TP4
Edge Detection

The objective of this practical work is to implement an edge detection approach using gradients and Canny's strategy. It is assumed that read and write functions for images are available from the previous TPs. For each item, use several images and comment on the method as well as the results.

1 Gradient

- Write a program that computes the images I_x and I_y of the gradients in x and y of a PGM image (filtered) using the Scharr operators.
- Display the image of the gradient magnitudes.

2 Edge Detection

- Display pixels with gradient magnitudes above a threshold defined by the user.
- Canny's approach (see Image Features - Section 4.1.1):
  1. Non maximum suppression: extract local gradient extrema in the gradient direction.
  2. Hysteresis thresholding: edge pixels correspond to pixels with a gradient magnitude above a low threshold that are connected to at least one pixel with a gradient magnitude above a high threshold.

sergi.pujades-rocamora@inria.fr, julien.pansiot@inria.fr