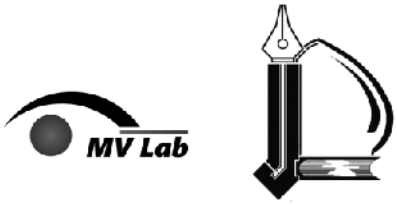


# EXERCISE 2

**Instructions** The reports should be written in a clear format and include the three sections as:

1. Technical description: Describe the idea and solution for solving problems in detail.
2. Describe results: Display and discuss the experimental results including table, images, etc.
3. Appendix: Code with **comments**, Reference, etc.

**Delivery**

- All homework should be sent through **VU** (No Telegram, Email, etc.).
- The report in PDF format named "Number of Homework-First Name Last Name.pdf".
- Notice the deadlines.

**Points**

- Any form of plagiarism will not be entertained and will result in a loss of grade.
- Never take screenshots of generated images.
- Try to clearly answer the questions.
- Discuss and comment on the obtained results.

1. Perform edge detection on the given images using the Prewitt, Kirsch, Marr-Hildreth, and Canny edge detection algorithms. Compare the results obtained by each algorithm, considering factors such as edge quality, noise suppression.

2. Perform color segmentation on the provided images using 8, 16, and 32 colors. After segmentation, compare the resulting segmented images with each other to analyze the visual differences and similarities.

3. Apply texture-based segmentation to the given images using Gabor filters. Evaluate the segmentation results by adjusting the parameters of the Gabor filter and comparing the segmented images.

4. Generate and display the Histogram of Oriented Gradients (HOG) images for the given pictures. Evaluate and compare the HOG representations by adjusting parameters and visualizing the resulting images.

5. Utilize the Sift algorithm for scene stitching, showcasing the matching process and creating panoramic images. Evaluate the effectiveness of the SURF algorithm by adjusting parameters and visualizing the stitched panorama images.