بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Chapter 1 – Updated Version 2021

1. Computer Vision is
    a. the ability of humans to see
    b. the ability of computers to see
    c. the ability of animals to see
    d. the ability of dada to sleep
2. Computer Vision Contains Image Understanding, Machine Vision, Robot Vision, Image Analysis, and Video Understanding.
    a. True
    b. False
3. Goal of computer Vision is to perceive the story behind the picture
    a. True
    b. False
4. Computer Vision includes all of the following except
    - Computing the 3D Shape of the World
    - Recognizing Objects and People
    - Enhancing Images (computational photography)
    - Forensics
    - **Watching la casa de papel during exams "trailer link: https://youtu.be/hMANIarjT50 "**
5. Vision is a forward problem
    a. True
    b. **False** (an inverse problem)
6. The forward models that we use in computer vision are usually developed in
    a. Physics
    b. Chemistry
    c. Computer graphics
    d. A&C

7. Forward models study
    a. How objects move and animate.
    b. How light reflects on their surfaces.
    c. **A&B**
8. Inverse models
    a. describe the world that we see in one or more images.
    b. reconstruct its properties such as shape and illumination.
    c. A&B
9. **Formulating and Solving** Computer Vision Problems have four high-level approaches: **Scientific**, **Statistical**, **Engineering**, **Data-driven**.
    a. True
    b. False
10. build detailed models of the image formation process and develop **mathematical techniques** to invert these in order to recover the quantities of interest.
    a. statistical
    b. data-driven
    c. scientific
    d. engineering
11. use **probabilistic** models to quantify the prior likelihood of your unknowns and the noisy measurement processes that produce the input images, then infer the best possible estimates of your desired quantities and analyze their resulting uncertainties.
    a. statistical
    b. data-driven
    c. scientific
    d. engineering
12. develop techniques that are simple to **describe and implement** but that are also known to work well in practice.
13. **Test** these techniques to understand their limitation and failure modes, as well as their expected computational costs.
    a. statistical
    b. data-driven
    c. scientific
    d. engineering

14. Collect a representative set of test data and use this data to either tune or learn your model parameters.
    a. statistical
    b. <u>data-driven</u>
    c. scientific
    d. engineering
15. **Validating CV Algorithms** has a three-part strategy:
    a. Test your algorithm on **clean synthetic data**, for which the exact results are known.
    b. **Add noise to the data** and evaluate how the performance degrades as a function of noise level.
    c. **Test the algorithm on real-world data**, preferably drawn from a wide variety of sources, such as photos found on the Web.
    d. <u>All of them</u>
16. Merging computer-generated imagery (CGI) with live action footage
    a. Motion Capture (mocap)
    b. Stereo Matching
    c. <u>Match Move</u>
17. Match Move is done by tracking feature points in the source video to estimate the 3D camera motion and shape of the environment.
    a. <u>True</u>
    b. False
18. Using retro-reflective markers viewed from multiple cameras or other vision-based techniques to capture actors for computer animation
    a. <u>Motion Capture (mocap)</u>
    b. stereo matching
    c. Match Move
19. Given a large enough set of views of a particular object or facade, we can create accurate dense 3D surface models using …..
    a. Motion Capture (mocap)
    b. <u>stereo matching</u>
    c. Match Move

20. Merging different views
    a. **image stitching**
    b. exposure bracketing
    c. morphing
21. Merging different exposures
    a. image stitching
    b. **exposure bracketing**
    c. morphing
22. Blending between two photographs
    a. image stitching
    b. exposure bracketing
    c. **morphing**
23. In ….. applications, we use many interested images to create a **panoramic image**.
    a. **image stitching**
    b. exposure bracketing
    c. morphing
    d. Motion Capture (mocap)