



THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 1 ,Ziskind Building  
on Thursday, Jun 29, 2017  
at 12:15

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Co-occurrence Filter

Abstract:

Co-occurrence Filter (CoF) is a boundary preserving filter. It is based on the Bilateral Filter (BF) but instead of using a Gaussian on the range values to preserve edges it relies on a co-occurrence matrix. Pixel values that co-occur frequently in the image (i.e., inside textured regions) will have a high weight in the co-occurrence matrix. This, in turn, means that such pixel pairs will be averaged and hence smoothed, regardless of their intensity differences. On the other hand, pixel values that rarely co-occur (i.e., across texture boundaries) will have a low weight in the co-occurrence matrix. As a result, they will not be averaged and the boundary between them will be preserved. The CoF therefore extends the BF to deal with boundaries, not just edges. It learns co-occurrences directly from the image. We can achieve various filtering results by directing it to learn the co-occurrence matrix from a part of the image, or a different image. We give the definition of the filter, discuss how to use it with color images and show several use cases. Joint work with Roy Jevnisek