

Multimedia Communication Systems 2

Multimedia Content Analysis

Mini Project 3: Edge analysis

Download and extract "MP3_Edge_analysis.zip"

In this exercise you will implement filter matrices for the Sobel and the Laplacian operator. This matrices will then be used to detect edges in an image. For detailed information, take a closer look at the chapter about Edge Analysis in the script. There you will find all information to solve this exercise.

- Complete the function `gradientAnalysis.m`
First, you have to define and compute the filter matrix for the Sobel operator, afterwards the actual filter operation should be performed.
Hint: To convolve two vector you can use the function `conv`, to convolve two matrices you can use the function `conv2`... Please have a closer look at the matlab documentation for more details.
- Complete the function `laplaceAnalysis.m`
Define and compute filter matrix for the Laplace operator, afterwards perform the filter operation.

The second task of this lesson is to implement an edge tracking algorithm.

- Complete the function `edge_tracking.m`
In this Exercise you should implement an Edge tracking algorithm like depicted in the book at page 122, Figure 4.17 a) -c)
ATTENTION: You don't need to implement the enhanced tracking algorithm depicted in Fig. 4.17d

Files:

`Exercise3.m` - The main file, containing a detailed description of the task.

Functions that should be completed, performing the edge detection and tracking:

- `GradientAnalysis`, `laplaceAnalysis`, `edge_tracking.m`

Feedback or Questions?

You can contact us via e-mail or visit us at the *Institut für Nachrichtentechnik* during our office hours.