Introduction to Rasterization
Rendering approaches

1. **object-oriented**
   foreach object ...

2. **image-oriented**
   foreach pixel ...

![Diagram showing the 3D rendering pipeline from vertices to an image](image)
What is rasterization?

Rasterization is the process of determining which pixels are “covered” by the primitive.
What is rasterization?

**input:** primitives  
**output:** fragments

enumerate the pixels covered by a primitive  
interpolate attributes across the primitive
Rasterization

Compute integer coordinates for pixels covered by the 2D primitives

Algorithms are invoked many, many times and so must be efficient

Output should be visually pleasing, for example, lines should have constant density

Obviously, they should be able to draw all possible 2D primitives
Screen coordinates

\( y \)

\( (0,4) \quad (0,3) \quad (0,2) \quad (0,1) \quad (0,0) \)

\( x \)

(1,0) (2,0) (3,0) (4,0)