

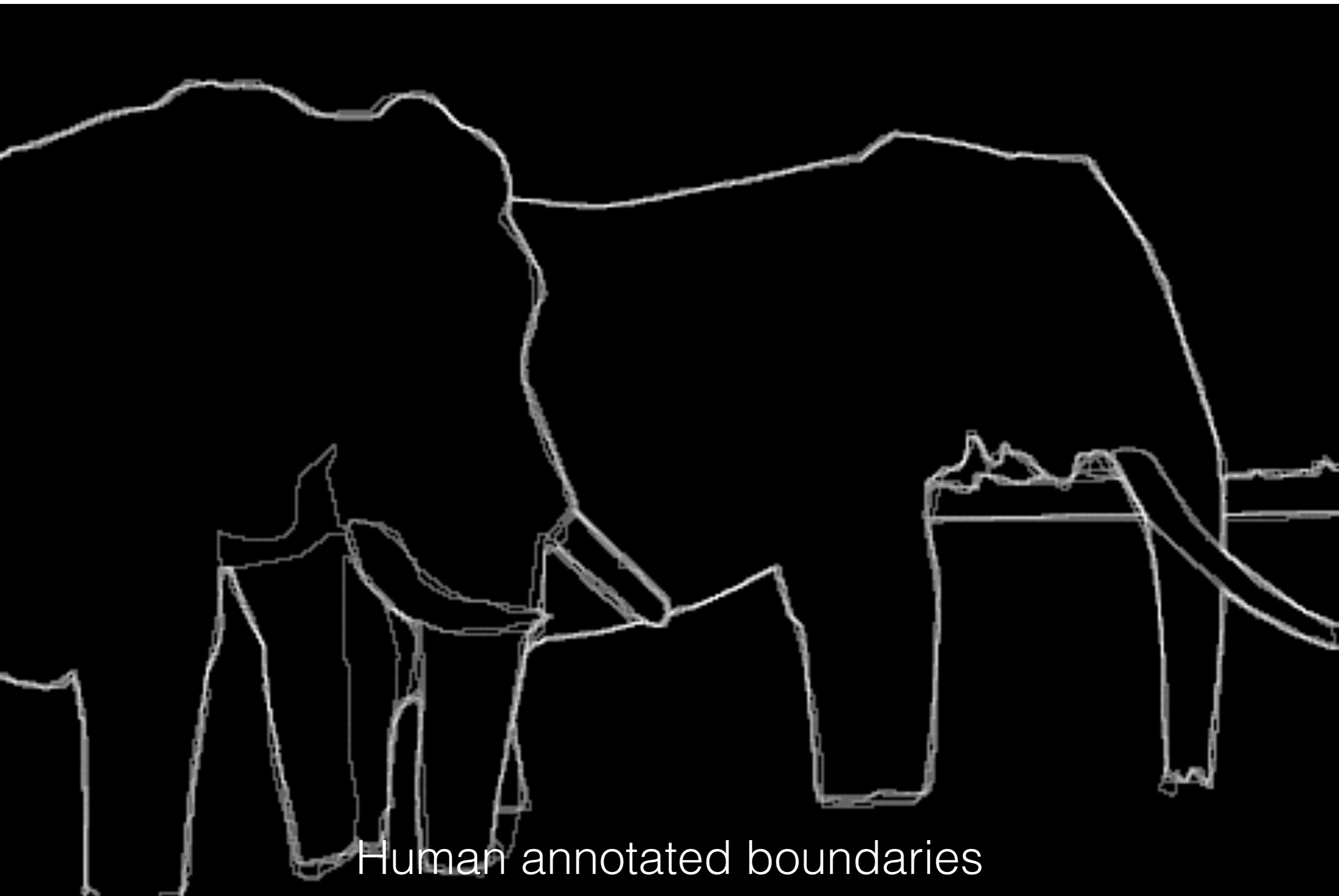


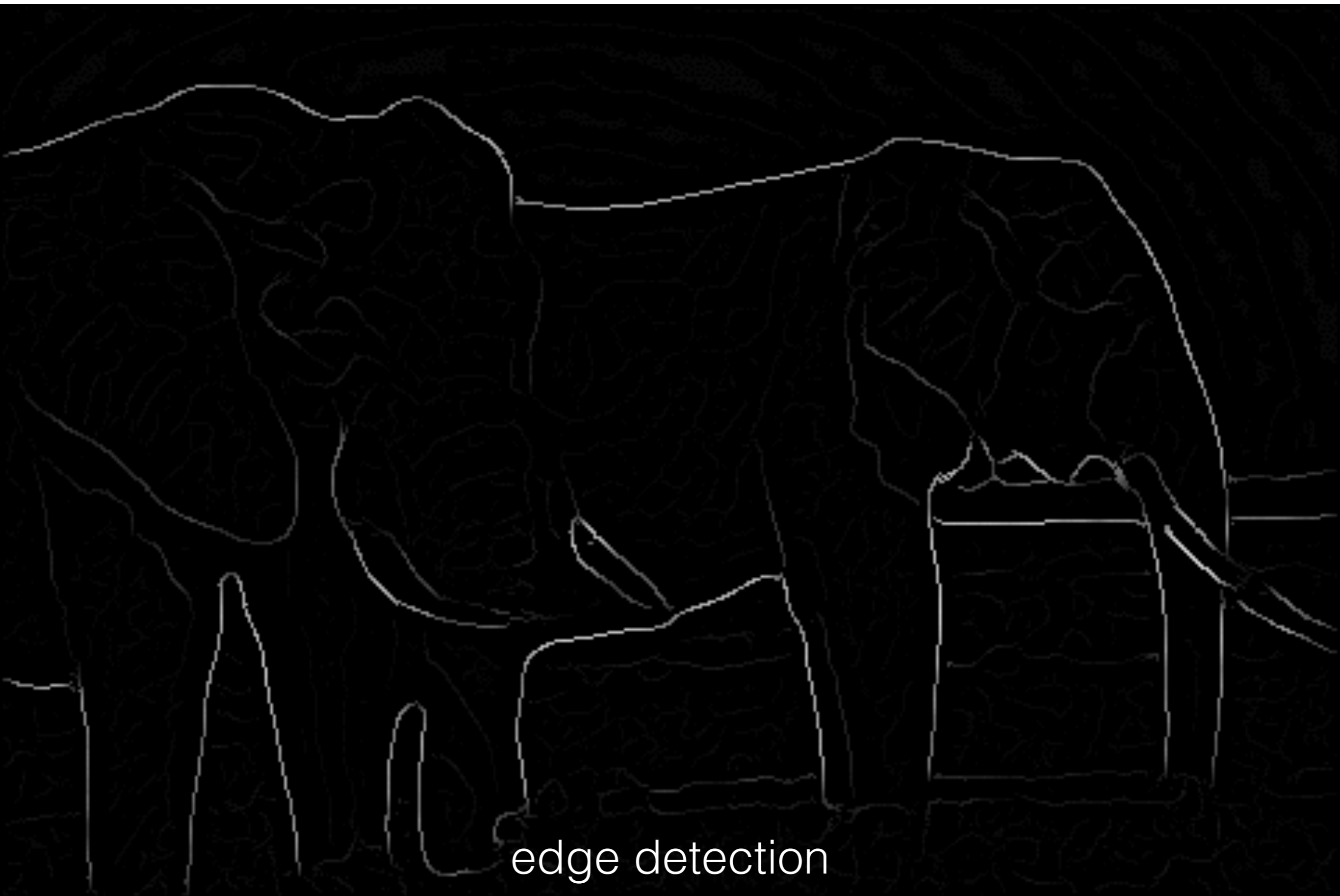
# Defining boundaries

16-385 Computer Vision (Kris Kitani)  
**Carnegie Mellon University**

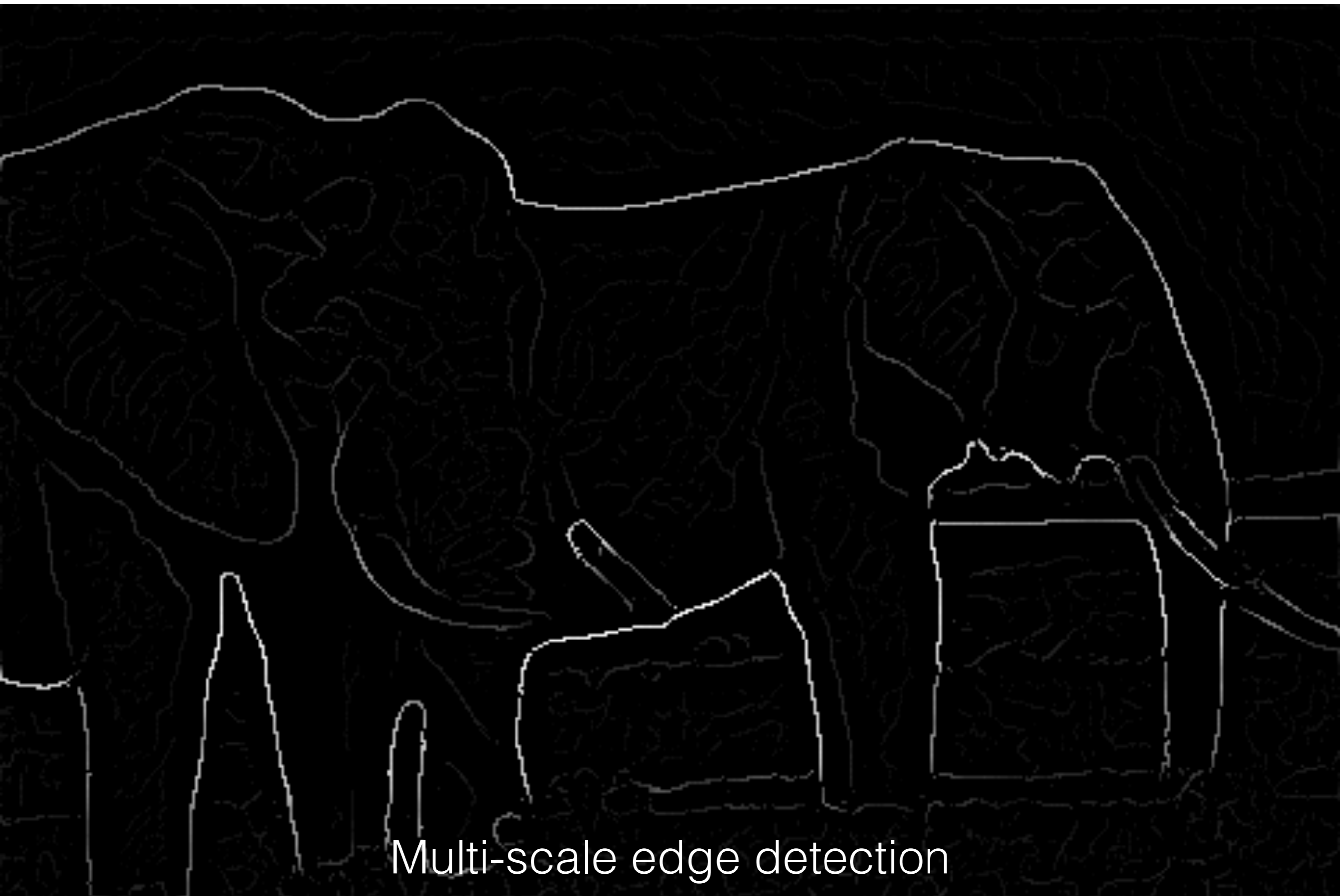
Where are the object boundaries?

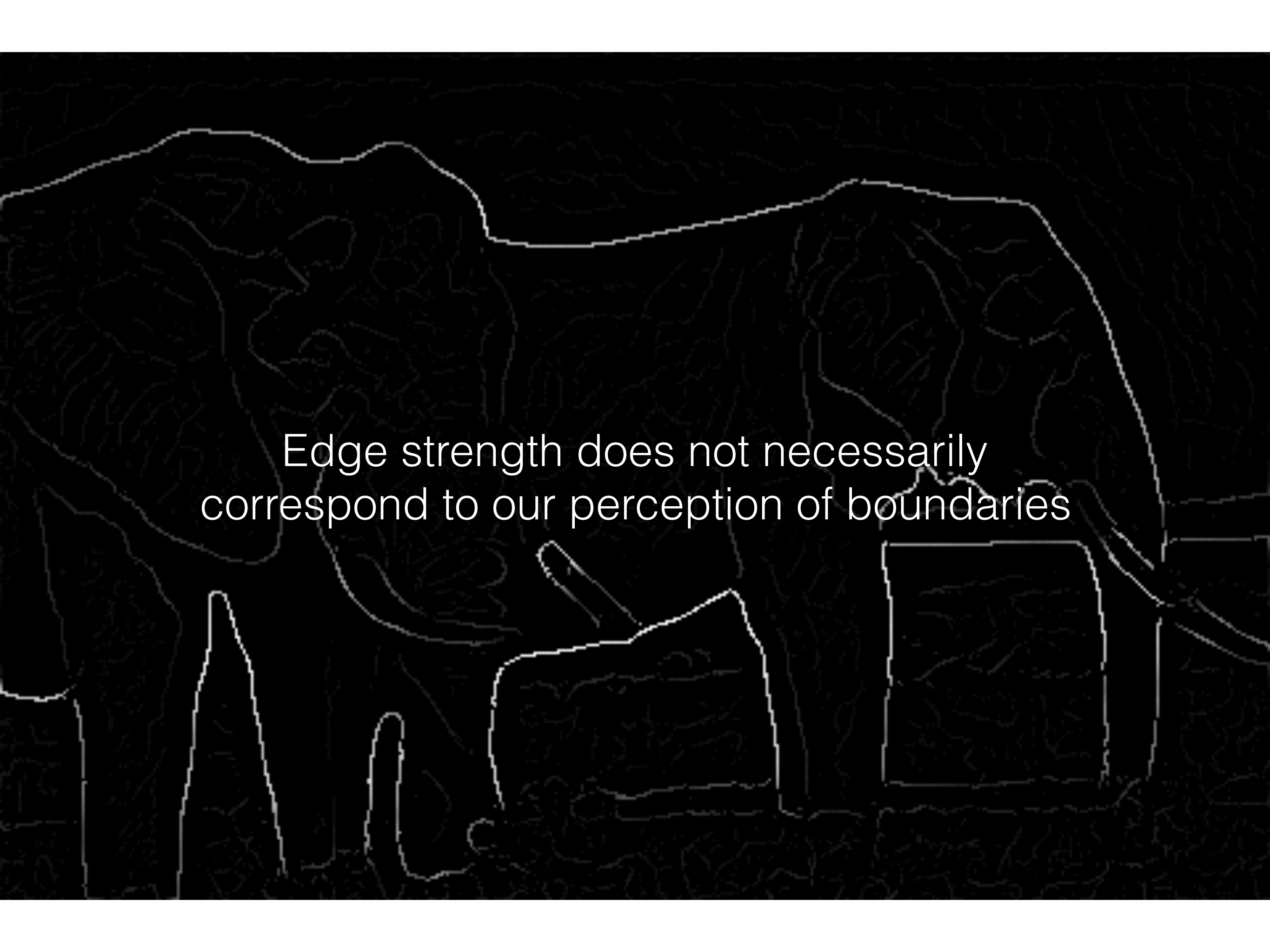






edge detection

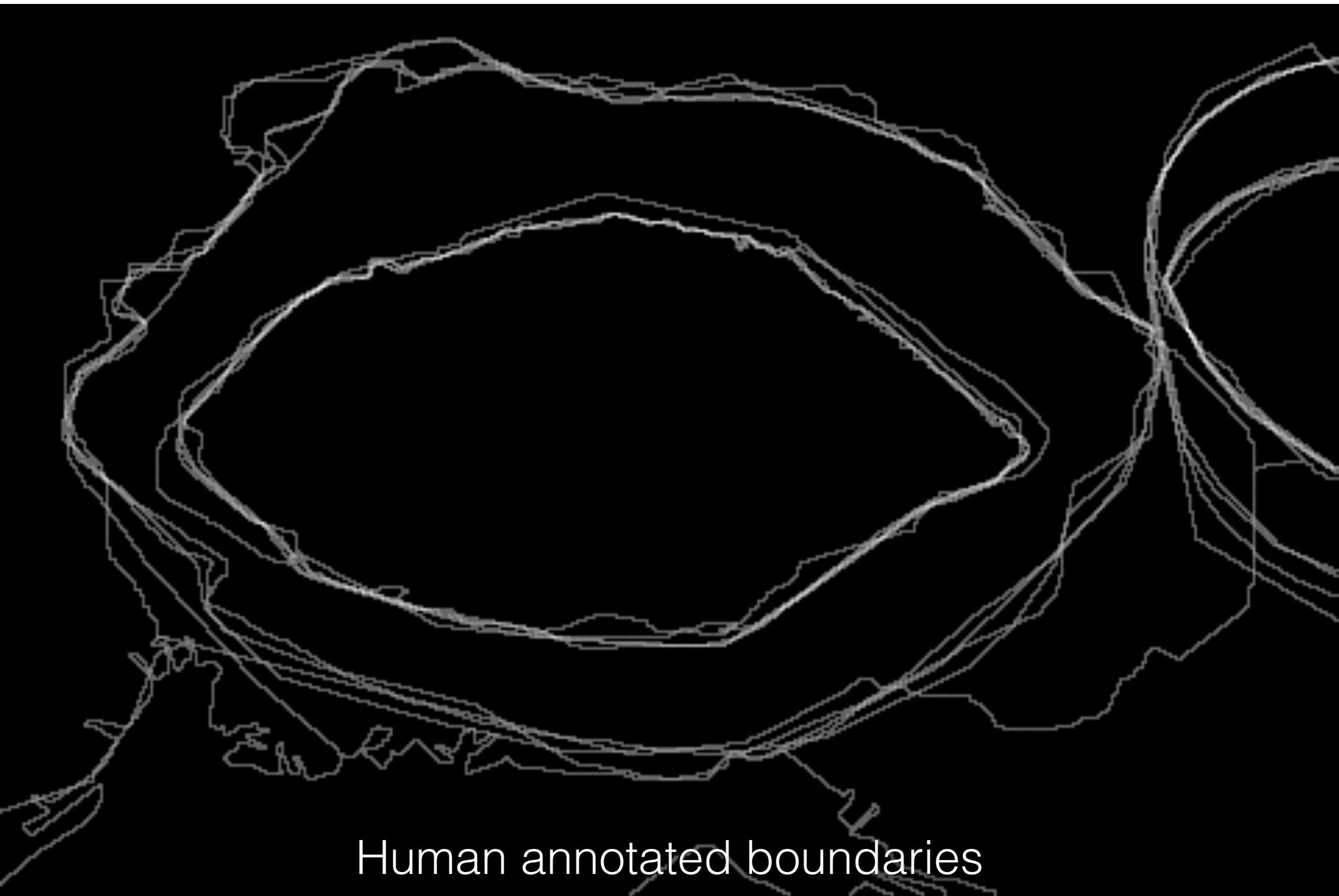


The image is a grayscale edge detection of a photograph. It shows a person sitting at a table, with their hands and arms visible. The edges are highlighted in white against a black background. The text is centered over the image.

Edge strength does not necessarily  
correspond to our perception of boundaries

Where are the object boundaries?





Human annotated boundaries



edge detection

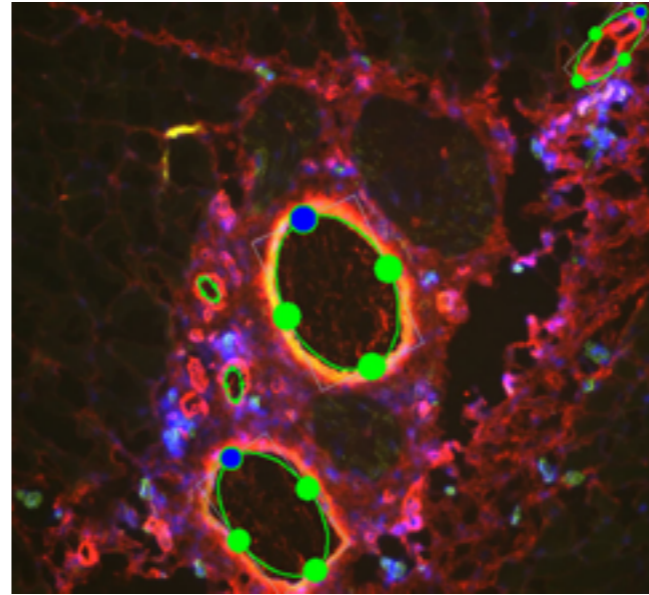
The image shows two sea anemones with long, thin, pinkish-white tentacles. They are situated on a vibrant red surface, which is densely populated with small, dark, circular openings, possibly representing other marine life or a specific type of coral. The background is a mix of red and dark green/black areas.

Defining boundaries are hard for us too

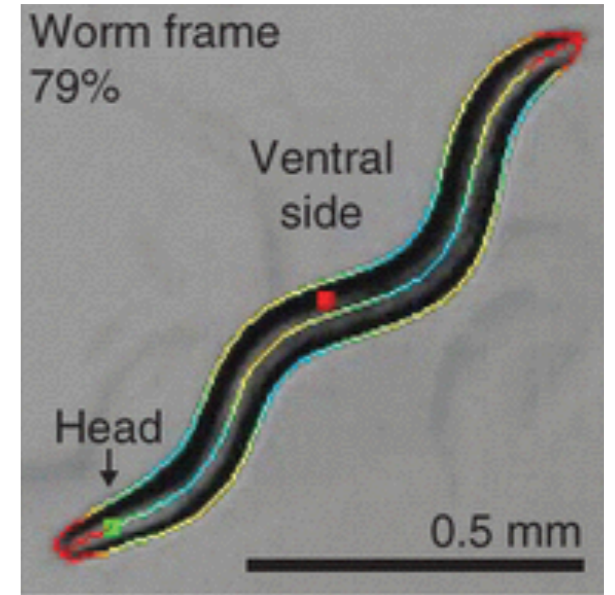
# Applications



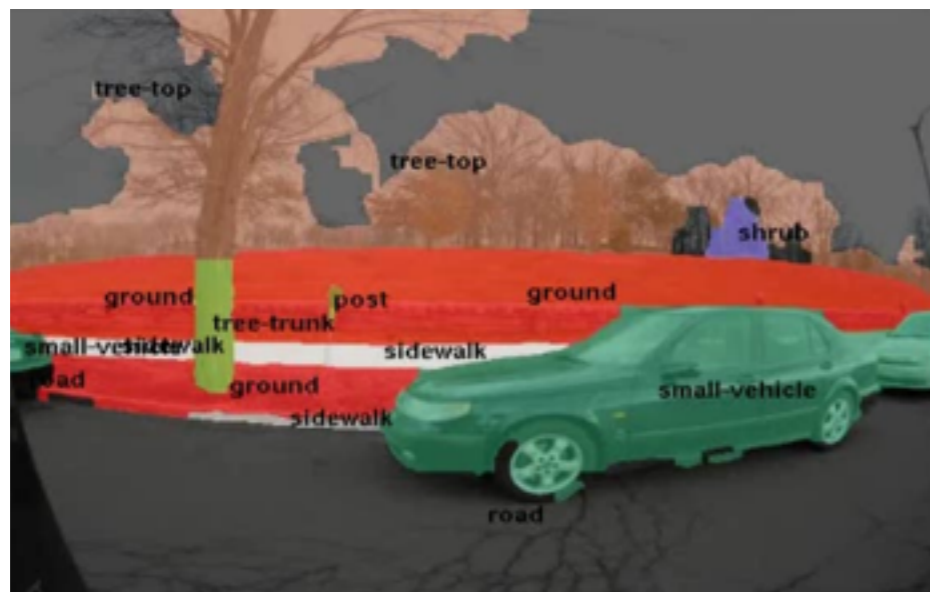
Autonomous Vehicles  
(lane line detection)



tissue engineering  
(blood vessel counting)



behavioral genetics  
(earthworm contours)



Autonomous Vehicles  
(semantic scene segmentation)



Computational Photography  
(image inpainting)

