

# 3D Pong

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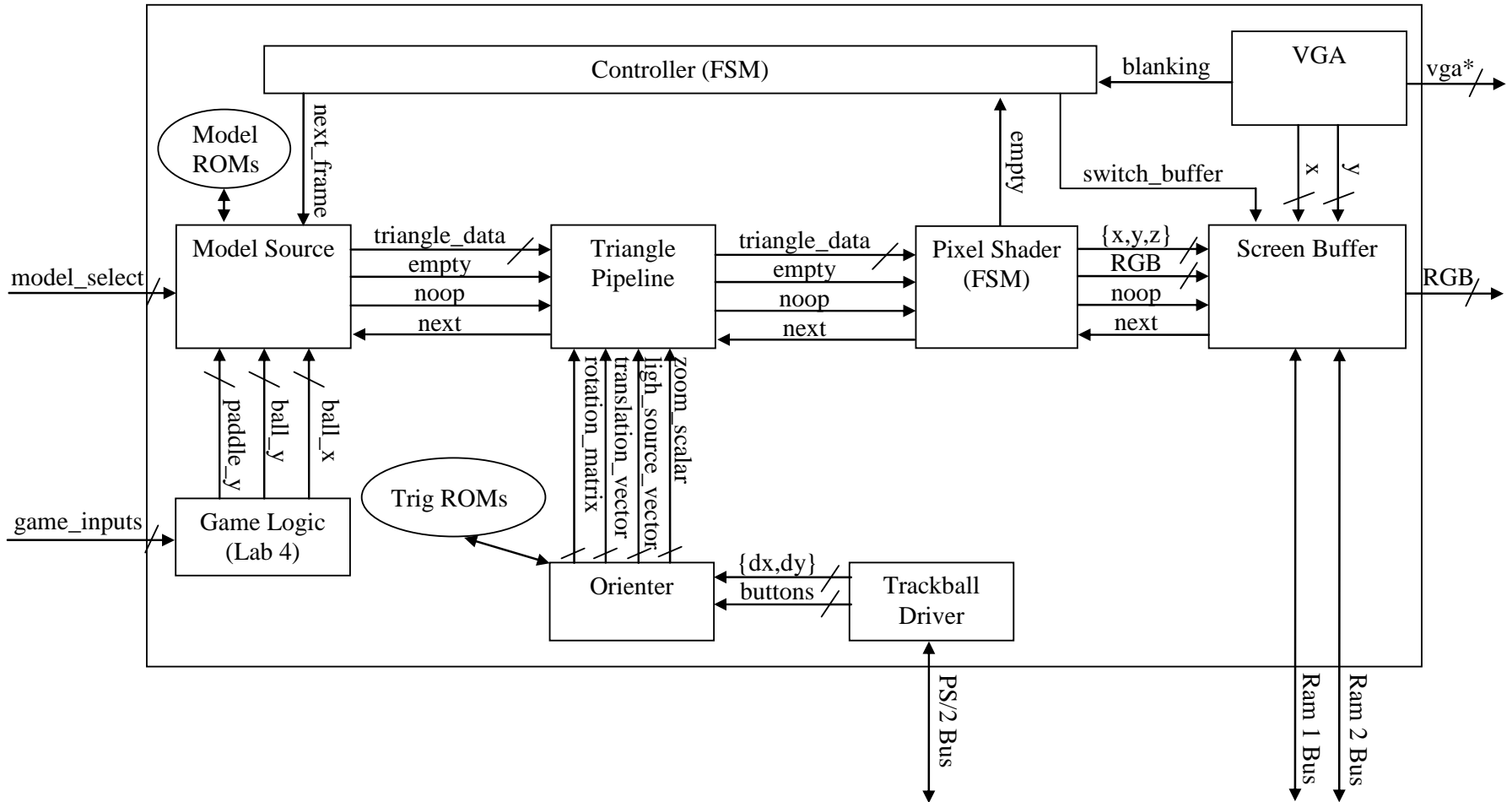
# Game Overview

- Game play similar to MIT Pong, but...
  - the objects have depth
  - the board can be rotated in 3D while the game is being played
- Inputs
  - Lab-4 Pong Inputs
  - 3D Trackball for Rotating the Board
- Arbitrary 3D Models in addition to 3D Pong

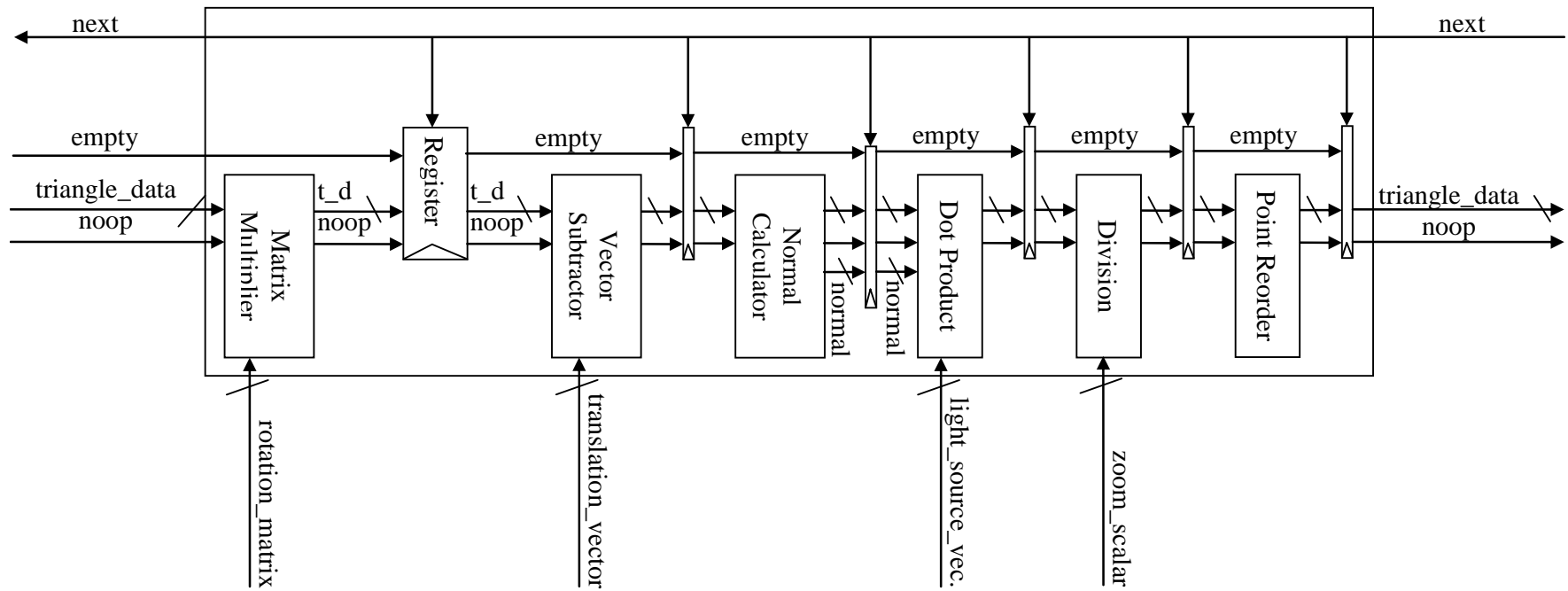
# 3D Renderer

- Arbitrary models composed of triangles in a 3D space
- Arbitrary Rotations and Translation
- Shaded using Flat Shading Model
- Perspective Projection

# Block Diagram

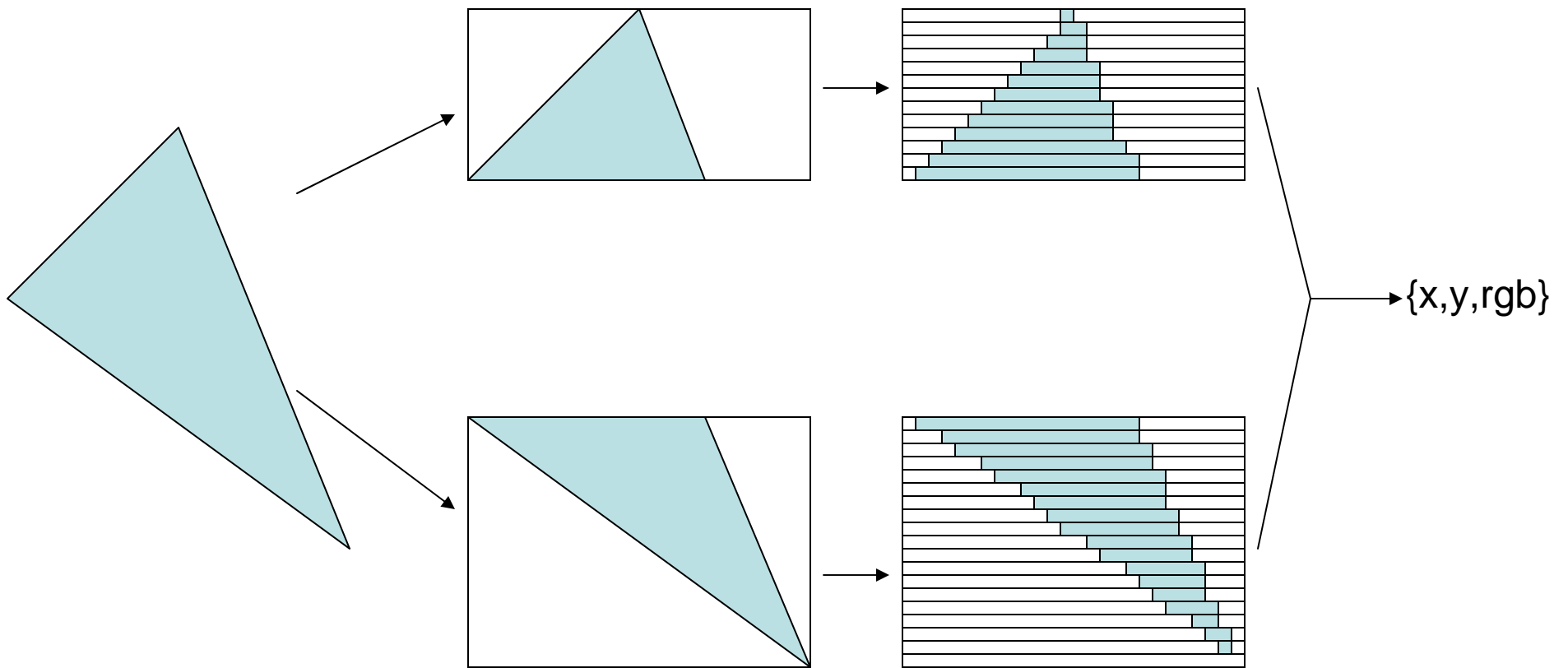


# Closer Look: Triangle Pipeline

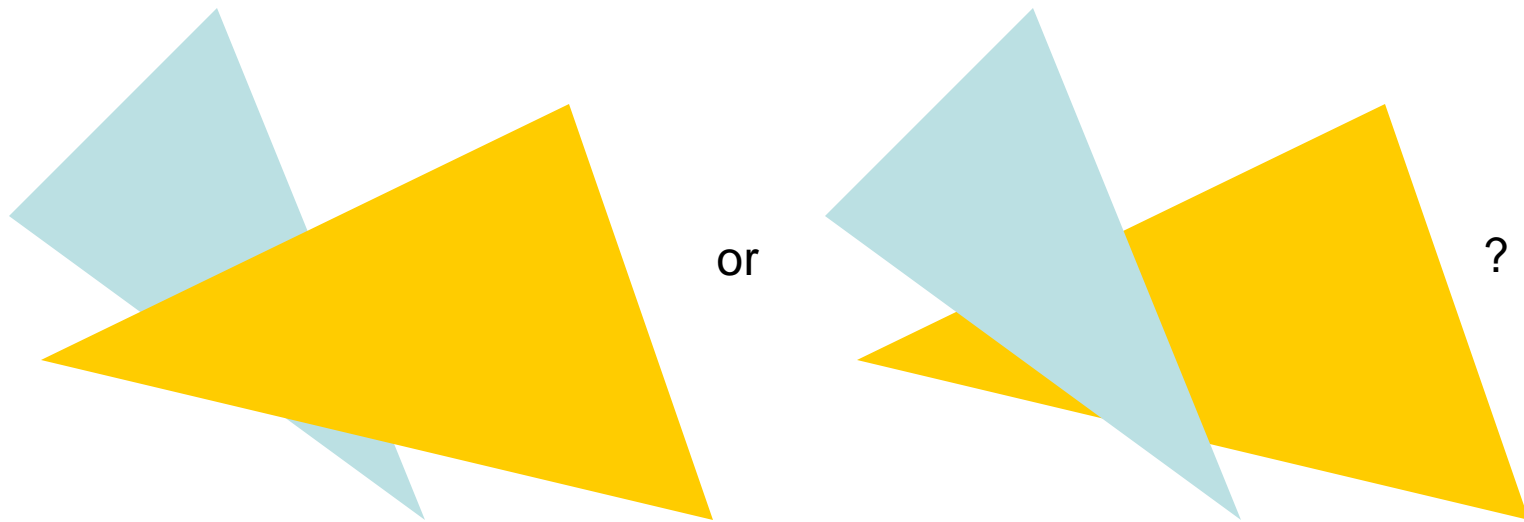


Legend: `triangle_data = {a_x, a_y, a_z, b_x, b_y, b_z, c_x, c_y, c_z, rgb}`

# Closer Look: Triangle Shader



# Closer Look: Z-Buffer



- Buffer z-coordinate in addition to RGB for each pixel
- Compare z-coordinates before storing a new pixel color

# Questions?

