1 Computer Vision

- **Computer vision:** teaching computers to see, i.e. take images and gain understanding from them
- Four R's:
    - *Reprojection*: be able to create new images in a meaningful way
    - *Reconstruction*: be able to build structure from an image
    - *Registration*: be able to look at multiple images from the same frame of reference
    - *Recognition*: be able to take a new image and acknowledge something you've seen before
    - (*Rudiments*): basic tools needed for everything, e.g. linear algebra and photometry
- Difficult because a single image can be explained by many different phenomena
- Many applications, e.g.
    - **SLAM**: have agent navigate an environment within the context of a map, while building that map at the same time
    - **first-person/egocentric vision**: use wearable camera, gain understanding about the wearer by seeing things from his/her viewpoint