CSE 573: Computer Vision and Image Processing

Project Status Report – Fall 2016

1. Project Team Information:

Project name: Disparity for Stereo Vision – Block Matching and Dynamic Programming
Project members: Mugdha Milind Ansarwadekar 50207606
Sindhu Madhuri Morapakala 50207349

2. Brief Summary of Project Requirements:

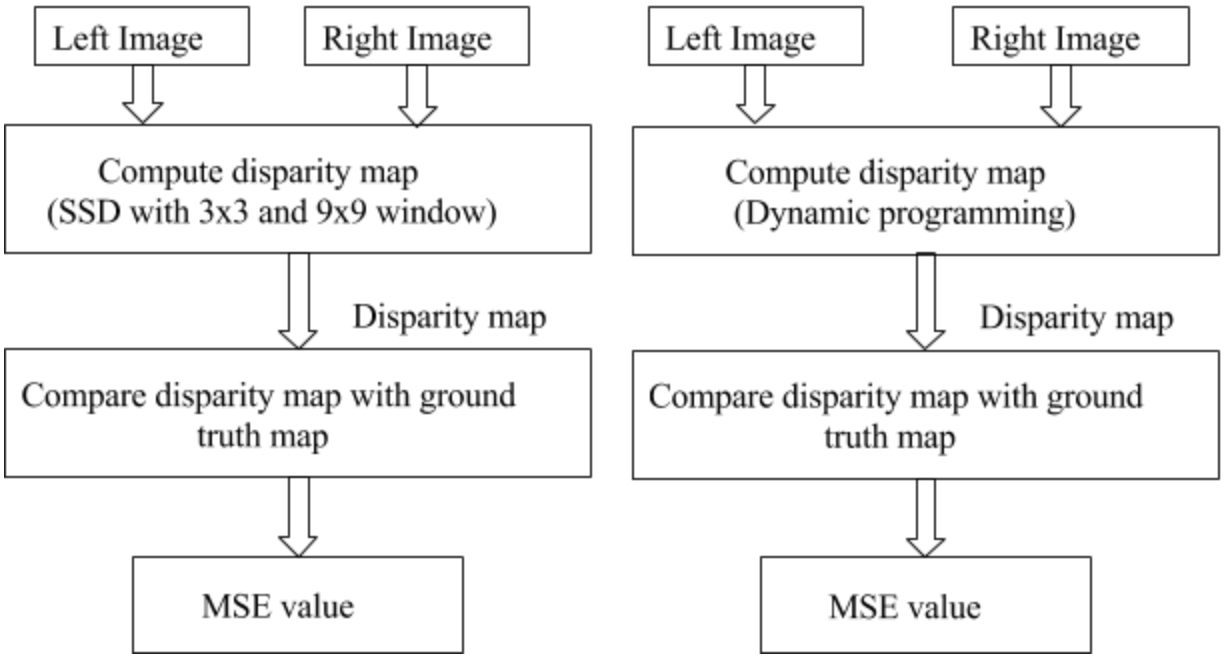
(a) **Objective:**

The objective of this project is to estimate the disparity using block matching and dynamic programming from the given rectified images. To determine the accuracy of the implementation, disparity maps obtained are compared with the given ground truth disparity map and the Mean Square Error is computed. The effects of different block sizes on the MSE of the disparity maps is to be inferred.

(b) **Computer vision and image processing techniques:**

- Window based neighborhood matching is one of the computer vision techniques used such that, given a block of pixels in the left image, the best match in the right image has to be determined as done in Sum of Squared Differences.
- Dynamic programming is a powerful general technique for developing efficient discrete optimization algorithms here used in stereo matching.

3. Project Flowchart:



4. Workload partition:

(a)

Mugdha Ansarwadekar:

- Disparity map computation using dynamic programming approach.
- Calculation of the Mean Square Error for disparity map obtained by Dynamic Programming approach.

Sindhu Madhuri Morapakala:

- Disparity map computation using SSD approach.
- Calculation of the Mean Square Error for disparity map obtained by SSD approach.

(b) **Reason for proposed partition:**

Proposed partition divides the work considering two approaches of implementation. It also gives equal learning opportunity to both the team members as two approaches are studied and implemented by each member.

5. Project Schedule:

Week 1: (11/22/2016 to 11/29/2016)

- Implementation of dynamic programming using maximum likelihood stereo algorithm to estimate the disparity map
- Calculation of the Mean Square Error with respect to ground truth disparity maps.

Week 2 : (11/30/2016 to 12/6/2016)

- Generating disparity maps using sum of differences with block sizes (3 x 3) and (9 x 9).
- Calculation of the Mean Square Error with respect to ground truth disparity maps.

Week 3:(12/7/2016 to 12/15//2016)

- Writing, editing and proofreading the final report.