# Block matching algorithm

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Block Matching Algorithm Documentation

# 1 Introduction

This document provides documentation for the implementation of the block matching algorithm using OpenCV and NumPy.

# 2 Code Listing

The following code snippet contains the implementation of the block matching algorithm:

[language=Python]block$_m atching.py$

# 3 Explanation

The code can be divided into several parts:

1. **Camera Initialization:** The code initializes the left and right cameras with their respective IDs.

2. **Stereo Image Rectification:** The code reads the stereo rectification mapping values from a file and applies rectification to the left and right images.

3. **Trackbar Initialization:** The code creates trackbars to adjust various parameters for the block matching algorithm.

4. **StereoBM Algorithm Configuration:** The code creates a StereoBM object and configures its parameters based on the trackbar positions.

5. **Disparity Computation:** The code computes the disparity map using the StereoBM algorithm and the rectified left and right images.

6. **Disparity Processing:** The code converts the disparity map to a float32 format, scales down the disparity values, and normalizes them.

7. **Displaying the Disparity Map:** The code displays the disparity map in a window.

# 4   Conclusion

The block matching algorithm implemented using OpenCV and NumPy allows for the computation of the disparity map from a stereo pair of images. By adjusting the trackbar parameters, the user can control the quality and accuracy of the disparity map.