Denoising by Random Forests

Random Forests are one of the strongest modern methods of machine learning and are applied in many different applications. The basic idea is to generate many decision trees, where tree creation is subject to a certain amount of randomization. The final system answer is the fusion of the result of the individual trees. Although Random Forests are often applied to classification, they can also be used for regression.

The goal of this thesis is to apply Random Forests to the task of image denoising, i.e. recover the true intensity value based on a noisy measurement.

Keywords: Random Forests, Denoising

Involved tasks:
– Literature Research
– Extension of existing frameworks or reimplementation of Random Forests
– Adapting tree creation and fusion for image denoising
– Evaluation of the proposed approach

(Recommended) requirements:
– Good knowledge about digital image processing (e.g. attendance in lecture DIP)
– Good knowledge about machine learning (e.g. attendance in lecture AIA)
– Good programming skills (e.g. C++)

Language: German / English