

# Open Problem: Object representations

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# How should we represent objects in our scenes?

- A box?
- A mask / group of pixels?
- Keypoints?
- A 3D model?



# A box?

- Advantages:
  - Low dimensional (4 values)
  - Easy to annotate
- Disadvantages:
  - Distracted by occlusions
  - Too large
  - Not enough information



# A mask / group of pixels?

- Advantages:
  - More detailed
  - Handles occlusions
- Disadvantages:
  - Harder to annotate
  - Not much more information than box
  - Not enough information





# Keypoints?

- Advantages:
  - Low dimensional
  - More information
- Disadvantages:
  - Class specific
  - Ill-defined for many classes
  - Harder to annotate



# A 3D model?

- Advantages:
  - Very detailed
- Disadvantages:
  - Too large
  - Very hard to annotate
    - Infeasible for non-human
  - Not much more information



# How do we represent stuff?

- Ill-defined

