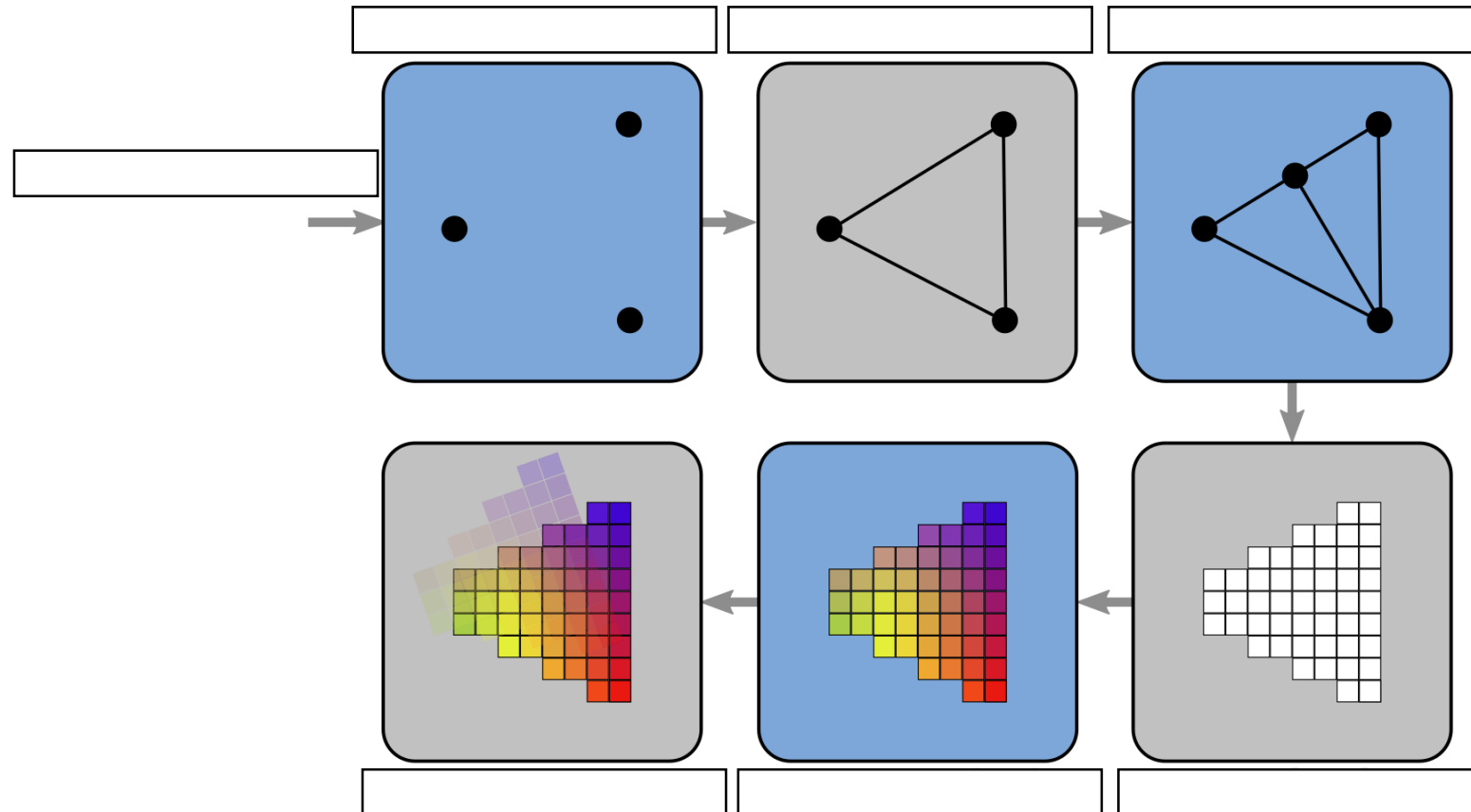# Computer Graphics
– Hello Triangle (Questions)

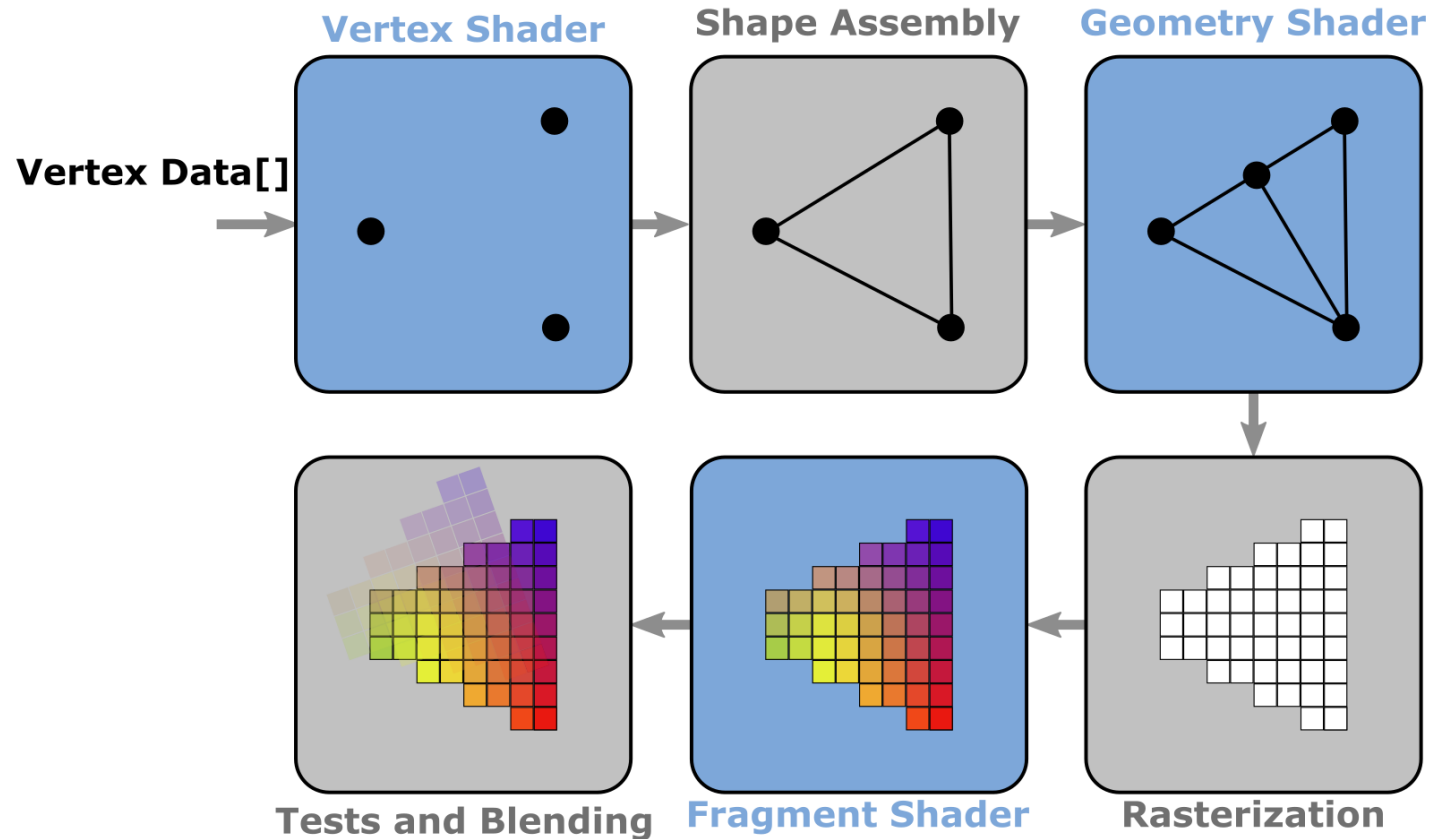J.-Prof. Dr. habil. Kai Lawonn

Possible Questions

Fill in the missing stage names:

Possible Questions

Fill in the missing stage names:

Possible Questions

Name three OpenGL render primitives:

1. GL_
2. GL_
3. GL_

Possible Questions

Name three OpenGL render primitives:

1. GL_POINTS
2. GL_TRIANGLES
3. GL_LINE_STRIP

Possible Questions

After the vertex shader passed coordinates to the fragment shader, which coordinates will be processed by the fragment shader?

Possible Questions

After the vertex shader passed coordinates to the fragment shader, which coordinates will be processed by the fragment shader?

Coordinates that are in normalized device coordinates: [-1,1] for x,y,z

Possible Questions

Complete the source code:

```
float vertices[] = {-0.5f,-0.5f,0.0f,0.5f,-0.5f,0.0f,0.0f,0.5f,0.0f};
int sizeOfVertices = sizeof(vertices);

unsigned int VBO, VAO;
glGenVertexArrays(1, &VAO);
glGenBuffers(1, [    ] );
glBindVertexArray( [    ] );

glBindBuffer(GL_ARRAY_BUFFER, [    ] );
glBufferData(GL_ARRAY_BUFFER, [    ] ,[    ] , GL_STATIC_DRAW);
```

Possible Questions

Complete the source code:

```
float vertices[] = {-0.5f,-0.5f,0.0f,0.5f,-0.5f,0.0f,0.0f,0.5f,0.0f};
int sizeOfVertices = sizeof(vertices);

unsigned int VBO, VAO;
glGenVertexArrays(1, &VAO);
glGenBuffers(1, &VBO);
glBindVertexArray(VAO);

glBindBuffer(GL_ARRAY_BUFFER, VBO);
glBufferData(GL_ARRAY_BUFFER, sizeOfVertices, vertices, GL_STATIC_DRAW);
```

Possible Questions

Complete the vertex shader:

```
#version 330 core
layout (location = 0) in vec3 aPos;
void main()
{
    [          ] = vec4(aPos.x, aPos.y, aPos.z, 1.0);
}
```

Possible Questions

Complete the vertex shader:

```
#version 330 core
layout (location = 0) in vec3 aPos;
void main()
{
   gl_Position = vec4(aPos.x, aPos.y, aPos.z, 1.0);
}
```

Possible Questions

Complete the source code:

```
float vertices[] = {-0.5f,-0.5f,0.0f,0.5f,-0.5f,0.0f,0.0f,0.5f,0.0f};

…

glDrawArrays(GL_TRIANGLES, 0, ☐ );
```

Possible Questions

Complete the source code:

```
float vertices[] = {-0.5f,-0.5f,0.0f,0.5f,-0.5f,0.0f,0.0f,0.5f,0.0f};

…

glDrawArrays(GL_TRIANGLES, 0, 3);
```

Possible Questions

Transform the set $x = \{-1, 2, 3, 6\}$ to the interval $[-1, 1]$:

Possible Questions

$$x \mapsto \frac{x - \min_x}{\max_x - \min_x}$$

Transform the set $x = \{-1,2,3,6\}$ to the interval $[-1,1]$:

- $min_x = -1$
- $max_x = 6$
- $\frac{(x-(-1))}{6-(-1)} = \frac{x+1}{7} = \{0, \frac{3}{7}, \frac{4}{7}, 1\}$