

CV_final_project_stereoscopic_sbs_reconstruct_3d

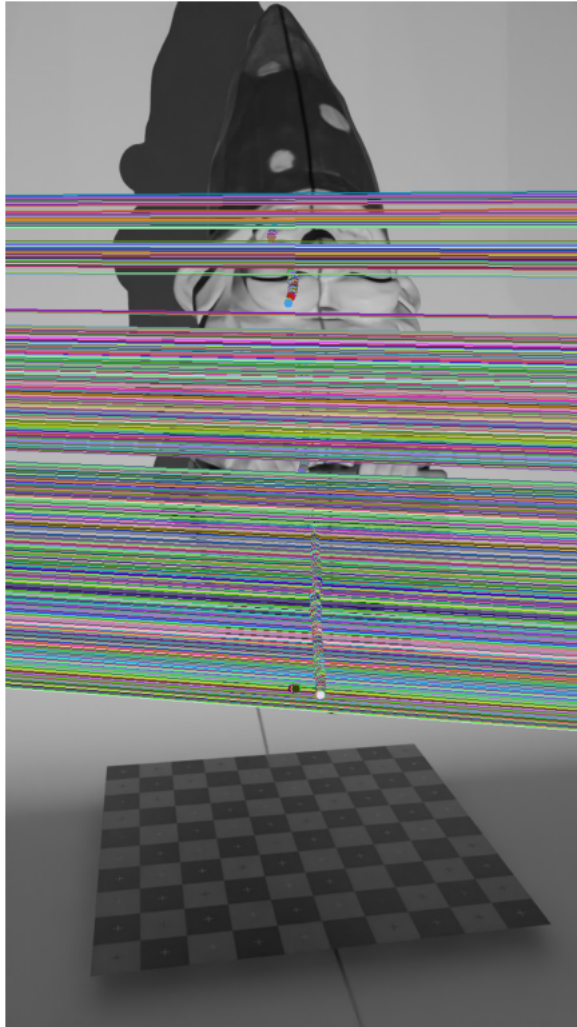
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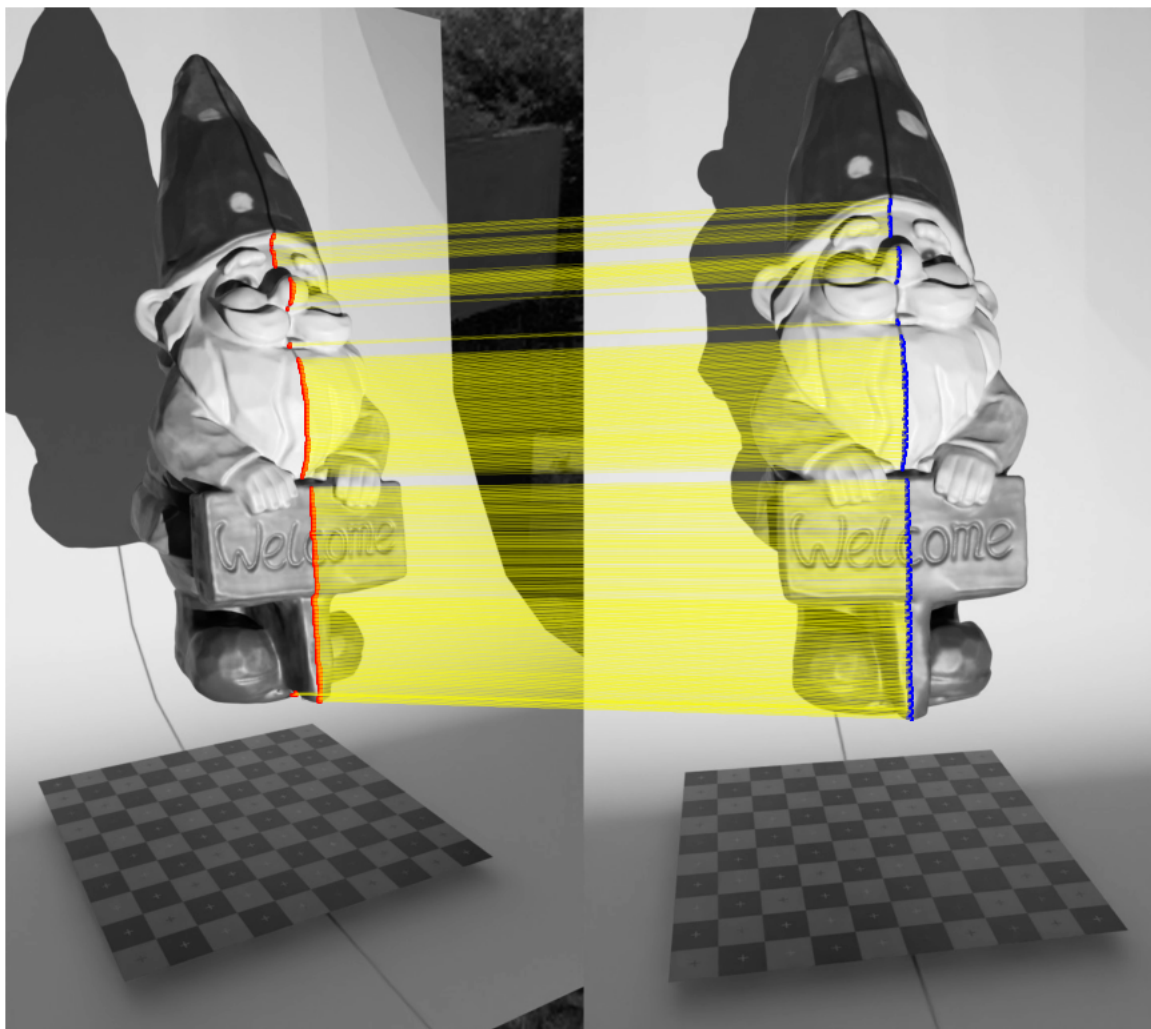
m11202130_電子碩一_吳昱辰

Introduction

- Split the stereo image into left and right images.
- Determine the binary range where the laser hits. I used a sliding window approach, HSV filtering, and frame difference subtraction method.
 - The sliding window was intended to exclude laser lines not hitting the object, focusing the binary results on the blue laser points on the object. ([video](#))
- Using the binary range coordinates, multiply the left image coordinates by the *Fundamental matrix* F to draw the epipolar line in the right image.

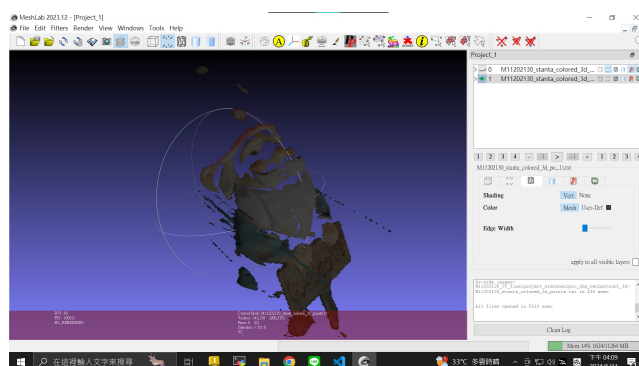


- Use distance and RANSAC to keep suitable matching points pairs between the left and right images.
 - 085.jpg

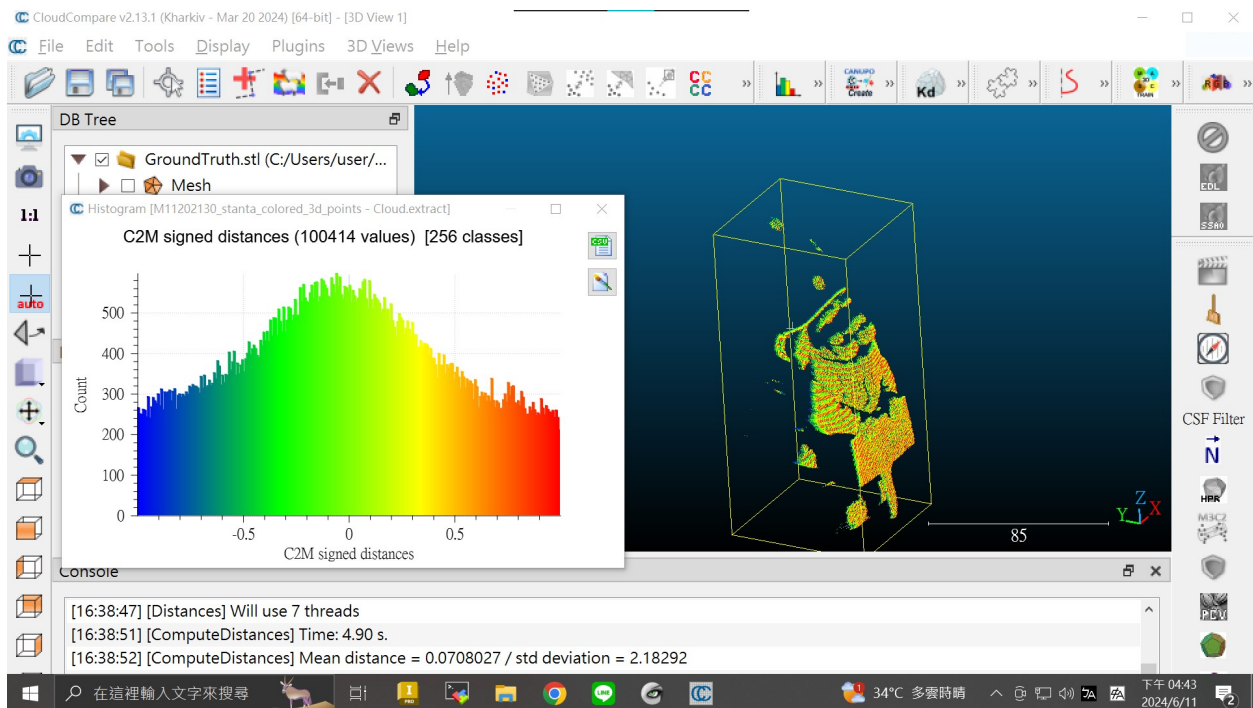
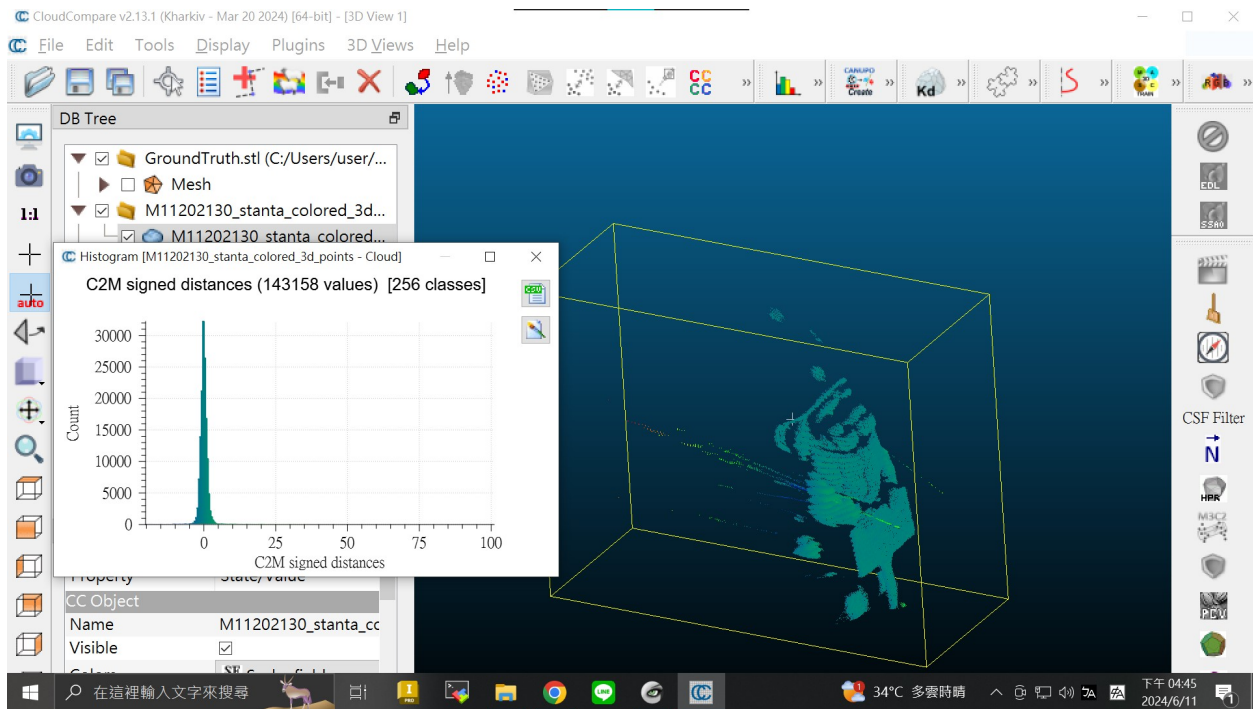


Utilize

`cv2.triangulatePoints(P_left, P_right, pts1, pts2)` to extract colors and output the point cloud (x y z r g b).



Results and Discussion



- Future work :

The results generally met expectations, especially the generation of colored point clouds. However, the rendering of the dwarf statue's hat was not as expected. Future efforts should focus on improving pre-processing and image processing techniques.