

Hands-on Application Project
On Video Reflection Removal
HL

1. The goal: to design and implement Computer Vision algorithm for video reflection removal.
2. Total point: 20 (20% of the total semester score).
3. Input test video: provided by Professor in the class from the real testing environment. See reference photo provided in the class.
4. Rubrics for this assignment
 - 4.1. (20 points) By the end of the project, the program implementation demonstrate successfully removal of the reflections from the test video;
 - 4.2 (10 points) Finish implementation and testing of flood-filling algorithm to
 - (4.2.1.) Generate binary image from video sequence by proper color/gray-scale thresholding;
 - (4.2.2) Implement flood-fill algorithm to color each and every binary patterns from either the image or from the video in (4.2.1).
 - (4.2.3) Set threshold for the flood-fill algorithm to remove either binarized image or binarized video sequence;
 - 4.3 (10 points) Implement contour computation algorithm to realize 19 feature extraction functions discussed in the class;
 - 4.3.1 Use the sample program provided from the professor in the class to compute 19 features of the given 5-by-5 image;
 - 4.3.2. Perform hand calculation to verify the programming implementation to match up the programming calculation.
 - 4.3.3. Based on the programming implementation result, compute 19 contours features for each of every binary patterns from the image/video in (4.2.1).
 - 4.3.4. Based on the attribute table given in the class, design and implement your attribute table.
 - 4.4.5. Implement decision making function based on your attributes table.
 - 4.4.6. Implement decision-making function.
 - 4.4.7. Perform integration test by building flood-fill program as lib function as preprocessing stage for random noise removal.
 - 4.4.8. Run integrated program on the test image/video demonstrate reflection removal result.
 - 4.4.9. Make discussion and first submission (on-going work submission) by April 26 and submission on May 3rd.

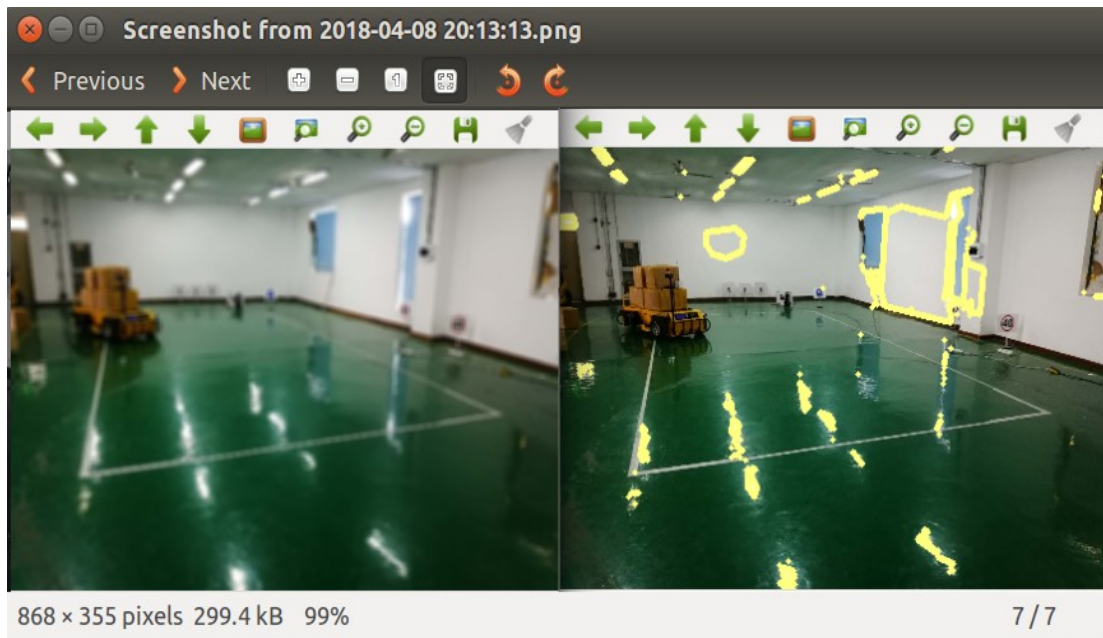


Figure 1. Test image (left), illustration of processed image (processed image example from Harry Li, Ph.D).

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