

13.5.2 GARDEN movie (natural)

We found this movie on the web site <http://www.image.cityu.edu.hk:80>. It was originally composed of 50 interlaced frames of size 720x486.

It needed a little movement compensation along the y coordinate. This was performed using the correlation method we mentioned previously.

We extracted 50 sub-images of size 400x338. Each iteration of the DCMA took approximately 50 seconds.

Once again we observed the good effects of the DCMA. This time, no undesirable effects were caused by occluding objects like for the “TREES” movie. In fact, the “GARDEN” movie contains several occluding objects (in front of the background houses), but they did not seem to cause much trouble to the algorithm, maybe thanks to the reasonable depth gap occurring at the boundary of these occlusions.



Figure 13.8: Original “GARDEN” movie.

From left to right and then top to bottom : images number 1, 7, 13, 16, 26, 31, 37, 43, 50 of the “GARDEN” movie (made of 50 images). The camera goes to the right.



Figure 13.9: Filtering of the “GARDEN” movie.

Top : image 25 of the original “GARDEN” movie

Bottom : image 25 of the “GARDEN” movie processed with 24 iterations.

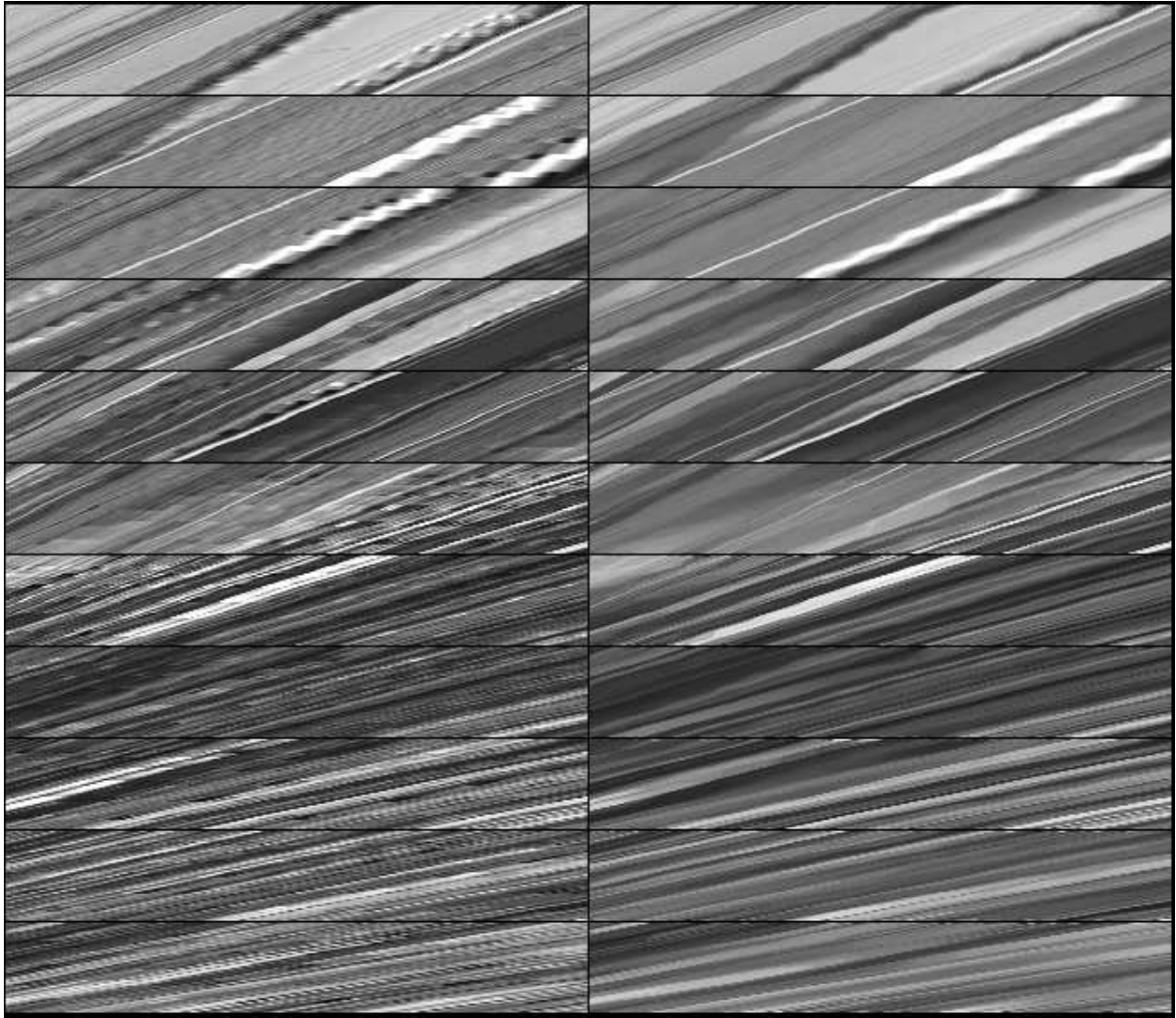


Figure 13.10: Evolution of the epipolar images.

Epipolar images are represented, taken from the original movie (column 1) and from the processed movie after 24 iterations (column 2). The values of y are 30, 60, 90, ... 300, 330 respectively for rows 1, 2, 3, ..., 10, 11.

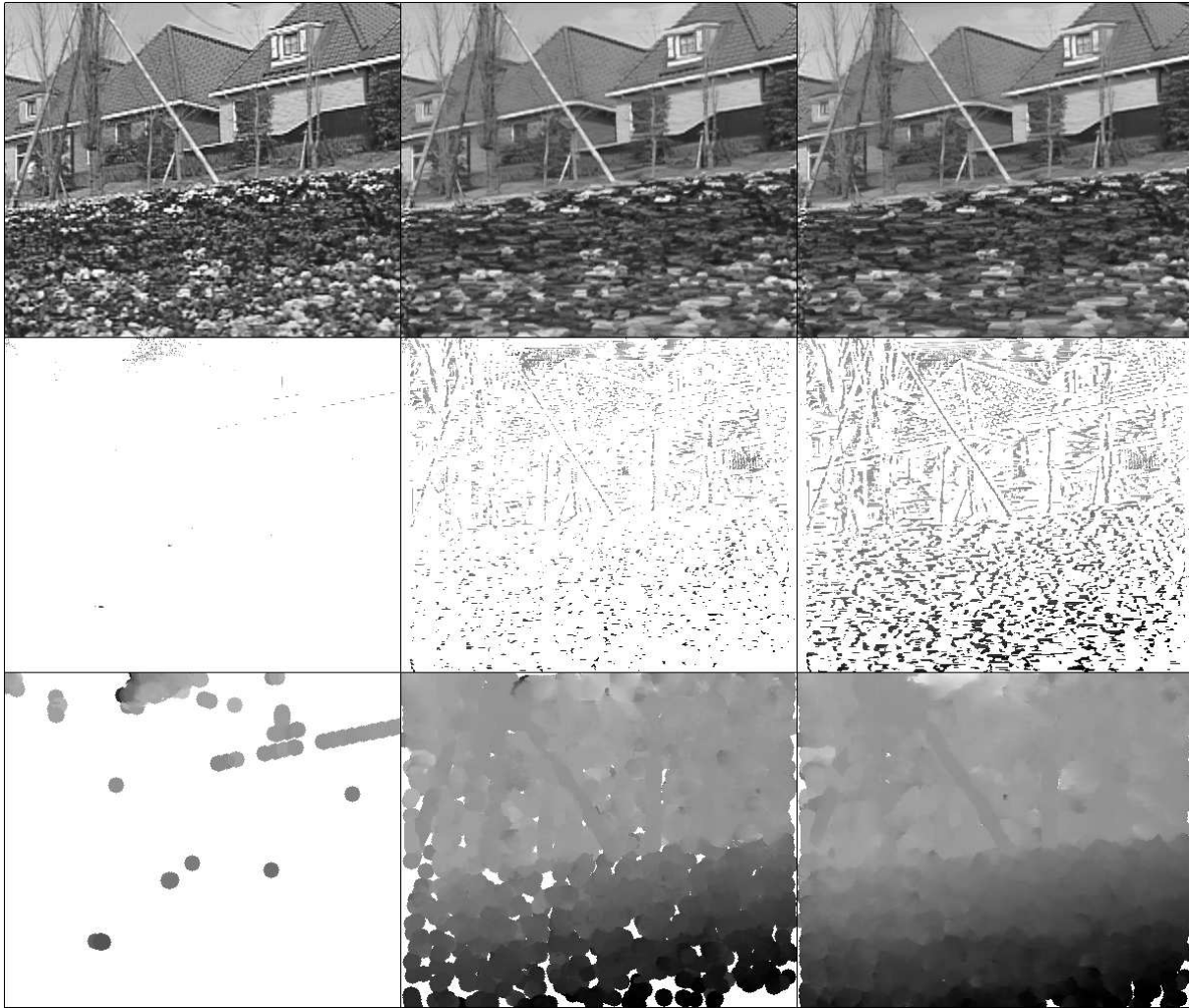


Figure 13.11: Computation of the velocity field (minimum of 12 matchings).

The three images on the first row are taken from three different movies :

- column 1: original movie*
- column 2: processed movie (5 iterations)*
- column 3: processed movie (24 iterations).*

Each image is the 25th image (over 50) of the movie it belongs to. On row 2, the velocity field of each movie is represented, as computed on the 25th image with a matching constraint of 12 images. The white color means points where no matching was found with respect to the constraint, and the grey scale (from light grey to black) measures the velocity from 0.0 to 6.0 pixels per image. On the third row, the velocity images of row 2 were “dilated” to produce more readable results. On the bottom-right image, we recognize the oblique plane made by the rocks of the foreground : the regular variation of the grey level indicates a regular variation of the depth. On the background, the houses appear in light grey and we can make out the two oblique poles in front of them.