

B31XM – Advanced Image Analysis

Lab 2: Hough transform, bilateral filtering for signal/image denoising

Task 1. Hough transform

Play with Hough transform matlab scripts: `hough_demo.m`, `hough.m`, `houghline.m`. Try them on different images.

Task 2. Image denoising

show your solution either to Ahmed Karam (TA) or Alex Belyaev (instructor)

For the given implementation of the 1D Bilateral Filter, try extend and enhance it by adding a term reflecting a similarity between image pixels and their neighbourhoods (for example you can add a term measuring similarities between the first and/or second order derivatives). Compare your extension with the original bilateral filter implementation in terms of image (signal in the 1D case) denoising and edge preserving/enhancing capabilities.