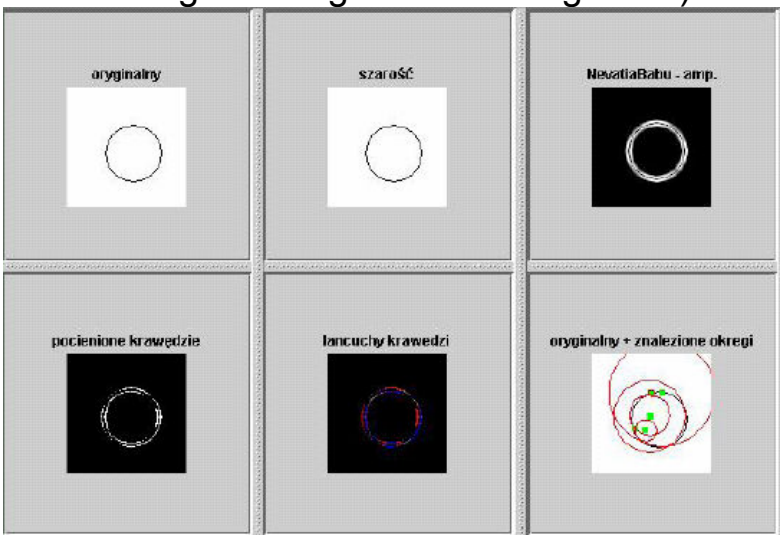
Project no. 1 (2 persons)

Detection and localization of a 2-D contour (for example a human head profile) in an image, where many object instances of different sizes can exist. For this purpose apply the Hough Transform, generalized for 2-D contour localization. The closed contour should be decomposed into consecutive convex and concave parts.
Detect edge chains and smooth the directions of edge elements by considering its neighbour elements.

Particular steps that should be implemented:

(a) (P1) Edge image detection based on discrete convolution with different masks (Sobel, Nevatia-Babu). Edge thinning by examining the local neighbourhood.
(b) (P2) Edge chain detection by the hysteresis method. Recalculation of edge directions for elements of detected chains.
(c) (P1, 2) Using the Hough-T method for contour localisation.
(e) (P1,2) Perform an on-line presentation of the results in a graphic window (with the original image in the background).



Example: Presentation of particular analysis steps.

Example: Learning images – contours should be created.