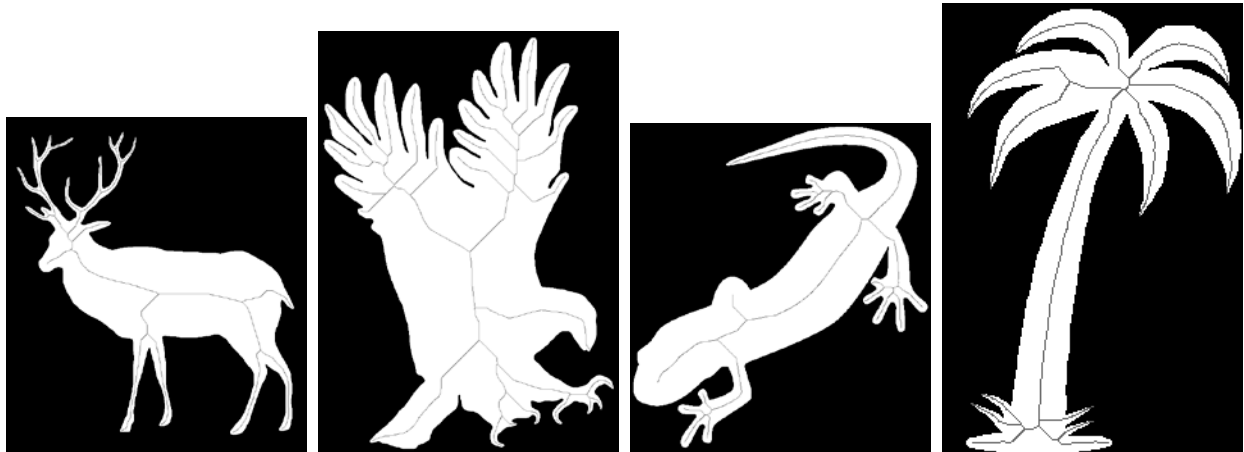


Practice 5. Thinning.

Thinning is a type of topological skeleton, but computed using mathematical morphology operators. It is transformation of a digital image into a simplified, but topologically equivalent image.

Some examples:



We ask for:

1. To implement in MATLAB the algorithm presented by Zhang and Suen that computes the thinned image by applying two consecutive subiterations: one aimed at deleting the south-east boundary points and the north-west corner points while the other one is aimed at deleting the north-west boundary points and the south-east corner points. End points and pixel connectivity are preserved. Each pattern is thinned down to a "skeleton" of unitary thickness. This method is explained in the attached publication [1].
2. To compare your results with those obtained from MATLAB function *bwmorph*, which performs a similar operation when used with parameter 'thin'.

Write a little report explaining in detail your algorithm, and how it works, including some figures showing the achieved results. Explain how you have validate the algorithm (by using a proper test set of figures). Finally, include the developed code.

[1] T. Y. ZHANG and C. Y. SUEN. *A fast parallel algorithm for thinning digital patterns*. Image processing and Computer Vision. Communications of the ACM. Vol. 27. N.3. March 1984.