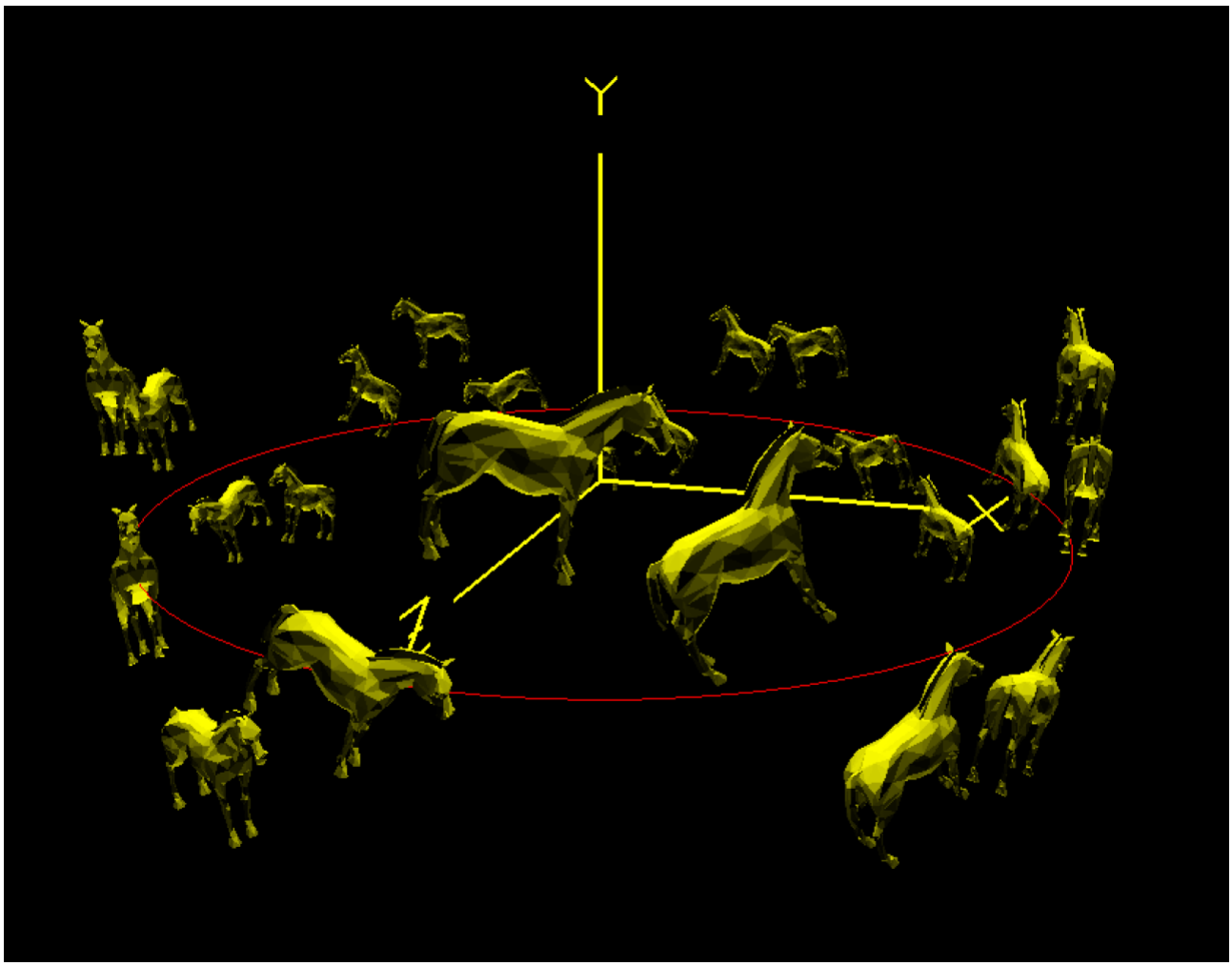
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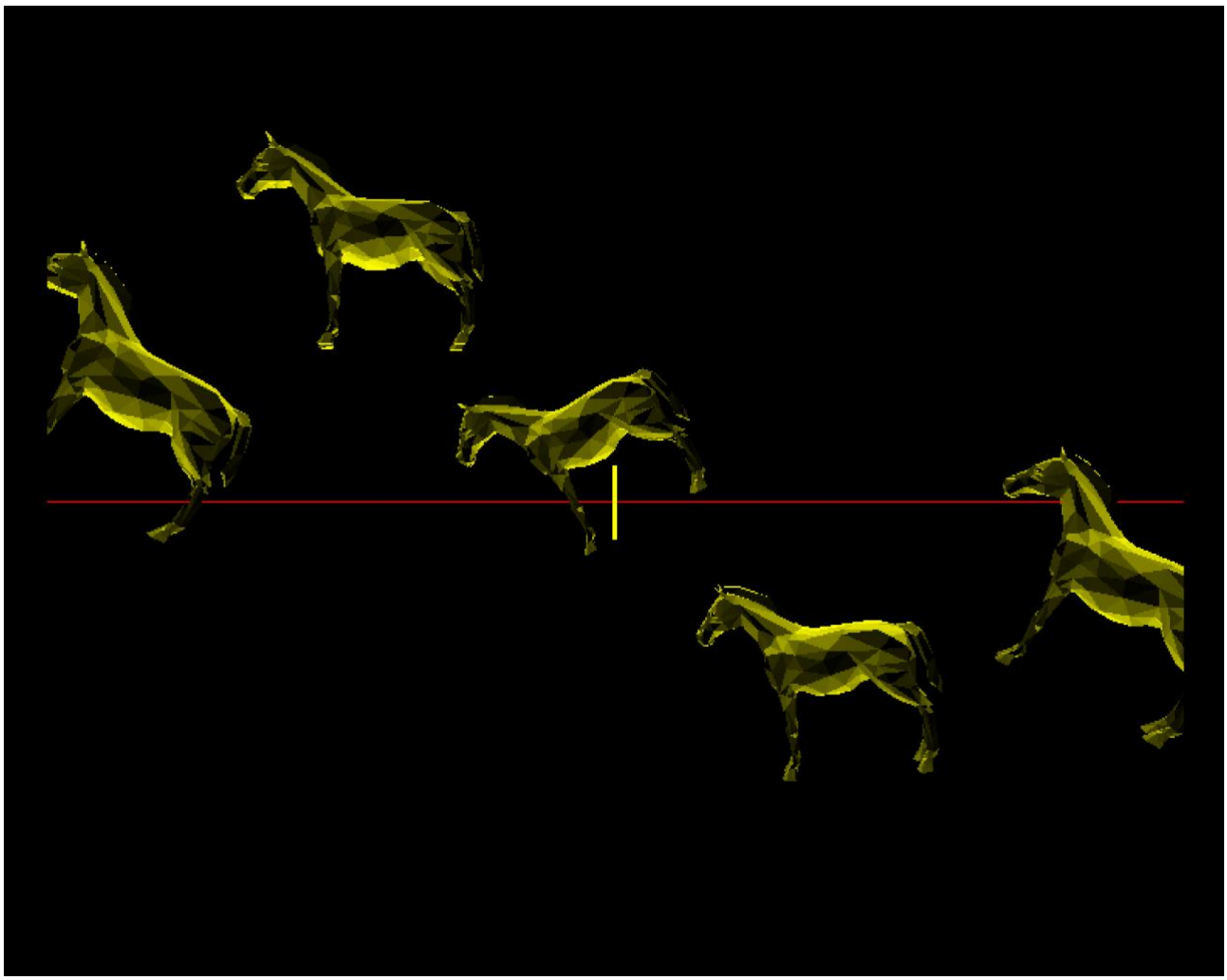

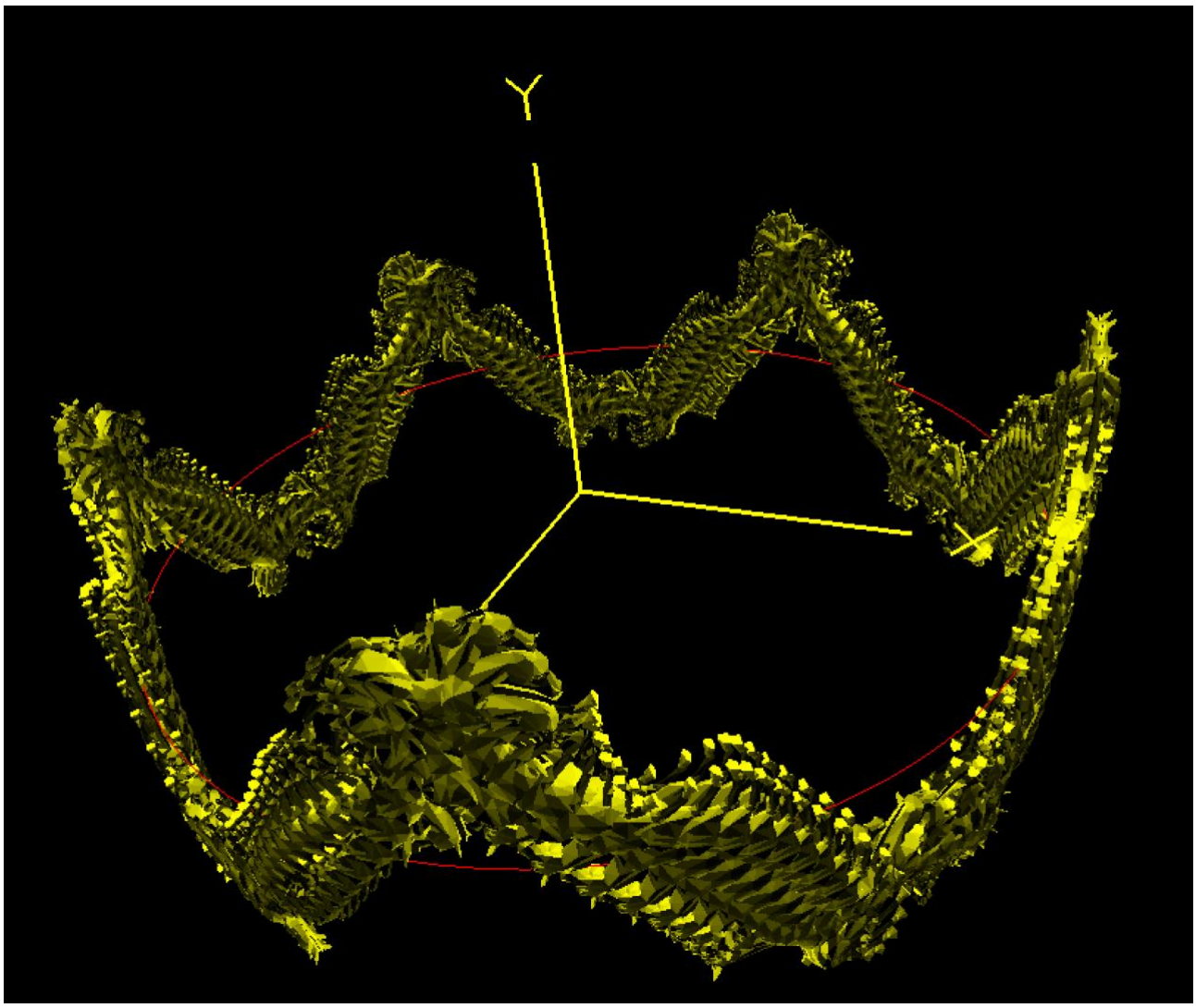
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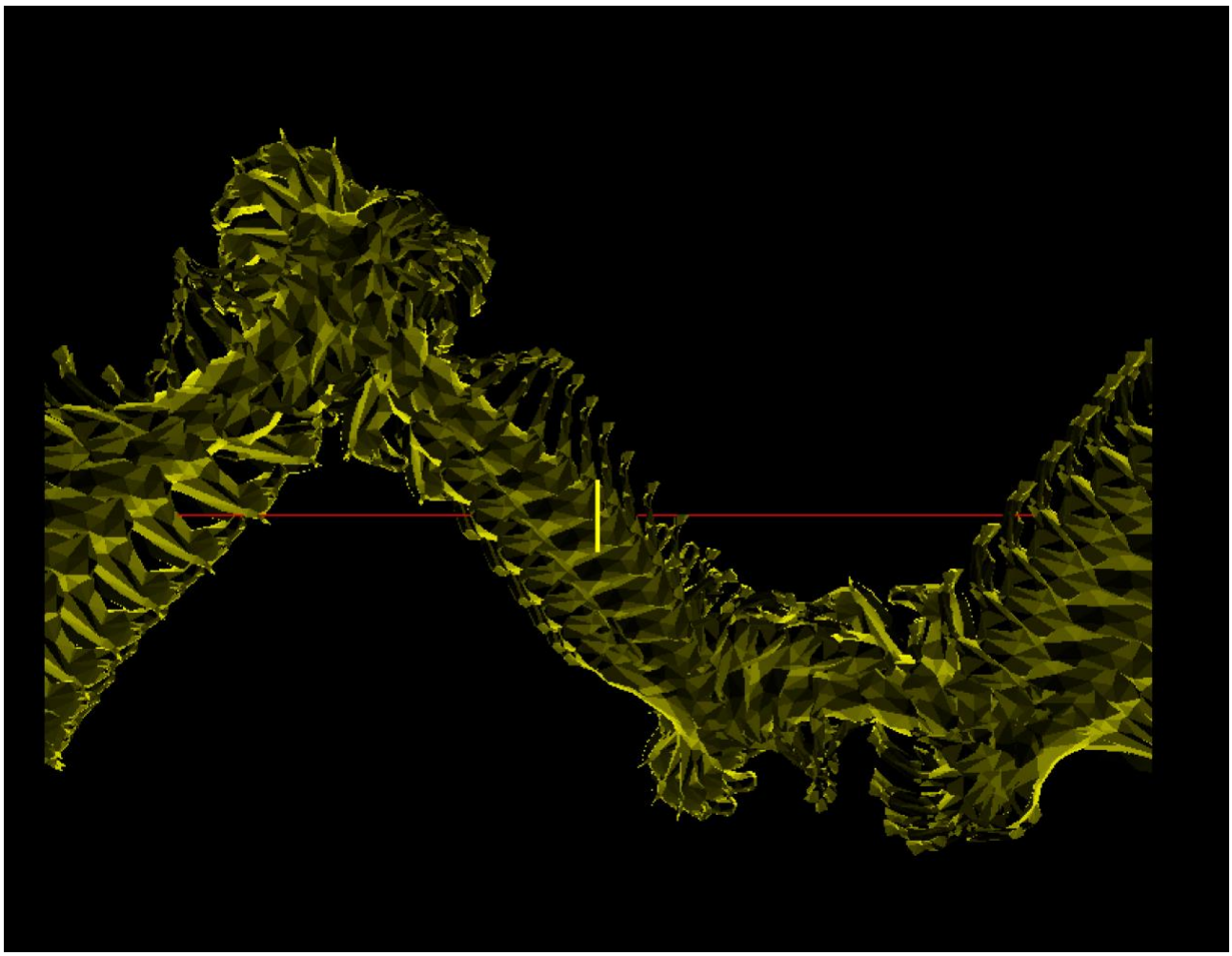

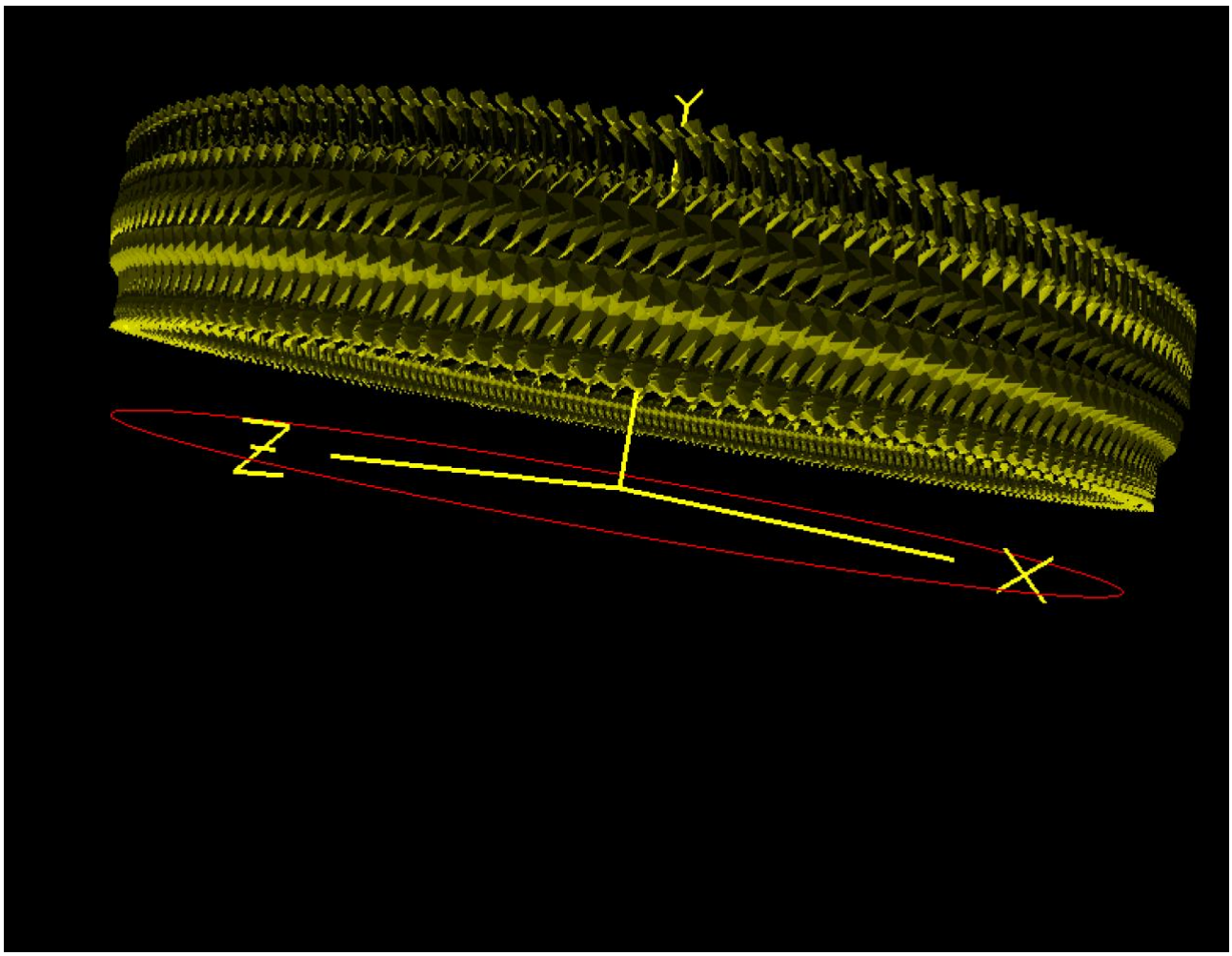
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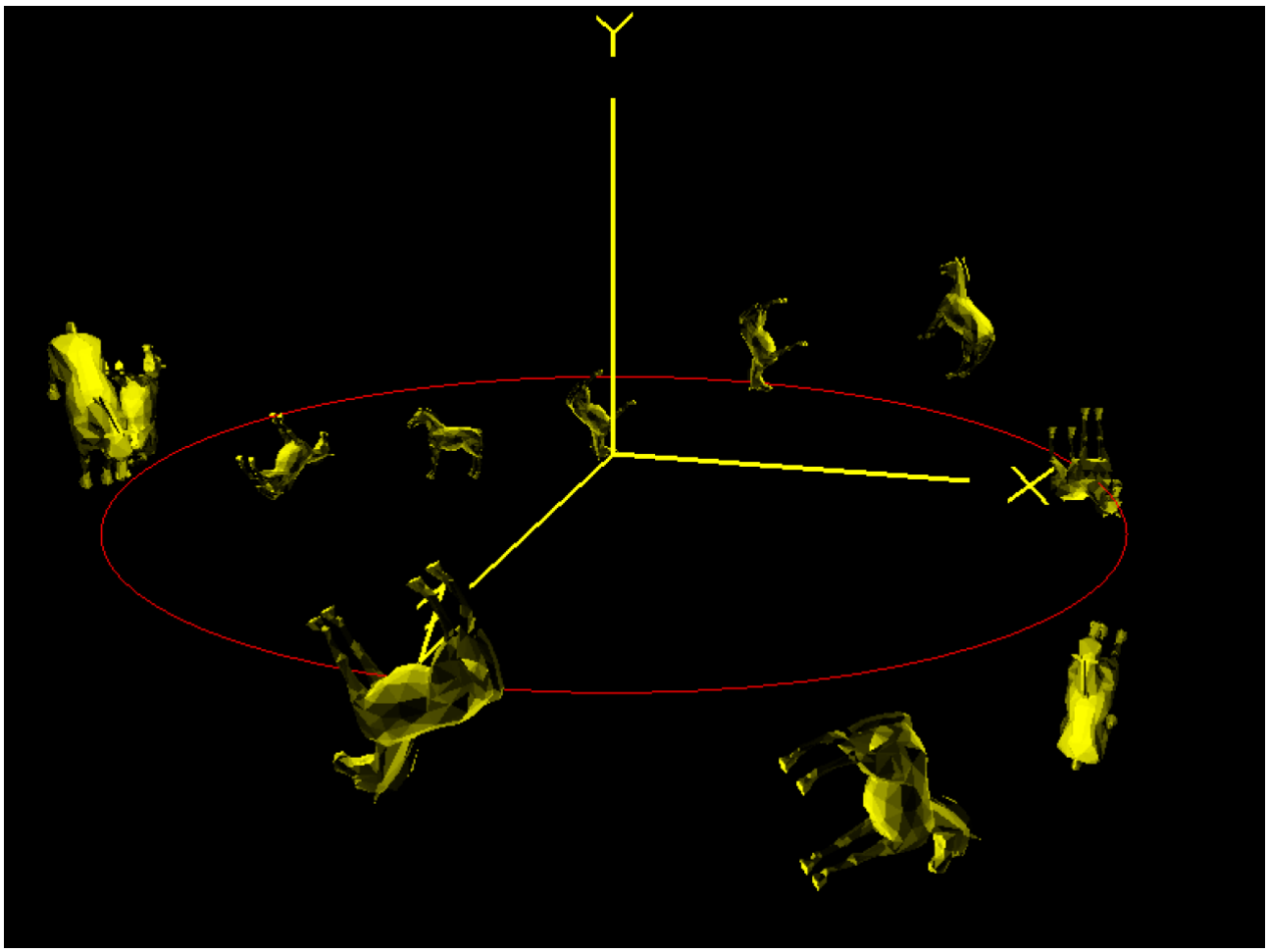
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