Department of Computer Engineering,

Faculty of Engineering, University of Jaffna

EC9580: Computer Vision

Lab 01

Date: 2024/11/08 **Lecturer:** Ms. Sujanthika M.

Duration: 3 hours

Objectives:

- Implement a depth estimation algorithm
- Analyze the results of stereo pair images

Question 01:

You are provided with a rectified pair of stereo images (left and right images) and camera parameters (focal length f and baseline distance B). Your task is to:

1) Compute the disparity map between the two images.
2) Calculate the depth at each pixel using the disparity map.
3) Visualize the depth map to represent closer and farther objects.
4) Analyze and interpret the depth map

Question 02:

For the same pair of stereo images and camera parameters,

1) Rectify the stereo images to align them along epipolar lines.
2) Compute an optimized disparity map using a Semi-Global Matching (SGM) or similar method.
3) Calculate the depth map from the disparity map.
4) Visualize and analyze the results.

Compare your results in both questions and analyze the difference in depth accuracy and computation time.

Data: Focal length (f): 940 pixels

Baseline (B): 0.1 meters