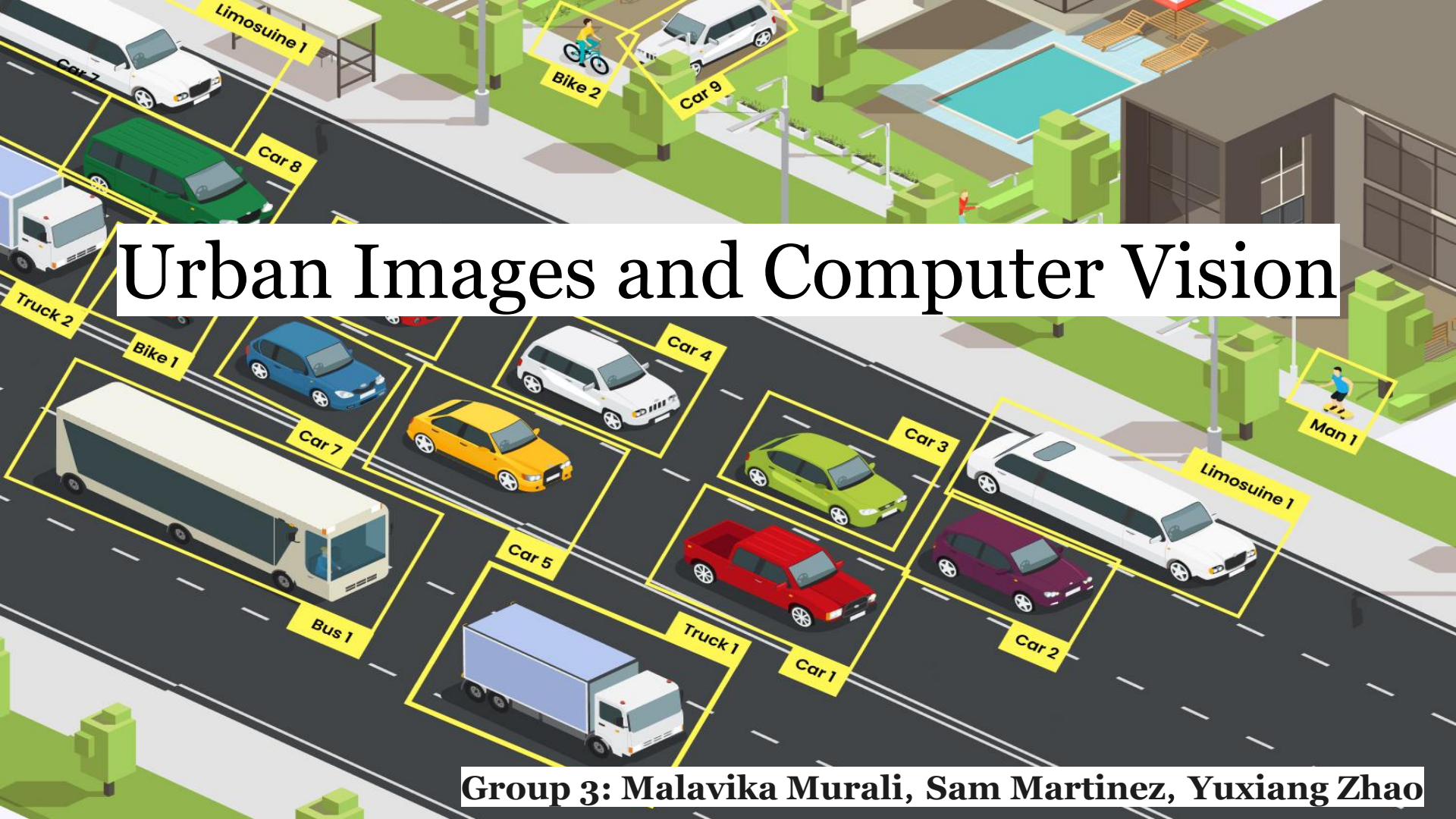


Urban Images and Computer Vision

Group 3: Malavika Murali, Sam Martinez, Yuxiang Zhao

What is computer vision and why does it matter?

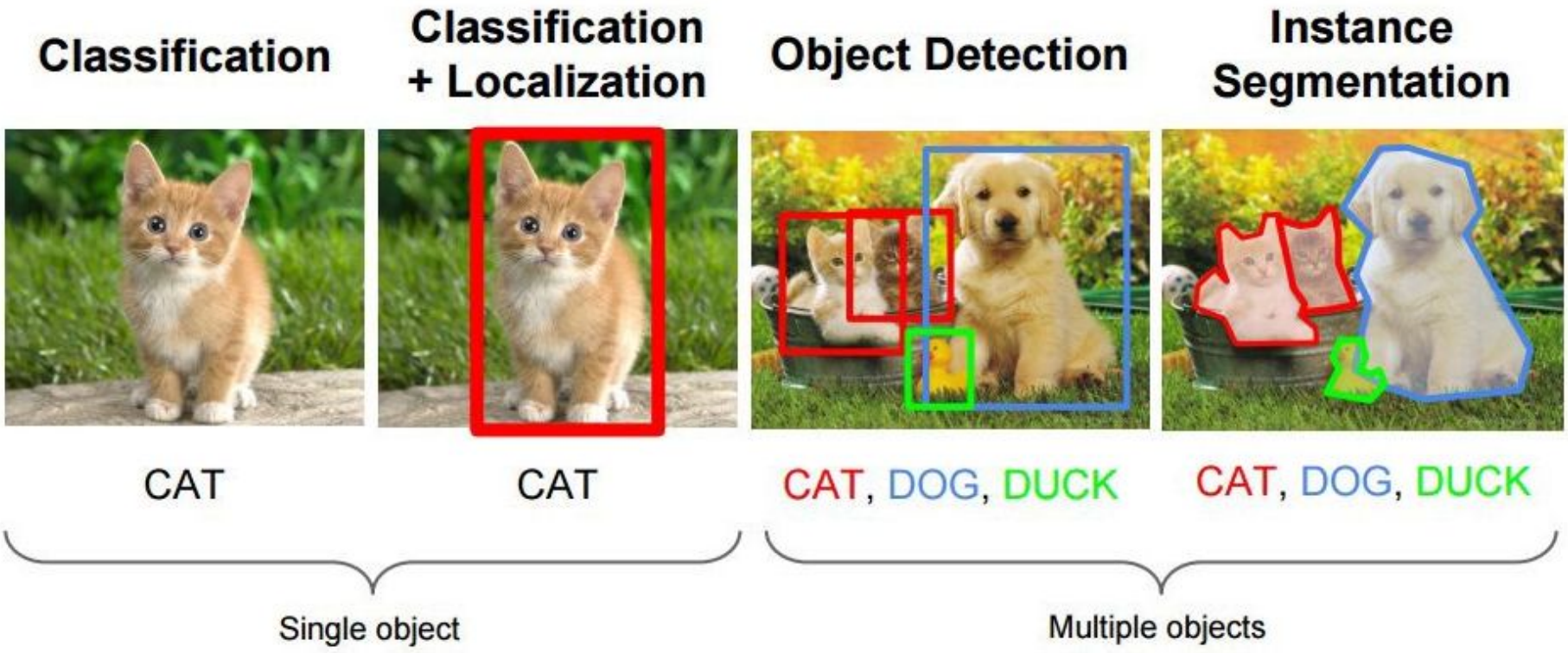
“Computer vision is a field of artificial intelligence that trains computers to interpret and understand the visual world. Using digital images from cameras and videos and deep learning models, machines can accurately identify and classify objects — and then react to what they ‘see.’” - SAS Insights

Available SVI (Street View Imagery) Services

- Google Street View
  - Most common in research
  - Standardized imagery capture
    - Mounted cameras and lidar sensors
- Mapillary and KartaView
  - Crowdsourced imagery
  - A lot of overlap between both services
    - Contributors can upload images to both
    - has been used in OSM as a data source

Street View

Types of Computer Vision Tasks

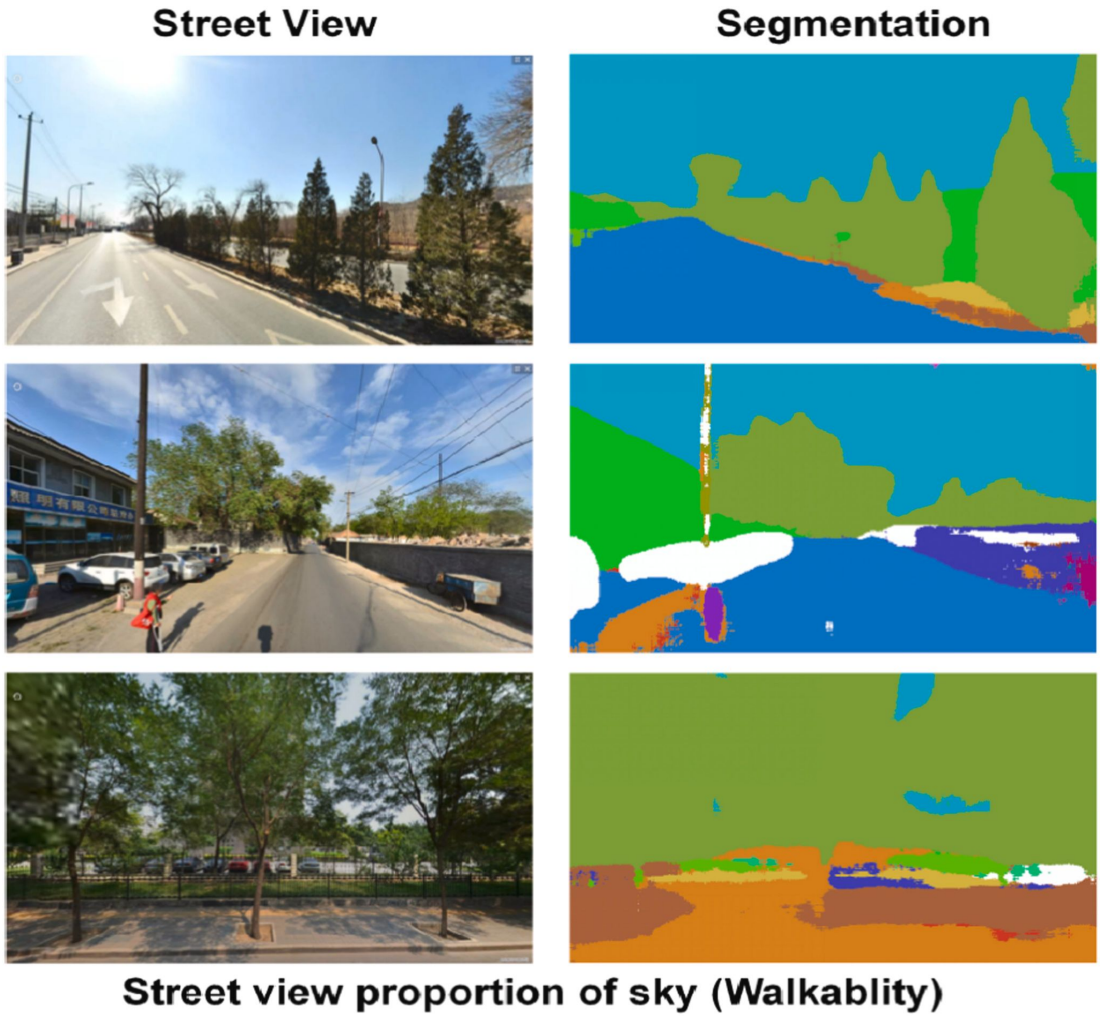


High Walkability

Low Walkability

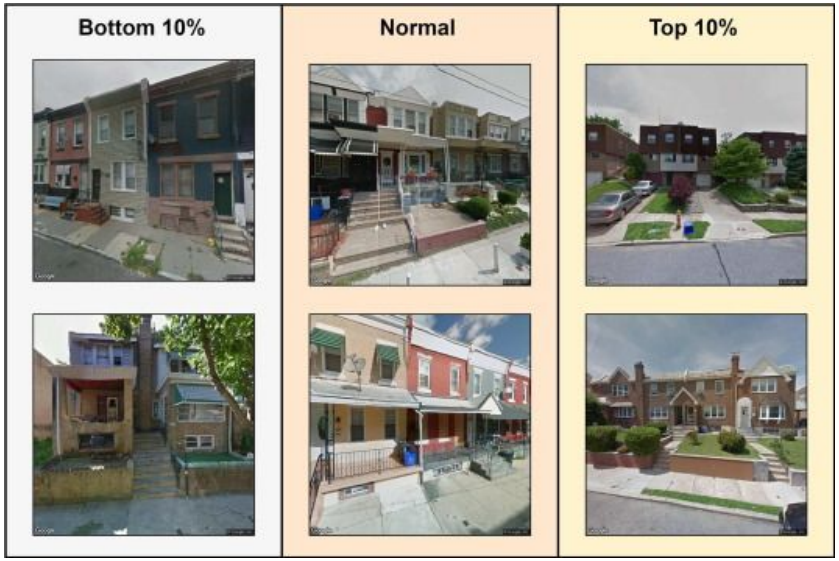
Case 1

- GSV streetscape images to measure characteristics of streetscape
  - Grouped into elements
    - Sky visibility
    - Tree canopy/ greenery
    - Building structures
    - Paved road space
    - Fences
    - Etc.
- Collected behavioural and health data to compare correlation
- SVI (Street View Imagery) is not the only method, can also use aerial imagery to capture and classify elements



Case 2

- SVI for valuation of real estate
  - Proximity to amenities
  - Curb appeal
  - Location
- Some attributes such as floor area or age of home cannot be determined using SVI



- Gentrification
  - Visible changes to building stock and concentration of development over time
- Removal of older buildings and construction of new

Thank you