

EXERCISE 2

Problem 2.1. (Image Denoising via Convex Optimization)

We will investigate some of the properties of the Chambolle-Pock algorithm for structured convex optimization problem in this exercise.

- (i) Download the classic 256×256 -pixel black-and-white testpiece [image of a cameraman](#) posted on our website for this exercise.
- (ii) Load the image and add some noise to it.
- (iii) Implement a rudimentary version of the Chambolle-Pock algorithm for a fixed number of iterations.
- (iv) Implement the remaining components for using the Chambolle-Pock algorithm for denoising the noisy image, run the algorithm, compare the results and investigate the influence of the algorithmic parameters on the algorithm.